

A HISTORY
OF
THE BIRDS OF EUROPE,

INCLUDING ALL THE SPECIES INHABITING THE
WESTERN PALÆARCTIC REGION.

BY
H. E. DRESSER, F.L.S., F.Z.S., ETC.

VOLUME IV.

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A HISTORY

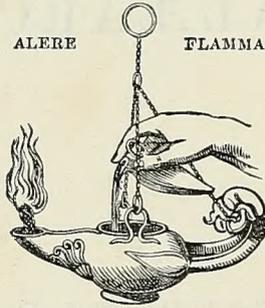
THE BIRDS OF EUROPE

BY JOHN L. BOURCENNE

VOLUME X

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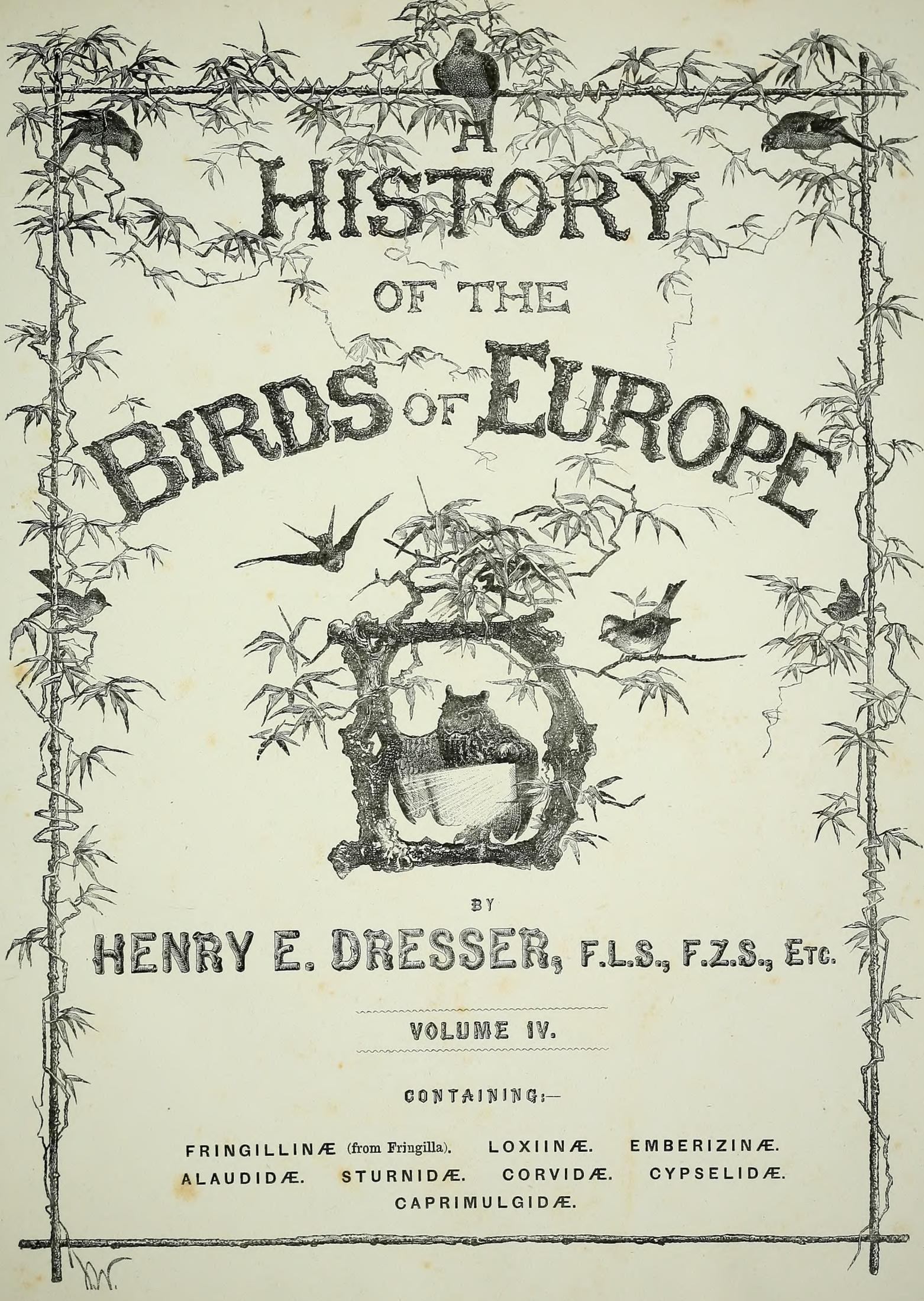
VOLUME X

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A
HISTORY
OF THE
BIRDS OF EUROPE



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HENRY E. DRESSER, F.L.S., F.Z.S., ETC.

VOLUME IV.

CONTAINING:—

FRINGILLINÆ (from Fringilla). LOXIINÆ. EMBERIZINÆ.
ALAUDIDÆ. STURNIDÆ. CORVIDÆ. CYPSELIDÆ.
CAPRIMULGIDÆ.

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LETTERPRESS TO VOL. IV.

Genera and Species.	Date of publication.	Issued in Part	Pages in article.	Final paging.
55. FRINGILLA	1880	80	1	1
196. <i>Fringilla cœlebs</i>	1873	17	6	3-8
197. <i>Fringilla tintillon</i>	1873	18	3	9-11
198. <i>Fringilla spodiogena</i>	1873	18	2	13, 14
199. <i>Fringilla montifringilla</i>	1871	7	10	15-24
200. <i>Fringilla teydea</i>	1873	20	3	25-27
56. LINOTA	1880	80	1	29
201. <i>Linota (Linaria) cannabina</i>	1875	46	6	31-36
202. <i>Linota linaria</i>	1877	57, 58	10	37-46
203. <i>Linota rufescens</i>	1877	57, 58	4	47-50
204. <i>Linota exilipes</i>	1877	57, 58	3	51-53
205. <i>Linota hornemanni</i>	1876	55, 56	3	55-57
206. <i>Linota flavirostris</i>	1876	53	5	59-63
207. <i>Linota brevirostris</i>	1878	71, 72	2	65, 66
57. CARPODACUS	1880	80	1	67
208. <i>Carpodacus rubicillus</i>	1878	67, 68	3	69-71
209. <i>Carpodacus sinaiticus</i>	1877	57, 58	2	73, 74
210. <i>Carpodacus erythrinus</i>	1871	6	8	75-82
58. ERYTHROSPIZA	1880	80	1	83
211. <i>Erythrospiza githaginea</i>	1875	35, 36	5	85-89
212. <i>Erythrospiza sanguinea</i>	1876	51, 52	3	91-93
59. PYRRHULA	1880	80	1	95
213. <i>Pyrrhula major</i>	1876	51, 52	4	97-100
214. <i>Pyrrhula europæa</i>	1876	50	5	101-105
215. <i>Pyrrhula murina</i>	1876	50	2	107, 108
60. PINICOLA	1880	80	1	109
216. <i>Pinicola enucleator</i>	1874	34	8	111-118

Genera and Species.	Date of publication.	Issued in Part	Pages in article.	Final paging.
61. LOXIA	1880	80	1	119
217. <i>Loxia pityopsittacus</i>	1872	15	6	121-126
218. <i>Loxia curvirostra</i>	1872	14	10	127-136
219. <i>Loxia leucoptera</i>	1877	61, 62	4	137-140
220. <i>Loxia bifasciata</i>	1877	61, 62	7	141-147
62. EMBERIZA	1880	80	1	149
221. <i>Emberiza melanocephala</i>	1872	11, 12	7	151-157
222. <i>Emberiza cinerea</i>	1877	63, 64	3	159-161
223. <i>Emberiza miliaria</i>	1871	8	8	163-170
224. <i>Emberiza citrinella</i>	1871	3	5	171-175
225. <i>Emberiza cirrus</i>	1871	5	7	177-183
226. <i>Emberiza hortulana</i>	1871	7	8	185-192
227. <i>Emberiza chrysophrys</i>	1871	9	3	193-195
228. <i>Emberiza striolata</i>	1871	6	8	197-204
229. <i>Emberiza cia</i>	1872	11, 12	8	205-212
230. <i>Emberiza cæsia</i>	1871	2	4	213-216
231. <i>Emberiza leucocephala</i>	1871	1	5	217-221
232. <i>Emberiza aureola</i>	1871	4	6	223-228
233. <i>Emberiza rustica</i>	1877	63, 64	5	229-233
234. <i>Emberiza pusilla</i>	1877	63, 64	6	235-240
235. <i>Emberiza schœniclus</i>	1878	69, 70	8	241-248
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63. PLECTROPHANES	1880	80	1	251
237. <i>Plectrophanes lapponicus</i>	1872	15	8	253-260
238. <i>Plectrophanes nivalis</i>	1873	21	11	261-271
64. CERTHILAUDA	1880	80	1	273
239. <i>Certhilauda desertorum</i>	1874	32	4	275-278
240. <i>Certhilauda duponti</i>	1873	16	3	279-281
65. GALERITA	1880	80	1	283
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242. <i>Galerita macrorhyncha</i>	1873	20	2	301, 302
243. <i>Galerita isabellina</i>	1873	19	2	303, 304
66. ALAUDA	1880	80	1	305
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245. <i>Alauda arborea</i>	1872	13	6	321-326
67. AMMOMANES	1880	80	1	327
246. <i>Ammomanes deserti</i>	1874	34	5	329-333
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Genera and Species.	Date of publication.	Issued in Part	Pages in article.	Final paging.
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251. Calandrella pispoletta	1873	21	3	355-357
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253. Melanocorypha calandra	1871	5	8	365-372
254. Melanocorypha sibirica	1873	23, 24	3	373-375
255. Melanocorypha yeltoniensis	1871	4	4	377-380
70. RHAMPHOCORYS	1880	80	1	381
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259. Otocorys bilopha	1874	33	4	399-402
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260. Sturnus vulgaris	1874	27	10	405-414
261. Sturnus unicolor	1874	26	4	415-418
262. Sturnus purpurascens	1880	77-79	2	419, 420
73. PASTOR	1880	80	1	421
263. Pastor roseus	1873	21	11	423-433
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264. Pyrrhocorax graculus	1875	37	8	437-444
265. Pyrrhocorax alpinus	1875	38	4	445-448
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266. Nucifraga caryocatactes	1874	28	18	451-468
76. PERISOREUS	1880	80	1	469
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Genera and Species.	Date of publication.	Issued in Part	Pages in article.	Final paging.
78. CYANOPICA	1880	80	1	501
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80. CORVUS	1880	80	1	521
276. Corvus monedula	1875	46	7	523-529
277. Corvus corone	1875	38	11	531-541
278. Corvus cornix	1874	26	8	543-550
279. Corvus frugilegus	1875	35, 36	7	551-557
280. Corvus affinis	1875	35, 36	4	559-562
281. Corvus tingitanus	1875	35, 36	3	563-565
282. Corvus corax	1875	37	10	567-576
283. Corvus umbrinus	1874	34	3	577-579
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287. Cypselus unicolor	1874	31	2	601, 602
288. Cypselus melba	1874	31	8	603-610
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197.	<i>Erythrospiza sanguinea</i>	51, 52	224.	<i>Plectrophanes nivalis</i>	21
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201.	<i>Pinicola enucleator</i>	34	228.	<i>Galerita cristata</i> (Abyssinia)	20
202.	<i>Loxia pityopsittacus</i>	15	229.	<i>Galerita cristata</i>	20
203.	<i>Loxia curvirostra</i>	14	230.	Fig. 1, <i>Galerita isabellina</i> ; fig. 2, <i>G. macrorhyncha</i>	19
204.	Fig. 1, <i>Loxia bifasciata</i> ; fig. 2, <i>L.</i> <i>leucoptera</i>	63, 64	231.	<i>Alauda arvensis</i>	6
205.	<i>Loxia bifasciata</i>	63, 64	232.	<i>Alauda arborea</i>	13
206.	<i>Emberiza melanocephala</i>	11, 12	233.	<i>Ammomanes deserti</i>	34
207.	<i>Emberiza cinerea</i>	65, 66			
208.	<i>Emberiza miliaria</i>	8			

No.	Plates.	Issued in Part	No.	Plates.	Issued in Part
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248.	<i>Sturnus unicolor</i>	26	270.	<i>Acanthyllis caudacuta</i>	77-79
249.	<i>Sturnus purpurascens</i>	77-79	271.	<i>Caprimulgus europæus</i>	35, 36
250.	<i>Pastor roseus</i>	21	272.	<i>Caprimulgus ægyptius</i>	61, 62
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252.	<i>Nucifraga caryocatactes</i>	28			
253.	<i>Perisoreus infaustus</i>	19			
254.	<i>Garrulus glandarius</i>	16			
255.	<i>Garrulus brandti</i>	16			

Genus FRINGILLA.

Fringilla, Linnæus, Syst. Nat. i. p. 318 (1766).

Passer apud Pallas, Zoogr. Rosso-As. ii. p. 17 (1811).

Struthus apud Boie, Isis, 1826, p. 374.

Cœlebs apud Cuvier, fide G. R. Gray, Gen. & Subg. of B. p. 77 (1855).

THE true Finches form, comparatively speaking, a small group of birds which inhabit the Palæarctic and the northern portions of the Oriental and Ethiopian Regions, all the species being found in the Western Palæarctic Region. They are residents or migrants, and frequent groves, woods, and gardens during the summer; in the winter they collect together in flocks, associating with other allied species, and wander about in search of food. They feed on insects, seeds, and fruits, are active and sprightly in their habits, have a rapid and undulating flight, and a tolerably rich and mellow song. They construct neat, well-formed, cup-shaped nests, which they place on a tree or bush, and deposit purplish white or bluish white eggs, spotted and clouded with deep brown or reddish brown.

Fringilla cœlebs, the type of the genus, has the bill somewhat long, straight, nearly conical, acute, the tip with an obsolete notch; nostrils oval, basal, nearly concealed by recurved feathers; wings moderate, broad, the first quill obsolete, the next four nearly equal, but the third or fourth longest; tail moderately long, emarginate; tarsus stoutish, covered in front with four large and three inferior scutellæ; toes rather slender, compressed, claws moderately long, curved, laterally grooved, acute.



CHAFFINCH.
FRINGILLA CAELEBS

FRINGILLA CŒLEBS.

(CHAFFINCH.)

Fringilla cœlebs, Linn. Syst. Nat. i. p. 318 (1766).*Fringilla nobilis*, Schrank, Fauna Boica, p. 176 (1798).*Passer spiza*, Pall. Zoogr. ii. p. 17 (1811-1831).*Struthus cœlebs*, Boie, Isis, p. 374 (1826).

Pink, *Spink*, *Twink*, *Beechfinch*, *Horsefinch*, *Shelly*, *Shilfa*, English; *Breac-ant'sil*, Gaelic; *Pinson ordinaire*, French; *Buchfink*, German; *De Vink*, Dutch; *Bogfynke*, Danish; *Bofink*, Swedish; *Bogfynke*, Norwegian; *Peipponen*, Finnish; *Ziablík*, Russian; *Fringuello*, Italian; *Spunnsun*, Maltese; *Pinzon*, Spanish; *Tentilhão*, Portuguese.

Figuræ notabiles.

Werner, Atlas, *Granivores*, pl. 44; Gould, B. of Europe, pl. 187; Naumann, Vög. Deutschl. taf. 118. figs. 1 & 2; Sundevall, Svensk. Fogl. pl. iv. figs. 5 & 6.

♂ fronte nigrâ: pileo et collo postico cum tectricibus alarum minimis scapularibusque clarè cinereis: dorso superiore sordidè rufescente, interscapulio summo vix olivascenti-viridi lavato: dorso imo, uropygio et supracaudalibus olivascenti-viridibus: tectricibus alarum medianis albis, majoribus nigris albo terminatis, fasciam duplicem alarem formantibus: remigibus nigris, primariis extùs ad basin albis, pallidè flavicante limbatis: caudâ nigrâ rectricibus duabus extimis conspicuè et obliquè albis, basaliter et extùs apicaliter nigris, rectricibus duabus centralibus cinerascanti-brunneis: strigâ superciliari cum facie laterali et corpore subtùs toto rufescentibus, pectore pallidiore et magis vinaceo: abdomine imo et subcaudalibus albis: subalaribus albis flavicante tinctis, exterioribus basaliter brunneis: rostro cærulescenti-corneo: pedibus pallidè brunneis: iride brunneâ.

♀ suprâ olivascenti-brunnea vix flavido lavata, pileo clariùs brunneo: facie laterali totâ olivascenti-brunneâ: tectricibus alarum minimis dorso concoloribus, reliquis nigricantibus extùs olivaceo-viridi limbatis et latè albo terminatis, fasciam duplicem alarem formantibus: remigibus nigricanti-brunneis ad basin pogonii interni albidis, primariis extùs albedo, secundariis olivascenti-viridi limbatis: dorso imo, uropygio et supracaudalibus olivaceo-viridibus: caudâ nigricante, rectricibus duabus centralibus brunneis fulvescente limbatis, rectricis extimæ pogonio interno ferè omninò albo, proximâ versùs apicem graduatim albâ: corpore subtùs toto olivascenti-brunneo, pectore medio albo.

Adult Male in summer (Hampstead). Forehead black; crown, nape, and sides of neck rich slaty blue; back dull chestnut-red, shading off on the lower part into dull green, which latter colour pervades the rump and upper tail-coverts; outer tail-feather on each side obliquely black at the base, the remainder being white, with the outer web and a patch on the inner web black at the tip; the next in order black, with the terminal half of the inner web obliquely white; the third with only a terminal white spot on the inner web; the two central tail-feathers blackish grey, indistinctly edged with white; quills blackish brown, white at the base, and narrowly edged with dull white; inner secondaries margined with

fulvous; larger coverts blackish brown, broadly tipped with white; smaller coverts almost pure white; least coverts and scapulars dull lead-blue; cheeks, auriculars, throat, and underparts generally rich reddish brown, this colour gradually becoming lighter towards the lower part of the abdomen, which, with the under tail-coverts, is dirty white; under wing-coverts white, those on the edge of the wing marked with black; bill bluish lead; legs dull brown; iris hazel. Total length 6·5 inches, culmen 0·55, wing 3·45, tail 3, tarsus 0·75.

Adult Male in winter (Hareskov, Denmark, 7th of January). Everywhere much duller in colour; the black on the forehead and lead-blue on the head and nape hidden by the feathers there having dull brown tips; the white on the wings washed with yellowish; underparts paler than in the summer plumage; beak pale reddish brown, darker at the point, under mandible flesh-brown; legs dull brown.

Female (Falster, Denmark). Head and back dull dark brown, darkest on the crown; rump and upper tail-coverts dull green; wings and tail as in the male, but rather duller; underparts generally dull greyish brown, fading into dirty white on the centre of the abdomen and under tail-coverts; beak, legs, and iris as in the male.

THE Common Chaffinch is everywhere in Europe a numerous species, and is found in the summer season up into the high north, whence it migrates during the winter into Southern Europe, a few remaining in the higher portions of Central Europe during moderately mild winters. It occurs from the extreme west to the Ural range, and southward into Northern Africa, where, however, it is a rare species, found only in the winter.

In Great Britain it is one of our commonest and best-known birds, and is found throughout the country up to the extreme north of Scotland. We have ourselves met with it in every county in England; and as regards its range in Scotland, we transcribe the following from Mr. Robert Gray's excellent work on the birds of the west of Scotland:—"The pert and familiar Chaffinch is widely distributed throughout Scotland. It is found in several localities in the Outer Hebrides, especially in the sheltered districts of Harris and Lewis; there are none on the treeless islands. Mr. Elwes informs me that on one occasion he observed a female Chaffinch on the summit of Ben-a-Chaolais, in the island of Jura, at an elevation of 2500 feet." As regards its range in Ireland, Thompson says that it "is a common resident species throughout the cultivated and wooded parts of that country." On the Færoes it is not uncommon, though not found in Iceland or the Shetland or Orkney Islands. In Scandinavia it is numerous; and in Norway, Mr. Collett writes to us, "it is found commonly up to the Polar circle, where it breeds in Saltdalen. Boie observed a few in Lofoten. On the fells a few pass through the fir-region into the birch-belt, and stragglers remain to winter in the coast region." According to Nilsson it is in Sweden "equally common throughout the whole country. A few remain throughout the winter in Skåne, even in severe seasons." Dresser met with it in Finland in all parts of the country up to the borders of Lapland, though more numerous in the central and southern portions of the country. In Russia Mr. Sabanæeff informs us it is "a common forest-bird, but not so numerous in Perm as in Central Russia, where at times, though rarely, a few remain to winter. It usually arrives in Central Russia late in March, and migrates away early in October." It is common in the Baltic provinces. Count C. Wodzicki found it unusually numerous in the mountains of Poland, and remarks that he can scarcely understand how such numbers can find

food; for almost every tenth or fifteenth tree contained a nest of this species. Throughout Germany it is a common bird during the summer—a few males, but seldom any females, remaining over winter in the eastern part; whereas in the west many males, and now and then a few females, remain. In the mountain-forests it is, according to Borggreve, almost the only bird found breeding in numbers at an altitude of 1500–3500 feet. Dr. E. Rey, writing from Halle A. S., says that he has there observed only males during the winter season, whereas from other localities he has heard that females only, or at least but few males, are seen during that season. In Denmark, writes Mr. Benzon, “it is everywhere common where there are groves and woods; and it has but one name, that of *Bogfinke*, or ‘Beechfinch,’ derived either from its fondness for beech-nuts, or else from its inhabiting more especially our beech-groves. The females migrate at latest in November and return in March, and hence Linné’s name of *cœlebs*, or ‘bachelor.’ A few of the hen birds occasionally remain with us over the winter. It breeds with us at least twice in the year, from late in April to early in May, and again in August, and lays from four to five, rarely six eggs.”

It is equally common in Holland, Belgium, and France, in Belgium, however, far more numerous during the seasons of migration than during the breeding-season. In Portugal it is, according to Professor Barboza du Bocage, common—though Dr. Rey informs us that it is rare, and that during his residence in that country he only saw it on one occasion, near Algarve, in the month of April. In Spain it is, according to Major Irby, “very common, more so in the winter than in the summer season, and not seen on the Rock of Gibraltar after May;” and Mr. Howard Saunders writes that it is abundant in the winter, but he never could find its nest in the spring. Lord Lilford likewise records it from Spain; and M. A. von Homeyer remarks that “the Chaffinch found on the Balearic isles is the true *Fr. cœlebs*, not in any way differing from the German bird. On those isles it is resident, and not particularly numerous. In the fruitful valleys of the northern mountain-chain it is to be met with, and affects the olive-groves during the breeding-season.” Passing eastward we find it numerous in Italy; and Count Salvadori writes that “numbers arrive in Sardinia in the autumn and leave again in the spring; and not a few remain to breed. They are to be met with both on the plains and in the mountains.” On Malta, Mr. Wright says, “flocks of Chaffinches arrive in October; and a good many stay the winter. On the approach of spring they all disappear.” And Captain Sperling, writing on the ornithology of the Mediterranean, records it from “Corfu, Santa Maura, Greece, in abundance. In the winter they collect into large flocks, and frequent the plains on the north coast. I never observed them in the summer months.” In Greece it is, according to Lindermayer, “very common, from November to March, in the gardens, olive-groves, and fields; but about the end of the latter month they migrate to the north, a few, however, remaining to breed in the mountains and woods of Northern Greece.” Messrs. Elwes and Buckley record it as common in Macedonia; and Dresser met with it all along the Danube and in Turkey. It is found on the shores of the Black Sea; but Professor von Nordmann writes that he never observed in Southern Russia such large flocks of the Chaffinch as are seen in the north. He found it breeding on the Adshara mountains. In the forests of the Caucasus and in the forests of Lenkoran it is, according to Ménétries, “very common;” and it is likewise found in Asia Minor and Palestine. In the latter country, Canon Tristram writes, it is “very common in winter on the maritime plains and among

the southern hills, congregating in flocks, the sexes apart, the male flocks appearing greatly to exceed the female in number. Early in spring they all disappear, and return to the highest parts of Lebanon, where they breed abundantly in May and June, among the mulberry-groves of Hazrum and Ehden. We found them very plentiful as high as the cedars; and in the trees of the famous grove we took several nests." Mr. C. W. Wyatt shot one in Wady Feiran, on the peninsula of Sinai; and Von Heuglin writes that "it has been several times observed and killed in Lower Egypt, namely at Alexandria. Dr. Hartmann saw it near Thebes in February; and in the Berlin Museum are examples from Syria and Arabia." Captain Shelley states that he met with several specimens of this bird near Damietta in March, and on the 28th of that month shot one in order to verify the species. "It is only a winter visitant to Egypt, and appears to be rarely seen above Cairo, and probably never ranges above the First Cataract." In Northern and Western Africa it is very rare; Major Loche states that several were taken near Algiers in December 1859; and our friend Mr. Taczanowski informs us that he killed a male bird at Mahuna, in Algeria, where, he adds, it is very rare. In Algeria it is replaced by a closely allied but perfectly distinct species, *Fringilla spodiogena*, which is confined to Northern Africa; and on the Canaries another species occurs.

To the eastward the Chaffinch extends into Baluchistan, whence Mr. Blanford brought home a series of skins, which he has kindly placed at our disposal for examination, and which we find similar in every respect to our European bird; it is, however, not recorded by any of the Siberian travellers, excepting Pallas, who writes respecting it "per omnem Rossiam et *Siberiam* occurrit;" but as there appears to us no further note of its ever having occurred there, we think that this statement is open to doubt. Few of our common birds are better known than the Chaffinch; for during the summer scarcely an orchard is without them, or in the winter season a farmyard where this cheerful bird is not found pecking amongst the refuse, and getting a living from what seeds and grain it can pick up. In the summer its cheerful *spink, spink*, is continually heard, especially in the gardens and about cultivated ground; for next to the House-Sparrow the Chaffinch most affects the neighbourhood of dwellings. At that season of the year they are met with scattered in pairs all over the country; but so soon as the autumn sets in some migrate southwards, and the remainder collect in flocks and range about the fields or frequent the farmyards. In its habits it is active; and its movements are very quick; when on the ground it does not run, but moves by short hops, and when alarmed flies up and perches on the nearest tree; the flight is swift, and consists of a succession of undulations, with short intervals of cessation. When hopping on the ground, or when suddenly alarmed, the male has a habit of raising the feathers of the crown, almost appearing as if it had a crest.

During the breeding-season the Chaffinch is generally distributed over Northern and Central Europe, but few, comparatively speaking, remaining to breed in the south. In Great Britain it is, Mr. A. G. More writes, "the commonest and probably the most abundant of our Finches, nesting regularly as far north as Caithness, but appears only as a visitor in the northern Scottish isles." Its nest is usually placed on a fruit- or thorn-tree, or, indeed, on the branch of almost any sort of tree where a suitable position offers itself; and sometimes, though not so often, it is constructed in a low hedge. It is a pattern of careful and neat architecture, and exhibits in its mode of decoration no mean proof of the good taste of this feathered craftsman. Those built on

old moss-covered apple-trees usually are most carefully decorated, so as to resemble the moss-grown bough on which the nest is placed. According, however, to Mr. Robert Gray, it differs in its style of nest-building, and "varies the structure according to the locality which it happens to frequent. In rural places, away from the dust and smoke prevailing near cities and large towns, the nest is a perfect model in its way for neatness and compactness of form; but in less favourable situations, where the building-materials are not so fresh, it is slovenly and untidy. A series of nests before me gives ample proof of this, some being composed entirely of moss closely interwoven, others of lichens, laced all over with spiders' webs, whilst those obtained in the outskirts of Glasgow are built of dirty straws, pieces of paper, and bits of blackened moss intermixed, forming as a whole such a cradle as a country shilfa might feel ashamed of. I once took one from a smoke-begrimed hedge within the city boundaries, which had, among other odd things adhering to it, three or four postage-stamps exhibiting various effigies that a juvenile collector would have prized." In Dresser's collection are several nests from various parts of Europe, one taken by him at Uleåborg, in Finland, being of the most artistic structure. It was placed on a birch-tree, and is neatly ornamented with pieces of yellow and grey lichens and small bits of birch-bark, so as to resemble a portion of the tree itself, and is finally most carefully lined with soft moss and bits of down and wool, through which some fine roots show every here and there; the entire nest is most carefully shaped and finished. Mr. Benzon describes the nest from Denmark as much the same as those obtained by us here in England, and in Finland by Dresser; one he describes as having been found at Dyrehaven was decorated all over the outside with small pieces of newspaper: the outside measurements of a series of nests obtained in Denmark he gives as from 90 and 60 to 140 and 70, and the inside from 45 and 35 to 50 and 40 millimetres. In Dresser's collection is a series of Chaffinches' eggs from Finland, Sweden, Germany, and Great Britain, most of which are of the ordinary type, purplish grey, washed with green, clouded with rufous here and there, and spotted and blotched with dark red. Three, however, obtained at Uleåborg, are pale blue, here and there marked with faint purple, and spotted with small dark-brown dots. Mr. Benzon has also obtained the light varieties of the eggs of this species in Denmark, and says that he considers that there are two races of the Chaffinch there, as he has never seen the light- and the dark-coloured eggs in the same nest, and further remarks that the light-coloured varieties appear to run larger than the dark eggs. The general measurements he gives as from 19 by 15 to 22 by 16 millimetres. Dr. Rey writes that he has measured one hundred eggs, and finds the average size 19·3 by 14·6 millimetres, the largest measuring 22·75 by 15·5, and the smallest 17·0 by 13·7 millimetres respectively. "I have," writes this gentleman, "several abnormal eggs, of which I may describe the following:—one egg with a dark blue ring round the centre; secondly, several eggs having the ordinary ground-colour, without any spots or markings; and, thirdly, a sitting of five eggs, which are pale blue, slightly spotted with dark brown at the larger end."

Referring to its habits during the breeding-season, Macgillivray writes that "the pairing takes place without much display of animosity among the males, who at this season are frequently heard repeating their ordinary note from two to six, generally four times, in rapid succession, *tweet, tweet, tweet—tweet*. At other periods it is generally a single *tweet*, rather deep and mellow. Its song is short, modulated, mellow, and for a time pleasant to the listener,

although apt to become disagreeable from its being so frequently repeated without the least variation. The people in the south of Scotland most unpoetically imagine the song of the Chaffinch to resemble the words 'wee, wee, wee, wee, drunken sowie,' to which no doubt it bears some resemblance. In the lanes and gardens it is almost incessantly heard from the beginning of May to the middle of June, or considerably earlier if the weather be fine; but its quality is by no means in harmony with the beauty of the bird, which is such as to attract the most unob-servant as it hops familiarly along the road, or perches on the boughs." The Chaffinch feeds during the spring and summer principally on insects, and on grain at other seasons. According to Naumann, it feeds on both the oily and also the mealy sorts of seed. Next to hempseed it prefers the seeds of the *Galeopsis*, especially those of *G. tetrahit*. It is also fond of all sorts of cabbage-seed (including all the varieties of Linné's genus *Brassica*), mustard- and radish-seed, linseed, poppy- and lettuce-seeds, those of various sorts of wild grasses, and, in the forests, the seeds of pine, spruce, alder, and birch trees, beech-nuts, and occasionally the seeds of the bird-cherry.

During the summer season, however, they feed principally on insects and larvæ, coleoptera of various kinds, flies, and even gnats, and sometimes catch winged insects in the air.

The specimens described and figured are in Dresser's collection; full particulars of locality &c. are given above.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Hampstead, near London, May. *b*, *c*, *d*, ♂. Hampstead, October. *e*, *juv.* Hampstead, September. *f*, ♂. Highgate, September 30th (*Davy*). *g*, ♀. West Drayton, Sussex, June 22nd (*Paraman*). *h*, ♂. Hareskov, Denmark, January 7th (*Benzon*). *i*, ♀. Falster, Denmark (*Benzon*). *k*, ♂. Stockholm, April 2nd, 1872. *l*, ♂. Jönköping, March 11th, 1868. *m*, ♂. Piedmont, March. *n*, ♂, *o*, ♂. April. *p*, *q*, *r*, ♂. May (*Count Salvadori*). *s*, ♀. Granada, Spain, January 1871 (*Sanchez*).

E Mus. Ind. Calc.

a, *b*, *c*, ♂. Near Shiraz, Persia, September 1870 (*W. T. Blanford*). *d*, *e*, ♀. Oak-forest, near Shiraz, June 1870 (*W. T. B.*). *f*, *g*, ♂. Anan Mazendarán, N. Persia, August 11th, 1872 (*W. T. B.*). *h*, ♀. Karij Valley, Elburz Mountains, Persia, August 10th, 1872 (*W. T. B.*).

E Mus. H. B. Tristram.

a, ♂, *b*, ♀. Greatham (*H. B. T.*). *c*, ♂. Cedars of Lebanon, June 16th (*H. B. T.*). *d*, ♀. Nahr El Kilb, November 24th, 1863 (*H. B. T.*).

E Mus. J. H. Gurney, jun.

a, *b*, *c*, ♂. Greatham. *d*, ♂. North Repps, January. *e*, ♂. Edinburgh, July. *f*, ♀. Bamborough, April (*J. H. G., jun.*).



AZOREAN CHAFFINCH.
FRINGILLA TINTILLON

ALGERIAN CHAFFINCH.
FRINGILLA SPODIOGENA

FRINGILLA TINTILLON.

(AZOREAN CHAFFINCH.)

Fringilla canariensis, Vieill. Nouv. Dict. xii. p. 232 (1816).*Fringilla tintillon*, Webb et Berth. Orn. Canar. ii. p. 21, pl. iv. fig. 1 (1841).*Fringilla moreleti*, Puch. R. Z. p. 413 (1859).*Fringilla canariensis*, var. *moreleti*, Drouet, Elem. Faun. Açor. p. 117. no. 27 (1861).*Figura unica.*

Webb and Berthelot, tom. cit. pl. 4. fig. 1.

♂ *ad.* suprâ *Fringillæ spodiogenæ* similis, sed rostro robustiore et caudâ nigrofuscâ, rectricibus externis pogonio externo ad basin, et interno ad apicem albis: secundariis et sequentibus pogonio interno vix albido apicatis: gulâ, facie suboculari, gutture et pectore pallidè brunnescenti-isabellinis: corpore reliquo subtùs albicante, crisso subcaudalibusque isabellino lavatis: hypochondriis griseo-plumbeis: rostro et pedibus ut in *Fr. spodiogenâ*.

♀ *ad.* fœminæ *Fr. spodiogenæ* similis, sed rostro robustiore, corpore subtùs saturatiore et caudâ ut in mare (sed saturatiore) distinguenda.

Adult Male (St. Michael's, Azores, March 1865). Forehead black; crown, nape, and scapulars dark lead-blue, this colour being darkest on the crown; back and rump dark yellowish green, with dull slate-blue showing through every here and there; upper tail-coverts dark slate-blue, washed with green; wings as in *Fringilla cœlebs*; tail blackish brown, the two central feathers washed with slate-grey, and the outer feathers edged with white on the inner web, the outermost having the outer web white at the base; auriculars, throat, and breast light yellowish buff, without any trace of red as in *Fringilla spodiogena*; flanks washed with pale slaty grey; abdomen and under tail-coverts white, washed with yellowish buff; bill lead-blue; legs brown; iris dark brown. Total length 5·8 inches, culmen 0·65, wing 3·25, tail 2·8, tarsus 0·85.

Adult Female (St. Michael's, Azores). Differs from the females of *F. cœlebs* and *F. spodiogena* in having a much more powerful and larger beak, rather less white on the tail, and the breast being of a darker shade, washed with dull buff.

THIS, a perfectly distinct species of Chaffinch, though allied to both the common and the Algerian Chaffinches, is found only on the Atlantic group of islands—the Azores, Madeira, and the Canaries. Mr. F. DuCane Godman, who has carefully examined the types of *F. tintillon* and *F. moreleti*, has come to the conclusion that but one species exists in the Atlantic islands; and I have followed him in uniting these two species, as also in using the specific name of *tintillon* in preference to the older one of Vieillot. As so little is known respecting the present species, I do not hesitate to transcribe the excellent notes published by Mr. Godman in his 'Natural History of the Azores,' as follows:—"In order to satisfy myself as to the validity of the species described

by Dr. Pucheran under the name of *Fringilla moreleti*, and to ascertain for certain whether it differs from *F. tintillon*, the species common to the other Atlantic groups, I availed myself of a recent opportunity to compare the specimens I collected in the Azores with the types of *F. tintillon* and *F. moreleti* in the Museum of the Jardin des Plantes in Paris. The result is, I do not hesitate to say, that there is but one species of Chaffinch in the Atlantic islands, which is shared in common by the Azores, Madeira, and Canaries. A close examination of a large series of specimens shows that considerable variation in size, and some in colour, exists without reference to locality. Out of thirty specimens from the Azores some have the bill larger than others, in some the green gloss of the back begins at the nape of the neck and spreads over the whole upper surface to the tail, in others this colour is very slightly shown, and one female is destitute of any such colouring at all. Three Madeiran specimens have the lateral tail-feathers nearly white, a fourth has very little white on the tail. The same variation is shown in the Azorean specimens. Some males have the frontal feathers black; others, again, are without this mark. My specimens from Madeira and the Azores were all collected between the middle of April and the end of June, and are in breeding-plumage. I do not know at what season of the year the Teneriffe specimens were procured; but all three are males. The two specimens in Paris, as well as the one lent me by Professor A. Newton, all have the tarsus lighter-coloured than the Azorean birds; but the latter having been in spirits, and the former exposed for years in the gallery of the Museum, I do not attach any importance to this apparent difference. Being, then, unable to reduce the variation observable in the Chaffinch of the Atlantic islands to any sort of law, I have no alternative but to consider, with Professor Barboza du Bocage, that there is but one species, and that *Fringilla moreleti* must be considered a synonym of the older title *F. tintillon*. The name which should stand, by the strict law of priority, is *F. canariensis*, Vieill.; but as this name is so liable to be confounded with *F. canaria*, Linnæus, I think Webb and Berthelot's appellation had best be adhered to." In his paper on the birds of Madeira and the Canaries, Mr. Godman further states that "it is a very common species, though in the Canaries it seems seldom to descend lower than 2000 feet above the sea. In habits it is very like our Chaffinch (*F. cœlebs*); and, like it, the number of males seems greatly to exceed those of the females. It builds a larger and more clumsy nest than our bird; its eggs are a little larger, but much resemble them in colouring." Messrs. Webb and Berthelot record it as "common in the laurel-groves, which, however, it leaves during the winter, and takes refuge in the gardens and bush-covered localities on the coast. We have retained its common local name of *Tintillon*, which may be derived from *Tintillo* (claret-coloured wine), on account of the somewhat vinous colour of the male. *Tintillo* is also the Spanish term for an idiot, or stupid individual who continually repeats the same thing; and its local name may therefore be an allusion to its monotonous song."

Dr. Carl Bolle met with it chiefly in the laurel-groves in the northern part of Teneriffe, but also common in the chestnut-groves on Palma; and I translate the following notes he gives respecting this bird:—"It is an inhabitant of what Berthelot calls the second clime, especially where the ericas and laurels abound on the western islands, and appears to me not to be so abundant on Teneriffe. Nor is its name of *Tintillon* known everywhere. Near Santa Cruz and along the entire south and east coasts it is only occasionally seen during the winter; and even in

Monteverde, which is its true home, one may seek long before seeing it. In the splendid laurel-wood of Agua Garcia it is tolerably numerous. In 1856 I saw the first in the Machado garden at Villa Orotava, and hoped to hear the song in the higher chestnut-groves, but was disappointed. In the autumn I observed it here and there in the tree-like erica-growth between Punta de Anaga and Las Casillas, and in the dense laurel-grove of Las Vueltas de Taganana. It also inhabits the north of the Canaries, and is said to occur in the remains of the Dorama wood, and in the winter to be seen in the orchards. I observed several on the 4th of July in the Vega of Canaria, in a locality where the wild laurel, which tree it greatly affects, is found amongst other growth. A male was singing in a low tone; the song was poor, and sounded like *hita, hita, hita, herrrrrrrrr*, the finish being indistinct, and the note unlike that of our European Chaffinch. This was the only tune I ever heard the Tintillon sing; and I think it must have been a young male practising, as an old male could never be so unmusical. On the wooded island of Gomera this bird is common, and is called *Pajaro del monte*. I saw several on the edge of the large forest above Hermiqua, and suppose that they inhabit the densely wooded interior of the island; but in the dense forest they cannot well be seen. As on Gomera they are not pursued by man, they are very tame, and I have often observed them hopping about the boughs only a few feet from me, watching me with evident curiosity. . . . In the winter the Tintillons on Gomera are driven by the cold from the heights into the valleys, and seek their food near habitations. I am most sorry that I never obtained this species alive, so as to study its habits, which are as yet quite unknown.' Beyond the above notes nothing appears to have been published respecting the habits of this Chaffinch; and specimens are still very rare in collections.

I have in my collection two eggs, obtained at St. Michael's, Azores, in 1866, for which I am indebted to my friend Mr. Godman. Compared with the eggs of the Common Chaffinch, these eggs are rather larger, and have the ground-colour paler, and the shell-markings more blurred.

The specimens figured and described are in my own collection, and were obtained by Mr. Godman at St. Michael's, Azores.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Madeira, February 1856. *b*, ♂, *c*, ♀. St. Michael's, Azores, March 1865 (*F. DuCane Godman*).

E Mus. Salvin and Godman.

a, *b*, ♂. Madeira, June 1871. *c*, *d*, *e*, ♂. Orotava, Teneriffe, April 1871. *f*, ♂. Teneriffe, May 1871. *g*, ♀. Orotava, Teneriffe, April. *h*, *i*, *j*, ♂. St. Michael's, Azores, March and April 1865. *k*, ♀. St. Michael's, April 1865. *l*, ♂. Flores, May 1865. *m*, ♀. Madeira, June 20th, 1871 (*F. D. Godman*).

E Mus. H. B. Tristram.

a, ♂, *b*, ♀. St. Michael's, Azores, April 1866 (*F. DuCane Godman*).

FRINGILLA SPODIOGENA.

(ALGERIAN CHAFFINCH.)

Fringilla spodiogenys, Bp. Rev. Zool. t. iv. p. 146 (1841).*Fringilla africana*, Levaill. jun., Expl. Scient. de l'Alg. (1855).*Fringilla spodiogena*, Bp. Cat. Parzud. p. 18 (1856).*Figuræ notabiles.*

Levaill. jun., tom. cit. pl. 7. fig. 1 (♂), fig. 2 (♀).

♂ *ad.* fronte et loris nigris : capite suprâ et nuchâ cærulescenti-plumbeis : dorso et uropygio lutescenti-viridibus : supracaudalibus plumbeis, viridi lavatis et angustè apicatis : caudâ remigibusque ut in *Fringillâ cælibe* : scapularibus cærulescenti-plumbeis : genis, regione paroticâ et parauchenio vertici concoloribus sed paullò sordidioribus : gulâ, gutture et pectore superiore sordidè rosaceis : pectore imo et abdomine albidis vix rosaceo lavatis : hypochondriis griseo-plumbeis, subcaudalibus albis : rostro obscurè cærulescenti-corneo : pedibus incarnatis : iride fuscâ.

♀ *ad.* haud à fœminâ *Fringillæ cælibis* distinguenda.

Adult Male (Tangiers, summer). Lores and a narrow frontal line black; head, sides of neck, and face rich lead-blue; centre of the back and rump dark yellowish green; upper tail-coverts dark lead-grey, marked with green; scapulars lead-blue; wings and tail as in *Fringilla cælebs*; throat and breast light reddish brown, appearing to be washed with pale rose-red, this colour fading on the abdomen to white, washed with dull rose-brown; flanks washed with pale slate-grey; under wing-coverts white, the feathers on the edge of the wing marked with black; under tail-coverts white; beak dull lead-coloured; legs brown; iris dark brown. Total length 5·8 inches, culmen 0·5, wing 3·5, tail 2·9, tarsus 0·75.

Adult Female. Undistinguishable from the female of *Fringilla cælebs*.

THE Algerian Chaffinch, which, though closely allied to our Common European Chaffinch, and still more nearly so to *Fr. tintillon*, is a perfectly distinct and good species, is found in Northern Africa, and is said by MM. Degland and Gerbe to have occurred in Southern Europe. These gentlemen give an instance of its capture, which, however, is scarcely above all doubt. The specimen they refer to is in the collection of M. Laurin, and was obtained in April 1861, at Nôtre Dame de la Garde, near Marseilles, by the son of M. Gierre, a dealer; and another was, according to M. Jaubert, procured also near Marseilles.

It is common, however, in Northern Africa. Mr. Osbert Salvin records it as "common about Tunis; but we lost sight of it on moving westward." Mr. C. F. Tyrwhitt Drake found it in Eastern Morocco and Tangiers; and I have a specimen collected in the latter locality by M. Olcese. It appears to be most numerous in Algeria, where M. Taczanowski writes to me he "found them during the whole of the winter of 1866 in the wooded mountains of Algeria, but never in large numbers. They occur in small flocks of a few individuals, and are generally seen

searching for food on the ground amongst the bushes or under the trees, and never, like the Common Chaffinch, in the open fields. Early in April they were paired. I found several finished nests, but none containing eggs. The nests are placed in similar positions and are constructed like those of the Common Chaffinch."

Respecting the habits of this species in Algeria, Loche writes as follows:—"Like its European congener, this Chaffinch feeds on seeds, insects, and caterpillars: its song closely resembles that of the European Chaffinch, but is rather louder and harsher, and, besides the usual song the male utters in the breeding-season, when danger threatens it, a short, plaintive call. In the autumn both male and female utter a sharp cry. This species builds in a low tree, and constructs its nest like that of *Fringilla cœlebs*, laying four eggs, bluish in colour, marked with reddish-brown spots, and measuring 20 by 15 millimetres.

"It is a sprightly and confiding bird, easily tamed, and not without intelligence, and lives from seven to eight years. Its flesh is not good; and it is sought after as a cage-bird, and not for its flesh; and, thank God, in Algeria they do not practise the torture so usual in France, and though the poor bird often loses its liberty it retains its sight."

The male bird figured and described is in my own collection; and the female described is in the collection of Mr. J. H. Gurney, jun. As will be seen, I have only figured the male bird, the other birds on the Plate being the male and female of *Fringilla tintillon*.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Algeria (*J. H. Gurney, jun.*). *b*, ♂. Tangiers (*Olcese*).

E Mus. H. B. Tristram.

a, ♂. Algiers, April 16th, 1856; *b*, ♂. April 21st, 1856 (*H. B. T.*).

E Mus. J. H. Gurney, jun.

a, ♂. Algiers, January 29th, 1870. *b* ♀. Algiers, February 4th, 1870 (*J. H. G., jun.*).



BRAMBLING.
FRINGILLA MONTIFRINGILLA
512

FRINGILLA MONTIFRINGILLA.

(BRAMBLING.)

Fringilla montifringilla, Linn. Syst. Nat. i. p. 318 (1766).*Fringilla lulensis*, Linn. Syst. Nat. i. p. 318 (1766, ex Briss.).*Fringilla flammea*, Beseke, Vög. Kurl. p. 79 (1822).*Struthus montifringilla*, Boie, Isis, 1828, p. 323.*Fringilla septentrionalis*, Brehm, Vög. Deutschl. p. 274 (1831).*Fringilla media*, Jaubert, Rev. et Mag. de Zool. v. p. 117 (1853).

Brambling, *Bramble*, *Bramble-Finch*, *Mountain-Finch*, English; *Pinson d'Ardennes*, French; *Peppola*, Italian; *Pinzuni varvariscu*, Sicilian; *Pinzon montañes*, Spanish; *Tentilhão montez*, Portuguese; *Spunsun selvag*, Maltese; *Bergfink*, German; *Keep*, *Bergvink*, Dutch; *Bergfink*, *Norrqvint*, Swedish; *Bjergfinke*, Norwegian; *Kvæker*, *Kvækerfinke*, *Norske Bogfinke*, Danish; *Härkapeippo*, Finnish.

Figuræ notabiles.

Naum. Vög. Deutschl. v. Taf. 119; Gould, B. of Eur. iii. pl. 188; Yarr. Brit. B. i. p. 465; Kjærb. Orn. Dan. Afb. xxvii. p. 2; Schl. Vog. Nederl. pl. 166; Gould, B. of Gt. Brit. part ii.; Fritsch, Vög. Eur. Taf. 25. figs. 13. 14.

♂ *æstiv.* suprâ nigerrimus, purpureo nitens, plumis ad basin albis: scapularibus cum dorso postico et uropygio purè albis, illis aurantiaco tinctis: tectricibus supracaudalibus cinereis nigro variegatis: tectricibus alarum minimis aurantiaco-fulvis, medianis albis, majoribus nitidè nigris, his dorsalibus aurantiaco terminatis: tectricibus primariarum brunneis vix flavido marginatis: remigibus brunneis, extûs ad basin imam albis, vel flavicantibus, fasciam transalarem formantibus, primariis secundariisque extûs flavido plus minusve distinctè marginatis: caudâ brunneâ, pennis duabus centralibus cinereo lavatis, rectrice extimâ ad basin pogonii externi et ad apicem pogonii interni albâ: facie totâ laterali nigrâ pileo concolori: subtûs albicans, gutture imo et pectore summo aurantiacis: hypochondriis maculis parvis nigris rotundatis ornatis: subcaudalibus albis aurantiaco lavatis: subalaribus intimis lætè citrinis, extimis albis: rostro indigotico: pedibus rubro-brunneis: iride saturatè brunneâ.

♂ *hiem.* similis ptilosi æstivæ sed suprâ fulvescens nec niger: tectricibus alarum et secundariis magis conspicuè aurantiaco marginatis: rostro lætè flavicante, versus apicem nigro: pedibus flavicanti-corneis.

♀ *mari* fere similis sed sordidior: capite brunneo fulvo obscuro: maculâ parvâ mystacali nigricante: facie laterali brunneâ, colli lateribus pallidè canis: pectore antico pallidè aurantiaco rubro.

Male in breeding-plumage. Upper surface of the body glossy blue-black, the bases to the feathers white, showing occasionally and more especially on the nape; lower part of the back and rump white, slightly varied here and there with black; upper tail-coverts ashy grey, irregularly marked with black; least wing-coverts orange, forming a conspicuous patch at the top of the wing; median coverts tipped with white, forming a bar across the wing; greater coverts black, slightly tipped with white and marked

with orange on the innermost feathers; primary coverts brown, very narrowly edged with yellowish white; quills dark brown, with a white or yellowish-white spot at the extreme base of the feather, forming a bar right across the wing, all the quills also more or less narrowly edged with yellowish white; tail dark brown, the two centre feathers washed with ashy grey, the last feather marked with white at the base of the outer and the extremity of the inner web; all the side of the face glossy blue-black like the head; throat and fore part of the chest pale orange; rest of the under surface of the body white, with a quantity of little round black spots clustered on the flanks; under tail-coverts white, with a tinge of buff; under wing-coverts for the most part white, but the innermost or greater coverts bright lemon-yellow; inner surface of the wing white; bill horn-blue; feet reddish brown; iris dark brown. Total length 5·8 inches, culmen 0·5, wing 3·5, tail 2·4, tarsus 0·7.

Obs. Some specimens in breeding-plumage are more richly coloured on the breast than others, and have the scapulars more tinged with orange. An example of the Brambling, in our collection, from Tientsin, in China, differs from our European specimens only in being a little richer-coloured on the breast, and having a rufous tinge on the white of the belly and under tail-coverts; the edgings to the scapulars and wing-coverts are also much more rufous. This bird measures as follows:—Total length 6·5 inches, culmen 0·5, wing 3·5, tail 2·5, tarsus 0·7.

Male in winter plumage. Ground-colour of the upper plumage glossy blue-black, everywhere broadly edged with sandy buff; lower part of the back and rump white, faintly tinged with yellow and slightly varied with black; upper tail-coverts black, broadly edged with ashy grey and tinged with buff; sides of the face black, obscured like the head with sandy margins; sides of the neck and nape ashy grey, with small markings of black; scapulars orange-rufous, as also are the least wing-coverts, the latter being tinged with bright lemon-yellow, median coverts white, forming a bar across the wing; greater coverts black, the outer ones edged with white, the inner ones with orange-rufous like the scapulars; primary coverts brown, with very narrow edgings of yellowish white; quills dark brown, with a distinct spot of yellowish white at the base of the feather, forming a distinct bar across the wing; all the primaries very distinctly margined with yellowish, the secondaries with orange-rufous; tail coloured as in the summer dress, but all the feathers more or less distinctly edged with yellowish; fore part of the chest, extending down on to the flanks, clear orange-rufous, the latter slightly spotted with black; under surface of the body dull white, the under tail-coverts tinged with orange-rufous; under wing-coverts white, the inner ones bright lemon-yellow; bill bright yellow, black at the point; legs pale brown.

Obs. We have given a full description of the bird in its winter dress, as it is in this plumage that the bird generally occurs in this country. Before they leave in spring many of the males have begun to assume their summer plumage, which is obtained by the wearing away of the sandy margins to the feathers.

Female. Differs from the male in being more obscurely coloured, but especially in the absence of the black head, the cheeks being greyish brown.

THE Brambling is spread over the whole of the Palæarctic region, and may, indeed, be considered one of its most characteristic birds. It breeds in the high north, descending in winter into more southern latitudes.

No authentic instance of its breeding in the British Isles has as yet been recorded. Mr. A. G. More refers to the only reputed occurrence in the following words:—“In the ‘Zoologist’ for 1864 (p. 9210), the Rev. J. C. Atkinson describes a nest and eggs found near Thirsk, which he supposes to have been those of the Brambling, a bird which in Western Scandinavia does not

breed south of lat. 59° N., and in Eastern Scandinavia not south of lat. 67° N. (*Wallengren*, in 'Naumannia,' 1855, p. 136)."

We can ourselves scarcely believe in the authenticity of the above-mentioned nest, and it would appear that the present species is only a winter visitant to Great Britain. Messrs. Gray and Anderson, in their 'Birds of Ayrshire and Wigtownshire,' state that it is "a regular winter visitant, but only in small numbers, except in unusually severe weather. It then appears at farmsteadings, mixing with Sparrows, Chaffinches, Yellow-Ammers, and Green Linnets." All over England it is more or less common in winter. Mr. J. H. Gurney, jun., sends us the following note:—"Mr. Hogg says that they are rare in south-east Durham (Zool. p. 1062), but they were extremely numerous at Greatham in the winter of 1866-67, and, what was singular, they seemed to be all males. I saw one as late as April 6th: it was a dull-coloured specimen; but on the 18th of March I had seen a splendid male bird, with a head as black as a Bullfinch's, by far the finest one I ever saw wild." In the southern counties of England we have ourselves found it abundant in some winters, particularly in beech-woods. In the south-western counties, however, it would seem to be less plentiful; for Mr. J. Brooking Rowe says that it is not common in Devon, and Mr. Rodd tells us that it only occurs in Cornwall in severe weather. Thompson says that it is a winter visitant to Ireland; but, as will be seen from the note sent to us by Mr. Gatcombe, it is sometimes found there in immense numbers; and there can be no doubt that the mildness or severity of the season influences in a great measure the migration of the Brambling to this country.

Mr. Collett, in his 'Birds of Norway,' writes as follows:—"Along the fells it is common in all subalpine conifer-woods and in the birch-region on the fells, and is found breeding in small colonies on most of the more elevated forest-regions. Along the west coast and northwards up to the Russian frontier it breeds in the birch-woods down to the sea. On the lowlands it is most numerous found during the migrations; and occasional birds winter with us, though sometimes, as at Christiania in 1863-64, in large flocks." Messrs. F. and P. Godman, who collected near Bodö, state:—"This bird, which we found extremely local in the country that we explored, arrived on May 13th. There were two places, both on the side of a mountain running north-west and south-east, with a lake at its foot, where they were not uncommon; and in these two localities we found several nests." In Sweden, according to Nilsson, it passes the summer in the north only, being found in the southern portion of the country during its spring and autumn migrations, and occasionally during the winter. In April and May they return from the south in families or flocks; and early in June they have paired and scattered in the forest on the fell-sides in Norway, Lapland, and Norrland. Their head quarters are the small birch-woods above the conifer-forests. Here they are found in countless numbers, and utter their harsh note from almost every tree and bush; consequently large numbers breed near together. Summerfeldt found it on the Varanger Fiord in summer; and Wheelwright, in his 'Spring and Summer in Lapland,' says:—"It was certainly the commonest of all the small birds in our forests during the summer, and the flocks which we used to see on the bare patches of cultivated land early in May (when they first arrived) were past all belief. Every forest was filled with them, and their monotonous call-note, *cree, cree*, was heard from every tree." In Finland it is abundant, arriving early in the spring, remaining in the northern parts of the country to breed, and leaving in flocks late in the autumn.

Dresser found them numerous in the spring throughout the country, and procured many nests in the neighbourhood of Uleåborg. He first had his attention attracted to this bird by its call-note, which very closely resembles that of the Common Greenfinch; and scarcely a day passed during his journey northwards along the coast that he did not hear this harsh loud call, generally uttered from the very top of a tree. Von Nordmann says that in this country it returns from the south earlier than the Chaffinch. Meyer says that it is found in Livonia, in conifer and green woods: it is a migrant, appearing in April and May, and sometimes in autumn, never, however, being seen in winter, nor does it nest there. An excellent note on the occurrence of the bird in Denmark will be found below, from the pen of our kind friend Mr. A. Benzon.

In Germany they arrive as soon as the cold weather sets in, remain in different parts of that country during the winter in flocks, and return again to the north in the spring, only in very isolated instances remaining to breed in North Germany. It is generally distributed and common throughout the country in winter. Mr. H. M. Labouchere writes to us as follows:—"The Brambling visits Holland on its autumnal migrations, immense numbers passing through the country in company with Chaffinches. Great use is made of this bird on the 'Vinkenbanen,' or places where the Chaffinches are caught, its extraordinary strength of sight enabling it to see flocks of birds in the distance long before the human eye can distinguish any thing, and to warn the bird-catcher by its *kape kape* to be on the alert for the arriving birds." In Belgium, according to De Selys-Longchamps, it arrives in October, remains over the winter, leaving in April, a few breeding in the Ardennes in the beech-trees; he once killed an adult bird in July, near Liège.

Godron says that in Lorraine it "arrives in autumn and departs in spring;" and it is, according to Krœner, sedentary in Alsace and Lorraine during the winter, and is found both in the mountains and plains. Degland and Gerbe say that it is found every year in the northern departments of France, in large flocks, as soon as the frost sets in. It is everywhere abundant in severe winters near Dunquerque, where quantities are killed. It disappears about the end of February. MM. Jaubert and Barthélemy-Lapommeraye say that it is common during migration in Provence, its passage commencing late in October and continuing into the winter, and it returns northward in the spring. According to Bailly it is found in Savoy only on passage, and never breeds there. The first arrive near Chambéry from about the 5th to the 10th of October, and are then found singly or in flocks with other Finches. About the 15th or 20th of the month they begin to pass in flocks, and late in October and in November are most numerous. They pass again on their journey northward late in February or early in March, generally about the time of the last frosts. A few remain there as late as April. Lord Lilford tells us he saw it occasionally near Lausanne in the winter of 1850-51. Herr von Pelzeln mentions several specimens from Austria and Hungary as having been shot in the winter season; and Count Wodzicki says it arrives in the autumn and spring in large flocks, but certainly does not nest in the Carpathians. In Styria, Seidensacher writes, "it arrives in November, or sometimes late in October, occasionally in small numbers, but generally in large flocks."

Lord Lilford informs us that he has received specimens of the Brambling from the province of Guipuzcoa, North Spain, but is told that it is not a common bird in that locality. Major Irby says that in Southern Spain it is only seen in winter, and then in limited numbers; but Mr. Howard Saunders states that "in very hard winters, such as that of January 1868, Bramblings

are frequently brought into the market." It is rare in Portugal, as stated by Professor Barboza du Bocage. In Algeria, according to Loche, it arrives early in the winter, and leaves early in February, in small flocks. In Malta, Mr. C. A. Wright records it as "rather rare; but a few are taken nearly every year in October and November." As regards its occurrence in Italy, Dr. Giglioli remarks that it was very abundant near Pisa in the winter of 1863; and Savi says that some breed on the mountains of Italy. According to Professor Doderlein it is not very common in Modena. It passes periodically late in the autumn, and repasses in the spring, remaining a short time in the woods on the mountains. A few descend on to the plains in severe weather; others pass from the Apennines towards the Romagna. It does not breed in Modena. In Sicily it is rare, though more frequent in the interior than on the coast. Von der Mühle states that "in severe winters it has been several times shot near Lamia, in Rumelia." Linder Mayer likewise says that it is found more numerous in the north of Greece in severe winters, whereas it is not found on the islands in winter. Messrs. Elwes and Buckley write:—"Not uncommon in winter in many parts of Turkey. One was shot in full summer plumage on April 1st at Kustendji." The late Mr. Strickland met with it near Smyrna during the winter; and Messrs. Dickson and Ross procured it at Erzerum on March 31st. According to Professor von Nordmann, in the south of Russia it is only found during migration. In October 1837, large flocks of this bird were seen in the Crimea, in the gardens round Simpheropol, and the woods on the south side. Pallas says that specimens from the Caucasus and Persia are larger in size. Herr H. Goebel also observes that he found it in small flocks during migration, in February or March and October, at Uman, in South Russia.

Messrs. Dybowski and Parvex found it rare at Darasun, in Dauria, during migration; and the following note is given by Dr. Radde:—"In the south of Siberia the Brambling remains occasionally during the summer, and breeds there. On the 16th of May 1859 I found it not far from Tunkinsk; and on the 14th of July 1855 I met with a family of them a few versts above the village of Kotchirikowa, the young birds of which were fledged. The male then killed was in moult, the crown being almost featherless. Only a few visit the high steppes of Dauria in spring; thus, for instance, a male was shot in the hedge of the kitchen-garden at Kulussutajefsk. On the other hand, they were numerous during the autumn migration at the Tarei-Nor. On the 15th of August I only saw a few males, on the 16th only a female; and on the 26th large flocks, consisting of young birds of both sexes, arrived. On the 30th they increased in numbers, and frequented the neighbourhood of the kitchen-garden. Later, when the night-frosts set in, they took refuge at night in the high reeds which grew round the ponds. Here they remained till the 11th of September; but then the large flocks were wanting, and I only saw stragglers up to the 15th of September. In the Bureja mountains the Bramblings followed the flocks of Thrushes from the 7th to the 10th of September." Dr. von Middendorff says:—"I did not find this bird in the Stanowoi mountains before the 23rd of May. From that time forward it was one of the commonest songsters, and was also found on the south coast of the Sea of Ochotsk and on the islands." Dr. L. von Schrenck states that, "contrary to what is the case in the western portion of the Old World, in the far east of Asia the Brambling breeds in comparatively more southern latitudes. Middendorff found it all through the summer in the Stanowoi mountains from the 23rd of May; in the Amoor country it appears much earlier. I received a couple of males

through Mr. Maximowicz, which were shot on the 3rd (15th) of May at Dshäi, near the Marünskisch post. I shot a single old male on the 8th (20th) of May in the mixed (but chiefly conifer) woods of the Bay of Castries, where the song of the Brambling was often heard. About the end of August I saw this bird in large flocks near the Nikolaievsk post, and shot several; one, a male, shot on the 11th of September, had not fully moulted. About the same time (on the 15th of September) Mr. Maack found the Brambling in flocks at the mouth of the Ussuri. I did not see this bird in the Lower Amoor country in the late autumn and winter, and supposed that it migrates southwards at the end of September and in October." Mr. H. Whitely, who collected near Hakodadi, in Japan, remarks:—"I have observed this bird in small parties in the winter. My specimens were obtained in January and February 1865." Mr. Swinhoe says that it comes to "North China in winter, occurs occasionally as far south as Amoy." It is also found in India; and Dr. Jerdon gives the following note:—"It has occasionally been found in the N.-W. Himalayas during the cold weather. It was sent from Afghanistan by Griffith; and Blyth has seen specimens from Simla and Cashmere. At Mussooree Hutton observed it as "a rare winter visitant, though it may be common higher up. I have only seen it in the flocks of *Propasser rhodochrous*."

The late Mr. Wheelwright gives the following account of this species:—"In some parts of the north the Brambling is called *Harr-sparf*, because they say that the Grayling, or *Harr*, come up from the deeps as soon as this bird appears. When they first arrived they seemed to be in full summer dress. We took our first nest on June 2nd. As far as I could see, the nest was always placed in a small fir, generally six to ten feet from the ground, very like that of the Chaffinch, built outwardly of moss and fine grass, thickly lined with feathers of the Willow-Grouse, deep and cup-shaped, but hardly so neat and pretty as that of the Chaffinch. Six eggs appear to be about the full number, though I have often seen seven in one nest. The eggs are very like those of the Chaffinch, but generally a trifle smaller, darker in the ground-colour, and the purple lines and dots more coloured. Still the greatest caution is required in identifying the eggs; for where both birds breed in the same district the nests may be easily confounded; and this was a nest which I would always take myself, and see the old bird. Like the Mealy Redpoll, there was a little mystery regarding the breeding of the Brambling. We took our first nest on June 2nd; and again as late as August 3rd I took two nests with fresh eggs. Could it be possible that these birds bred twice in the season?" Dresser can fully confirm the above excellent remarks respecting the nidification of the Brambling. Near Uleåborg, where he found them breeding, they were about equally common with the Chaffinch, and great care had to be taken in identifying the nests to avoid mistake. He procured there a very beautiful nest, which was outwardly formed chiefly of the white marsh-cotton, and which is now in the possession of the eminent ornithologist, Mr. John Gould, to whom he gave it some years ago.

Respecting its occurrence in Denmark, Mr. Alfred Benzon, of Copenhagen, writes to us as follows:—"The *Norske Bogfinke*, also called *Kvækerfinke* (*Kvæker* from its call-note), is not of rare occurrence in Denmark, during migration, from the middle of April to the end of the same month. The males leave first, and in the autumn they are also the first to return, and often remain with us during the winter. In the breeding-season they are never found here. They are quarrelsome; and in confinement this is particularly visible, as they often attack and mortally

wound birds confined with them. When irritated, they raise the feathers on the neck and head. I have known them vanquish and nearly kill a stronger bird, such as the Hawfinch (*Coccothraustes vulgaris*). I have eggs from Norway and Lapland, in sittings of from five to six eggs. They resemble those of the Chaffinch, but are smaller, and vary like these, but are generally more greenish; and the spots are less, and more scattered. I consider the normal size to be 20 by 15 millims." We translate the following notes on the breeding of the Brambling in Norway, kindly sent us by Mr. R. Collett:—"In general it lays a larger number of eggs than any other of the Finches, seldom less than six, and more generally seven. In the west, where *Corvus cornix* is a dreaded robber of the eggs and young of the small birds, I have noticed that, when compelled to leave its nest to seek food or for any other purpose, it generally hides the eggs (for security probably) amongst the moss at the bottom of the nest. It generally builds in a birch or spruce, close to the main stem, and about six or seven ells from the ground. The nest is constructed like that of the Chaffinch, but generally more of moss, sometimes entirely of *Usnea barbata*. The eggs closely resemble those of the Chaffinch; but in the latter the general colour is grey-brown, not greyish blue, and the spots are smaller. When near the breeding-place the male's harsh note is heard; and if one approaches nearer, the true song becomes audible; this is sweet and melodious, consisting of several flute-like notes, somewhat resembling those of the Redwing. The song is only heard during the breeding-season. Several pairs always breed near together; and in exceptional cases I have found nests in small juniper bushes. In the conifer growth on the heights near Christiania they breed in colonies. It has eggs late in May and early in June." Messrs. F. and P. Godman, who found the Brambling breeding near Bodö, write as follows:—"The birds were extremely tame; in one instance we touched the hen with a gun before she left the nest. They often would not fly away till one of us was halfway up the tree where the nest was situated; but when once off, they left the place altogether, uttering a note of distress. Every nest we found was in a birch tree, and generally from fifteen to twenty feet from the ground. In no instance did the Chaffinch come under our notice."

Messrs. E. R. Alston and J. A. Harvie Brown, who have lately been travelling in Norway, have sent us the following interesting account of the Brambling:—"In the beginning of May the snow was lying two or three feet deep in the pine-woods at an elevation of 1760 feet above the sea; and here the Bramblings were still in large flocks, the males uttering their harsh call-note from the very top of the fir trees. Birds shot had mostly not yet attained the summer plumage. The contents of the stomach varied, including insects, small seeds, and young birds.

"We took the first nest in the west on the 26th May, the eggs having been incubated for about ten days. Afterwards in the mountains, where we found them in the 'birch-belt' (*Birkebeltet*), nests and fresh eggs were taken from the 12th June onwards. Here, at an elevation of nearly 3000 feet, we observed no Chaffinches; but when we took nests where the two species bred together, the birds were watched to the nest in every instance. The nests in the birch trees were generally about 10 feet from the ground, some few as high as 20 or 30 feet. Perhaps the most beautifully situated nest which we met with was one placed in a small dead fir tree, nearly quite concealed by the long drooping tufts of bearded lichens which grow in such abundance in the Norwegian forests. All nests of *F. montifringilla* which we took were *much* larger than any we have seen of *F. cælebs*; and the former had invariably among their materials quantities of

shreds of the fine white paper-like outer bark of the birch, which was quite absent from any nests of the Chaffinch which we examined. Nests containing *seven* eggs were quite common, and one with no less than *eight* was taken. These latter were all of precisely the same tint; but one proved to be much more incubated than the rest. The birds were exceedingly bold, and a *second* female appeared, and showed great interest in the proceedings, rendering it very doubtful that the eggs were all laid by one bird. The eggs of the Brambling seem generally to possess a strong greenish tint, which is not so common in those of the Chaffinch. There is a certain character about these eggs, not easily described in words, but which separates them very clearly from a similar number of Chaffinch's eggs chosen at random."

Mr. Gould, in his 'Birds of Great Britain,' observes:—"All the nests I observed were very beautifully made, but not so neatly as those of the Chaffinch; they were also much larger, deeper, and warmer, and made of coarser materials. The walls were composed of green mosses and fine, dried bent grass interwoven with cobwebs, and externally decorated with flat pieces of white lichen and thin glaucous-coloured shreds or peelings of birch-bark, giving the whole a silvery and extremely pretty appearance; and as they are usually placed near the bole of the white-barked birch, they are not very easily distinguished. Internally they were lined with fine wool and some feathers of the White Grouse, the tips of which frequently rose above the edge of the nest, and curved inwards, so that when the female is sitting she must be almost hidden, the head, the centre of the back, and the tail being all that could be seen." Their external diameter was about five inches and a half, and their depth three inches and a half; the diameter of the interior was about two inches and a half. The different nests of eggs varied considerably in colour,—one set being clear grey-green, irregularly and faintly blotched all over with brown; in another the ground-colour was suffused with brown, the blotches or freckles not so distinct, and small chestnut-coloured dots were also dispersed over the surface. The eggs are generally six in number."

Respecting its food, Yarrell writes:—"They frequent thick hedges, and feed on the grain and seeds to be found on stubble-land, in company with Yellow Buntings, Chaffinches, and others. Mr. Scales, an agriculturist of Beecham Well, in the county of Norfolk, used to consider them of service to his land from their devouring in great abundance the seeds of the knot-grass (*Polygonum aviculare*). In severe weather flocks of these birds are observed to feed upon beech-mast." The beech tree seems to be their favourite haunt; and Lord Lilford tells us that he notices them feeding on them plentifully on his own estate.

Mr. J. Gatcombe, of Plymouth, kindly sends us the following note:—" *Fringilla montifringilla* usually appears in Devon during severe winters, mixing with Chaffinches, Greenfinches, and Sparrows in the farm-yards, among which it might be easily distinguished by its conspicuous white rump. Many years since, when on a visit with my friend the Rev. G. Robinson at 'Elm Park,' in the county of Armagh, Ireland, in March, we met with a flock of some *thousands* in a beech-wood feeding on the beech-mast, where they remained more than a week. They were almost all in magnificent plumage; and many that we shot were so fat that they could hardly be skinned. Their note, when disturbed, was a peculiarly harsh kind of scream. When in Milan last autumn I observed in a compartment of an aviary in the Public Gardens full thirty Mountain-Finches (*all varieties*) more or less mottled with white and yellow, some of which were very

beautiful." Mr. John Henry Gurney, jun., has lent us a specimen with a black throat; and Mr. Bond has one which belonged to Mr. Doubleday. Latham, in his 'Synopsis,' likewise says, "In some the throat is black."

Mr. Stevenson also gives some interesting particulars respecting the flocks of Bramblings in Norfolk, as follows:—"The late long and severe winter (1864-65) has been also remarkable for the abundance of this sprightly and attractive species, whose southward migration in extraordinary quantities was witnessed under the following singular circumstances:—Mr. Samuel Blyth, whose local observations as a thoroughly practical naturalist I have often referred to, assures me that, just prior to the very sharp weather that set in about the middle of January, he noticed at Framlingham, near Norwich, for several successive days large flights of birds passing low over the fields in a southerly direction. They appeared always at the same time, from about half-past three until nearly dusk, flying for the most part level with the fences, occasionally having to rise at them when higher than usual. After noticing them for several days, he at last shot into one large flock at about sixty yards, and dropped one bird, which proved to be a Brambling; and the same result followed on two subsequent occasions. In order to ascertain if they were really making a continuous flight, or merely returning to some favourite roosting-place after a foraging expedition during the day, he watched for them, on one occasion, from the early morning; but not one was seen to come from the contrary direction. At the usual time, however, in the afternoon large flights again appeared in their accustomed line, keeping straight on with a sort of settled purpose, so noticeable in other species on their migratory course." The following equally curious statement, respecting the migration of this species, appeared in a letter to 'The Times' (March 23rd, 1865) from Mr. A. E. Atkins, of Farnham Court, Slough:—"Some of your readers may be interested by the mention of a fact which, in this neighbourhood at least, is without parallel in the memory of the oldest inhabitant. A large flock of Bramble-Finches have taken up their residence in Stoke Park. Their numbers may be estimated when I state that the flight, which was seen starting from their roosting-place one morning, continued streaming on without intermission for thirty-five minutes. The person who noted this killed forty-five at one shot. I may mention that before they came to their new quarters thousands of Starlings congregated there nightly, but since this invasion of northerners the ancient inhabitants have been dispossessed: but they have not forgotten their former homes; and now that returning spring has warned our new friends to seek more quiet quarters before pairing and building-time comes upon them, the Starlings are again making their appearance in great numbers."

The eggs of the Brambling much resemble those of the Common Chaffinch, but have a greener tinge. We have before us a series of these eggs from Dresser's collection, obtained by himself in Finland, and by Wheelwright in Sweden, amongst which are two peculiar varieties taken at Uleåborg, Finland, quite pale blue, with two or three pale purplish underlying shell-markings, and a few straggling blackish dots chiefly at the larger end. In size these eggs vary from $\frac{3}{4}\frac{1}{0}$ by $\frac{2}{4}\frac{2}{0}$ inch to $\frac{3}{4}\frac{4}{0}$ by $\frac{2}{4}\frac{6}{0}$ inch. Dr. E. Rey writes to us that he has measured fifty-six eggs of this bird in his collection, from Lapland and Sweden, and finds the average size to be 19.3 by 14.6, the largest measuring 25.5 by 14.5, and the smallest 16.75 by 13.75 millimetres respectively. He further states that a short time ago birds he possesses in confinement laid quite normal eggs.

The Brambling has bred in England in captivity, the fact being noticed by Mr. Stevenson as

follows:—"Hewitson gives an account of some birds in the possession of Mr. Dashwood, of Beccles, Suffolk, which bred in captivity, on one occasion making their nest on the ground; and another instance is given by Messrs. Gurney and Fisher, which occurred in the aviary of Mr. Charles Barnard."

The figure and description of the breeding male are taken from a beautiful skin in our collection, killed on the 24th of June 1869, and sent to us by Mr. Meves. The male in winter dress and the female bird are from English skins also in our own cabinet.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a. Cookham, Berkshire, March 1867 (*W. Briggs*). *b.* ♂. Sweden, June 24th, 1869 (*W. Meves*). *c.* Drammen, Norway, June 9th, 1867 (*R. Collett*). *d.* Bodö, Norway, May 15th, 1857 (*P. Godman*). *e.* Piedmont (*Salvadori*). *f.* Cordova, October 22nd, 1870 (*Irby*). *g.* Crimea (*Whitely*). *h.* Hakodadi, March 1st, 1865 (*H. Whitely, jun.*). *i.* Tientsin, China (*Whitely*).

E Mus. J. H. Gurney, jun.

a-m. From various parts of England (*J. H. G.*). *n.* France (*J. H. G.*). *o.* Genoa market (*J. H. G.*). *p.* Moscow (*J. H. G.*).

E Mus. Lord Lilford.

a. ♂. Norway (*P. Godman*). *b.* Lilford, Northamptonshire, January 1861 (*L.*).

E Mus. Howard Saunders.

a. Malaga, January 1868 (*H. S.*).



TEYDEAN CHAFFINCH

FRINGILLA TEYDEA

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FRINGILLA TEYDEA.

(TEYDEAN CHAFFINCH.)

Fringilla teydea, Webb & Berth. Ornithologie Canarienne, p. 20 (1841).

Figura unica.

Webb & Berthelot, tom. cit. pl. 1, ♂ & ♀.

♂ *ad.* saturatè cæruleus, subtùs pallidior: fronte et loris nigricante lavatis: remigibus nigricantibus, extùs cærulescente schistaceo limbatis: tectricibus alarum eodem colore marginatis et conspicuè apicatis: rectricibus nigris, vix cærulescente schistaceo marginatis, rectricibus duabus centralibus schistaceo limbatis: abdomine imo cærulescenti-albido: subcaudalibus albis: rostro corneo, ad basin mandibulæ albido: pedibus pallidè corneis: iride brunneâ.

♀ *ad.* suprâ schistaceo-brunnea: remigibus saturatè brunneis extùs pallidè brunneo marginatis: tectricibus alarum conspicuè brunnescente apicatis: rectricibus saturatè brunneis, vix pallidiore marginatis: subtùs pallidè brunnea, pectore et hypochondriis schistaceo lavatis: abdomine brunnescenti-albido: subcaudalibus saturatè albidis flavicanti-cervino lavatis.

Adult Male (Teneriffe, 6th May). Entire upper parts rich dark blue; forehead and lores washed with black; quills black, broadly edged with dark slaty blue; wing-coverts edged and broadly tipped with slaty blue; tail black, narrowly edged with dull slate-blue, the two central feathers being washed with that colour; underparts blue, much paler than the upper parts, and on the abdomen fading off into dull bluish white; under tail-coverts white; beak horn-colour, almost white at the base of the under mandible; legs pale horn-colour; iris dull brown. Total length 6·6 inches, culmen 0·65, wing 3·9, tail 3·3, tarsus 0·9.

Adult Female (Teneriffe, 25th April). Upper parts dark greyish brown, this colour everywhere replacing the blue in the male; quills dark brown, edged with dull light brown; wing-coverts broadly tipped with dirty brown; tail dark brown, narrowly edged with light brown; underparts dull light brown, washed with slate-colour, especially on the breast and flanks; abdomen and under tail-coverts dirty white, the latter washed with buff.

THIS, again, is one of those insular species, respecting which comparatively little is known, the bird having so very restricted a range that, until lately, specimens have been extremely rare in the cabinets of collectors. It is, indeed, only known from Teneriffe, where it was first discovered by Messrs. Webb and Berthelot, who obtained a pair at las Palmas, near Chasna, early in the month of January, when they were driven down by the snow which had fallen heavily in the more elevated portion of the mountain. These gentlemen write that its note is plaintive, and often repeated, and bears some resemblance to the call-note of the Serin Finch. They also speak of it as extremely shy, and most difficult of approach. When they first visited the plateau of the

Cañadas in 1825 they saw this bird, but did not succeed in procuring one; nor were any obtained until 1829, when the pair above referred to were shot. According to Dr. Carl Bolle it "inhabits the dreary heights of the Teyde, or Peak of Teneriffe, and the plateaux which surround the highest point, called the Pan de Azucar or 'Sugarloaf,' at an altitude of 7000-8000 feet, and which are covered with brush-wood, consisting of the so-called Retama blanca (*Spartocytisus nubigenus*). The ground is there covered with yellowish pumice-stone rubble, intermixed with lava and shining lumps of obsidian; and for miles no spring is found. Deep below this tract are the clouds, and lower still the ocean-girt island, while above all smokes the crater of the Teyde. The absence of rain and cold nights, together with the glowing heat of the midday, make the climate of these high 'Cañadas' most peculiar; and even the Raptores seldom straggle into this wilderness. Half-wild goats and bees appear to be the only inhabitants of these districts, but little known to the islanders, who with doubt watch the curious stranger as he climbs upwards to explore them. This is the habitat of the Teydean Chaffinch; and hence the obscurity that envelops its habits and nidification, of which latter we know nothing. The goatherds, whom I questioned, say these birds are but few in number, and feed principally on the seeds of the Retama and the Codeso (*Adenocarpus frankenoides*) plants, which give a character to the vegetation of the 'Cañadas.' Neither Berthelot nor I ever heard any song uttered by this bird. I only saw one, a male, in October 1853, when climbing the peak, near the Estancia de los Alemanos." Mr. F. DuCane Godman writes that "soon after landing at Teneriffe I made inquiries about this bird, but found the people knew little or nothing about it. They also told me that strange birds killed in the mountain-forests did not belong to the island, but were 'Pajaros de Africa,' and it would be of no use to search for it there. However, I determined to look for it in the pine-forests, high up the mountain, where Webb and Berthelot procured the pair from which the species was described. Accordingly I made an early start one morning from La Guanche, with a guide who knew the forest-paths, and at daylight I found myself in a dense wood of young pines (*Pinus canariensis*). Through this we ascended for about an hour, when the trees became larger. We had got nearly through this belt of trees, and were coming to the open space at the foot of the volcanic cone, where only a few retama bushes are to be found, when I suddenly heard a loud note of a strange bird at some distance to the left of the track. I immediately went in pursuit, gun in hand, and returned in about five minutes, having killed a fine specimen of the bird I was in search of. I spent the whole day wandering about in the upper part of this forest, and killed some seven or eight. Even here it is not very common; and I believe it seldom or never goes lower down. It feeds on the seeds of the pine, and breaks up the cone with its powerful beak in order to get at them, reminding one of the Crossbill. Later in the year it frequents the Cañadas, where it feeds on the seeds of the retama, which at the time I was there was only in bloom. I afterwards saw more of them in the pine-forests above Chasna, and procured other specimens. Mr. Crotch tells me that when he was encamped on the Cañadas collecting coleoptera, he procured a nest with eggs; the latter, he says, more resemble those of a Shrike than any of the Finches'. The nest, I believe he told me, was built in a retama bush. It is known to the goatherds, who tend their flocks in the highest parts of the mountain, by the name of 'Pajaro de la cumbre.'"

Beyond the above particulars, nothing is known respecting the habits and nidification of the

present species; and I have never seen its eggs, which do not appear to be in the collection of any European oologist.

The specimens figured are in my collection, and were collected by Mr. F. DuCane Godman, to whom I am indebted for them, as also for the loan of all the other specimens I have been enabled to examine, they being as follows:—

E Mus. H. E. Dresser.

a, ♂. Pinal de la Guanche, Teneriffe, April 25th, 1871. *b*, ♀. Villa Flora, Teneriffe, May 6th, 1871
(*F. D. Godman*).

E Mus. Salvin and Godman.

a, ♂, *b*, ♂, *c*, ♀, *d*, ♀. Pinal de la Guanche, Teneriffe, April 25th, 1871; *e*, ♂, *f*, ♂. Teneriffe, May 6th, 1871 (*F. D. G.*).

Genus LINOTA.

Passer apud Brisson, Orn. iii. p. 131 (1760).

Fringilla apud Linnæus, Syst. Nat. i. p. 322 (1766).

Linaria apud Bechstein, Gemeinn. Naturg. Vög. Deutschl. ii. p. 141 (1807).

Passer apud Pallas, Zoogr. Rosso-As. ii. p. 25 (1811).

Ligurinus apud Koch, Baier. Zool. i. p. 231 (1816).

Spinus apud Koch, tom. cit. p. 233 (1816).

Cannabina apud C. L. Brehm, Isis, 1828, p. 1277.

Linota, Bonaparte, Comp. List, p. 34 (1838).

Acanthis apud Bonaparte, Consp. Gen. Av. i. p. 540 (1850).

Aegiothus apud Cabanis, Mus. Hein. i. p. 161 (1850-51).

Linacanthus apud Des Murs, fide J. E. Gray, Cat. of Gen. & Subg. p. 78 (1855).

THE Linnets and Redpolls, though closely allied to *Carduelis*, *Fringilla*, *Chrysomitris*, and *Ligurinus*, constitute a very fairly distinct group, and with *Carpodacus*, to which genus *Linota* is also somewhat allied, link, as it were, the Fringillinæ and Loxiinae. When I wrote the article on the Linnet, I proposed to separate that genus under the generic title of *Linaria*; but further investigation has shown me that this cannot be done. Nor can *Linaria* be used, as it has been preoccupied in botany since 1789. *Cannabina* is the next title in order of date; but in proposing this name Brehm separated the Linnets from the Redpolls, calling the former *Cannabina*, and the latter *Linaria*; and therefore it cannot be used. Thus *Linota*, which title was proposed by Bonaparte to embrace the entire group, and which comes next, must be adopted, and the Linnet should stand as *Linota cannabina*.

The genus *Linota* is represented in the Palæarctic and Nearctic Regions, and straggles also to the northern portion of the Ethiopian Region. All the species, seven in number, are found within the limits of the Western Palæarctic Region, where they are resident, breeding chiefly in the northern districts, and migrating south in the winter.

In habits the Linnets and Redpolls assimilate closely to their allies the Goldfinches, Siskins, &c. They are lively, active birds, inhabiting forests, groves, and gardens during the summer, collecting together in flocks in the winter, and ranging over the fields and open places in search of food. They feed on insects, seeds, fruits, &c., but chiefly on seeds, build neat cup-shaped nests, which they place in a tree or bush, and lay bluish white eggs marked with purplish grey and reddish brown or dark brown. Their flight is rapid and undulating, and their song varied and very sweet.

Linota linaria, the type of the genus, has the bill moderately short, straight, conical, the point slender and acute; nostrils round, basal, nearly hidden by stiff, recurved feathers; wings long, rather broad, the first quill obsolete, the next three nearly equal, the second being usually longest; tail moderate, emarginate; legs short, the tarsus covered in front with four large and three inferior scutellæ; toes slender, compressed, claws long, acute, laterally grooved, curved; plumage soft; the crown and rump, and in some species the breast, marked with red.



LINNET.
LINARIA CANNABINA.

LINARIA CANNABINA.

(LINNET.)

- Passer linaria*, Briss. Orn. iii. p. 131 (1760).
Passer linaria rubra major, Briss. tom. cit. p. 135 (1760).
Passer linaria argentoratensis, Briss. tom. cit. p. 146 (1760).
Fringilla cannabina, Linn. Syst. Nat. i. p. 322 (1766).
La Linotte, Montb. Hist. Nat. Ois. iv. p. 58 (1778).
Gyntel de Strasbourg, Montb. tom. cit. p. 73 (1778).
Fringilla linota, Gmel. Syst. Nat. i. p. 916 (1788).
Fringilla argentoratensis, Gmel. tom. cit. p. 918 (1788, ex Briss.).
Linaria, Bechst. (*Fringilla linota*, Gm.), Gemeinn. Naturg. Vög. Deutschl. ii. p. 141 (1807).
Passer cannabina (L.), Pall. Zoogr. Rosso-As. ii. p. 26 (1811).
Passer papaverina, Pall. tom. cit. p. 27 (1811).
Ligurinus cannabinus (L.), Koch, Baier. Zool. i. p. 231 (1816).
Linaria cannabina (L.), Boie, Isis, 1822, p. 554.
Cannabina pinetorum, C. L. Brehm, Vög. Deutschl. p. 276 (1831).
Cannabina arbustorum, C. L. Brehm, op. cit. p. 277 (1831).
Linota cannabina (L.), Bp. Comp. List, p. 34 (1838).
Cannabina linota (Gm.), G. R. Gray, Gen. of Birds, p. 45 (1840).
Cannabina major, C. L. Brehm, Vogelfang, p. 106 (1855).
Cannabina minor, C. L. Brehm, op. cit. p. 106 (1855).

Gealan-lin, Gaelic; *Linotte*, French; *Pintarroxo*, Portuguese; *Camacho*, *Jamas*, Spanish; *Fanello*, Italian; *Gioin*, Maltese; *Bluthänfling*, *Blutfink*, German; *Knew*, *Vlasvink*, Dutch; *Tornirisk*, Danish; *Tornirisk*, Norwegian; *Hämpling*, Swedish; *Hamppuvarpunen*, Finnish; *Konoplianka*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 151, 485; Werner, Atlas, *Granivores*, pl. 45; Kjærbo. Orn. Dan. taf. 27; Fritsch, Vög. Eur. taf. 26. figs. 17, 18; Naumann, Vög. Deutschl. taf. 121; Sundevall, Svensk. Fogl. pl. iii. figs. 1, 2; Gould, B. of Eur. pl. 191; id. B. of G. Brit. iii. pl. 49; Bonap. & Schlegel, Monogr. Loxiin. pl. 48.

♂ *ad.* fronte sanguineâ: pileo, nuchâ et colli lateribus fusco-griseis, pileo pallidè fusco striato, et regione circa oculos fusciscenti-albidâ: dorso, scapularibus et tectricibus alarum fusco-rufescentibus: uropygio pallidiorè et vix albidò notato: supracaudalibus nigro-fuscis albidò marginatis: caudâ nigrâ, rectricibus utrinque albo marginatis: remigibus nigricantibus, primariis extùs fere ad apicem albo marginatis, secundariis ad apicem vix albo marginatis: mento et gulâ albidis griseo-fusco striatis: pectore san-

guineo, corpore reliquo subtùs albo, hypochondriis fusco lavatis: rostro corneo, mandibulâ griseo-incarnatâ, ad apicem corneâ: pedibus pallidè brunneis: iride fuscâ.

♀ *ad.* mari similis, sed fronte et pectore haud sanguineis: pileo fusco-griseo, fusco striato: corpore suprâ, pectore et hypochondriis fusco striatis, et primariis minus albo marginatis.

Adult Male in summer (Twyford, 10th May). Forehead blood-red; crown, hind neck, and sides of the neck otherwise brownish grey, the hind crown with darker striations, and the region immediately round the eye brownish white; back, rump, scapulars, and wing-coverts warm chestnut-brown, the feathers with slightly darker centres, rump lighter and slightly varied with white; upper tail-coverts blackish brown, with broad whitish margins; quills blackish, the primaries margined on the outer web from the base to nearly the tip with white, these margins being very narrow on the outer quills and much broader on the inner ones; secondaries slightly tipped with white, the inner secondaries like the back, but darker and browner; chin and throat dull white striped with greyish brown, breast rich carmine-red; rest of the underparts white, the flanks washed with brown; beak horn, the under mandible at the base brown; legs pale reddish brown; iris brown. Total length about $5\frac{1}{2}$ –6 inches, culmen 0·45, wing 3·15, tail 2·0, tarsus 0·7.

Adult Female (Pagham, Sussex, 23rd April). Resembles the male, but lacks the red on the forehead and on the breast, the upper parts are browner and more striped, the breast and flanks are striped with dark brown, and the white edgings to the primaries are less developed.

Adult Male in winter. The plumage is a trifle duller than in the summer, and the red on the crown and breast is much paler and obscured by light edgings to the feathers, which, however, wear off in the spring, and permit the full richness of the red to be exhibited. It is not always that the male loses his rich red breast and head in the winter; and I should think that it is retained by the very old males. We frequently see here in England males in the late autumn with the red richly developed; and Mr. Godman remarks that in the Canaries and at Madeira the Linnets retain the red in the plumage all the year round.

Young of the year. Resembles the female, but has both the upper and underparts much more distinctly striped with dark brown.

Obs. So far as I can ascertain, it is long before the male attains the full beauty of its plumage. After the first moult the young male has the breast red, though not to any great extent; but it takes much longer before it assumes the red on the forehead, and before the red on the breast attains its full brilliancy; and instances are cited by several authors of the male breeding before it has attained its full dress. When in confinement, so soon as it moults, it loses the red, which is then replaced by yellow; and sometimes wild birds are obtained which have the breast and forehead orange-yellow instead of red, probably owing to some want of vigour.

THROUGHOUT Europe the Linnet is a common and widely distributed species, being met with up to about 64° N. lat.; and during the winter season it visits North Africa, some few remaining to breed on the western side.

In Great Britain it is generally distributed, and common throughout England, but becomes rarer in the north of Scotland. Mr. Cecil Smith informs me that it is even commoner in the Channel Islands than in the south of England. Except in the north of Scotland, it appears to be

by no means uncommon, and is generally distributed. Mr. Robert Gray says that it is also found on the Outer Hebrides, and that it inhabits the islands of Lewis and Harris, and also North Uist and Benbecula. Mr. J. A. Harvie-Brown says that he has met with Linnets on several occasions in the west of Sutherlandshire, but that it is by no means a common species there, and it does not occur in Shetland. In Ireland it is resident, and is stated by Thompson to be one of the commonest of the small birds inhabiting that island.

In Scandinavia it is common, and is, Mr. Collett informs me, numerous in the lower portions of Norway from Christiansand to the Trondhjems fiord, but has not been with certainty known to occur above 64° N. lat. It is especially common along the coast, where it inhabits dry shores overgrown with juniper bushes and a dense growth of *Berberis*, *Cratægus*, and *Rosa*; but in the interior it is very rare, or else wanting. It arrives in Norway late in March or about the 1st of April; and in mild winters a few individuals remain on the open portions of the fiords, but most leave the country in October.

Nilsson says that it is a common species in the south of Sweden, but does not range above Gestrikland. Most of those which breed in Sweden leave in the winter; but a few remain and spend the cold season in the south of Sweden. In Finland it is also a southern species, being found, Von Wright says, as far north only as St. Michel, and occasionally up to Kuopio; as in Sweden, it is, as a rule, only a summer visitant; but some few remain over winter. Mr. Sabanæeff informs me that it is common in Central Russia, especially in the Smolensk and Tula Governments. Bogdanoff says that it only ranges into the southern portions of the Simbirsk Government; but I am assured on good authority that it is occasionally found as far north as Archangel. Sabanæeff also says that it breeds in the Orloff Government. In the Ural he met with it on the western slope commonly, but is uncertain if it breeds in the Shadrinsk district. On the Kama, Teplouhoff found it common in $58\frac{1}{2}^{\circ}$ N. lat.

Throughout the whole of North Germany it is found in some abundance, being, Borggreve states, a summer visitant in the north-eastern portions of the territory, and a partial migrant in the west. Kjærbølling states that it is common and resident in Denmark, migrating southward only in very cold winters; and in Holland it is found, Mr. H. M. Labouchere informs me, in the southern provinces, as well as on the dunes, but does not breed in the low-lying portions of the country. In Belgium also it breeds only in the hilly portions of the country, but vast flocks visit the plains in the autumn and the commencement of the winter; and in France it is found during the spring and autumn migrations in the greater part of the country, and breeds in Lorraine, Anjou, Provence, Brittany, and other provinces. Professor Barboza du Bocage speaks of it as being common in Portugal; and in Spain, Colonel Irby says (*Orn. Str. Gibr.* p. 121), "it is plentiful, especially during the winter months; great numbers remain to breed, nesting in April, mostly in scrub on the sides of the hills." In Savoy it is common and resident, nesting high up in the mountains: and in Italy it is, to some extent, resident; for some few remain to breed, whereas the larger number arrive in the autumn. Mr. A. B. Brooke says (*Ibis*, 1873, p. 247) that in Sardinia he found it "common at all times, but more numerous during winter." Mr. C. Bygrave Wharton gives the same information respecting its occurrence in Corsica; and it is also said by Mr. C. A. Wright to occur frequently in Malta. In Southern Germany it is common and generally distributed, and is found throughout the Danubian Principalities and

Lower Austria. The late Mr. E. Seidensacher informed me that it arrives in Styria in flocks in the autumn, and winters there also, but he has not known it to breed there. Dr. Krüper says that it is common in Greece in the autumn and winter, and it is not uncommon during the breeding-season in the mountains. It is numerous in Turkey, and is resident in Southern Russia and the countries bordering the Black Sea, collecting (as elsewhere) in vast flocks in the winter, at which season they wander over the steppes. According to Dr. Krüper it is numerous in winter in Asia Minor, and some remain to breed in the mountains; and Lord Lilford sends me the following note respecting its occurrence in the Archipelago:—"This was one of the very few species of birds met with in a short ramble on the east coast of the island of Scarpanto, off which we lay wind-bound in my yacht for two days, May 25th and 26th, 1875. I have no doubt that it occurs in Cyprus; but we did not obtain any specimens in that island." Canon Tristram, who met with it in Palestine, says that there it "consorts with the Snow-Finch in great numbers in summer, building its nest on the ground in tufts of alpine plants on Hermon, where we found its eggs in June, but descending in winter to the hills of Central Palestine, where it roams through the open country in large flocks as in England." It is found in North-east Africa, being, Captain Shelley writes (B. of Egypt, p. 154), "a common winter visitant to Lower Egypt, where it remains until the end of February." He adds, "I have never met with it above Cairo; but it probably ranges into Nubia, as it is mentioned by Blasius as occurring in Abyssinia." In North-west Africa, however, it is resident; for Loche says that it is very abundant in Algeria in winter, and that many remain to breed. Mr. C. F. Tyrwhitt-Drake includes it in his list of the birds of Tangier and Eastern Morocco; and, according to Colonel Irby, Favier says that it is "abundant around Tangier, many being resident and nesting (from March to June). They are mostly migratory, and cross to Europe in March and April, returning in large flocks during September and October." It also inhabits the Canaries and Madeira, where it is, Mr. Godman says, abundant; but it is not found in the Azores. Dr. C. Bolle also writes (J. f. O. 1857, p. 317) that it is extremely numerous on Fuerteventura, Teneriffe, and Canaria, and breeds there.

To the eastward it is found as far as Turkestan. De Filippi observed it in the plains around Demavend; and Mr. Blanford says that it is "very common at high elevations on the Elburz, and less so on the higher hills in Southern Persia, apparently descending to lower elevations in winter. On the Elburz Mountains in August I found the young birds by themselves in large flocks."

I do not find it recorded from anywhere in Western India; but it is stated by Dr. Severtzoff to be resident in the north-eastern, south-eastern, and north-western portions of Turkestan, but is only found in the south-western portion in winter. It breeds there up to an altitude of 10,000 feet. According to Pallas it is never met with in Siberia. Bonaparte describes a bird under the name of *Linota fringillirostris* (Consp. Gen. Av. i. p. 539) as found in Central Asia, which appears to me to be nothing but the present species.

This, one of our most beautiful and lively birds, is at all seasons fond of the society of others of its own species, with which it usually lives in the greatest harmony; and one frequently finds several pairs breeding close to each other. Though peaceable and quiet, it is by no means stupid, but sprightly and active in its movements; and when in the vicinity of man, it is wary and

shy, clearly understanding the necessity for caution. During the autumn and winter months the Linnets collect in flocks, and are then more shy than at any other season; but when breeding, love for its mate or young renders it more bold and less wary.

It is not a forest-bird, but frequents during the breeding-season the outskirts of the woods where there is young growth, gardens, orchards, groves, and hedges, and I have most frequently found it on the bush-covered hill-sides. During the winter, however, it is found in flocks on the fields and stubbles far from the wooded or bush-covered localities, and frequently in company with Mountain-Finches, Greenfinches, Tree-Sparrows, &c. &c. Its call-note is a short, harsh *geck, gecker*, much harsher and deeper than the call-note of the Twite, which it resembles; and this note is most frequently heard when the bird is on the wing. The song of the male is sweet and flute-like; and this bird is a very steady songster: commencing as early as March, it is in full song until July, singing at all hours of the day, though more industriously in the forenoon. Even late in the year Linnets may be heard singing, though their song is then not so good; these songsters are probably young males. As a cage-bird it is exceedingly tractable, can be taught almost any thing that a Canary or any other small bird will learn, and is an excellent songster in confinement. Naumann says that not only will it learn to whistle tunes, but has been known to articulate words like a Parrot.

It feeds chiefly, and almost exclusively, on seeds, of various kinds, especially those which are of an oily nature; and though it frequently makes free with the seeds sown in the gardens, yet it consumes the seeds of many noxious weeds. The young are also fed with seeds, which have been shelled and softened in the parent bird; and Naumann states that "the young of the first brood are fed chiefly with the seeds of *Alsine media*, *Stellaria alsine*, *Leontodon taraxacum*, &c." Early in March they take possession of their breeding-places; and late in the same month the nest is being built. The positions selected for this latter differ exceedingly; for it may be found in a low bush, in a hedge, or in a tree at from 2 to 25 feet above the ground, and instances are on record of the nest being on the ground itself: for instance, it is said to breed in holes in the ground on the banks of the Elbe; and Canon Tristram found it nesting on the ground. The nest resembles that of the Greenfinch, being constructed of the same materials; but it is smaller, the materials rather finer, and seldom contains any moss in its structure. It is composed of straws and bents and rootlets, intermixed with a little wool &c., and lined with wool and fine roots or horsehair. Both male and female assist in the construction of the nest; but the latter does the chief portion of the work. Two broods are usually raised in the season, the first eggs being deposited in April, and the second in June—the first clutch consisting of five or six, and the second of only four. The eggs closely resemble those of the Goldfinch, being pale sea-green or blue-greenish white, finely spotted and marked with small blotches of violet-grey, pale red, and dull blood-red, some being much more marked than others; and in most the larger markings are collected so as to form a sort of wreath round the larger end. In size the eggs of the Linnet are a little larger than those of the Goldfinch.

The specimens figured are the adult male and female in summer plumage above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Hampstead, April 16th, 1869 (*Davy*). *b*, ♂. Twyford, May 10th, 1870. *c*, ♂, *d*, ♀. Pagham, April 23rd, 1870. *e*, ♂, *f*, ♀. Pagham, April 26th, 1872. *g*, ♀ *juv.* Pagham, June 20th, 1870. *h*, *i*, *j*. Pagham, July 8th, 1870 (*R. B. Sharpe*). *k*, ♀. Piedmont (*J. Salvadori*). *l*, ♂. From the Hemprich & Ehrenberg collection, labelled by Ehrenberg *Fringilla bella*.

E Mus. C. A. Wright.

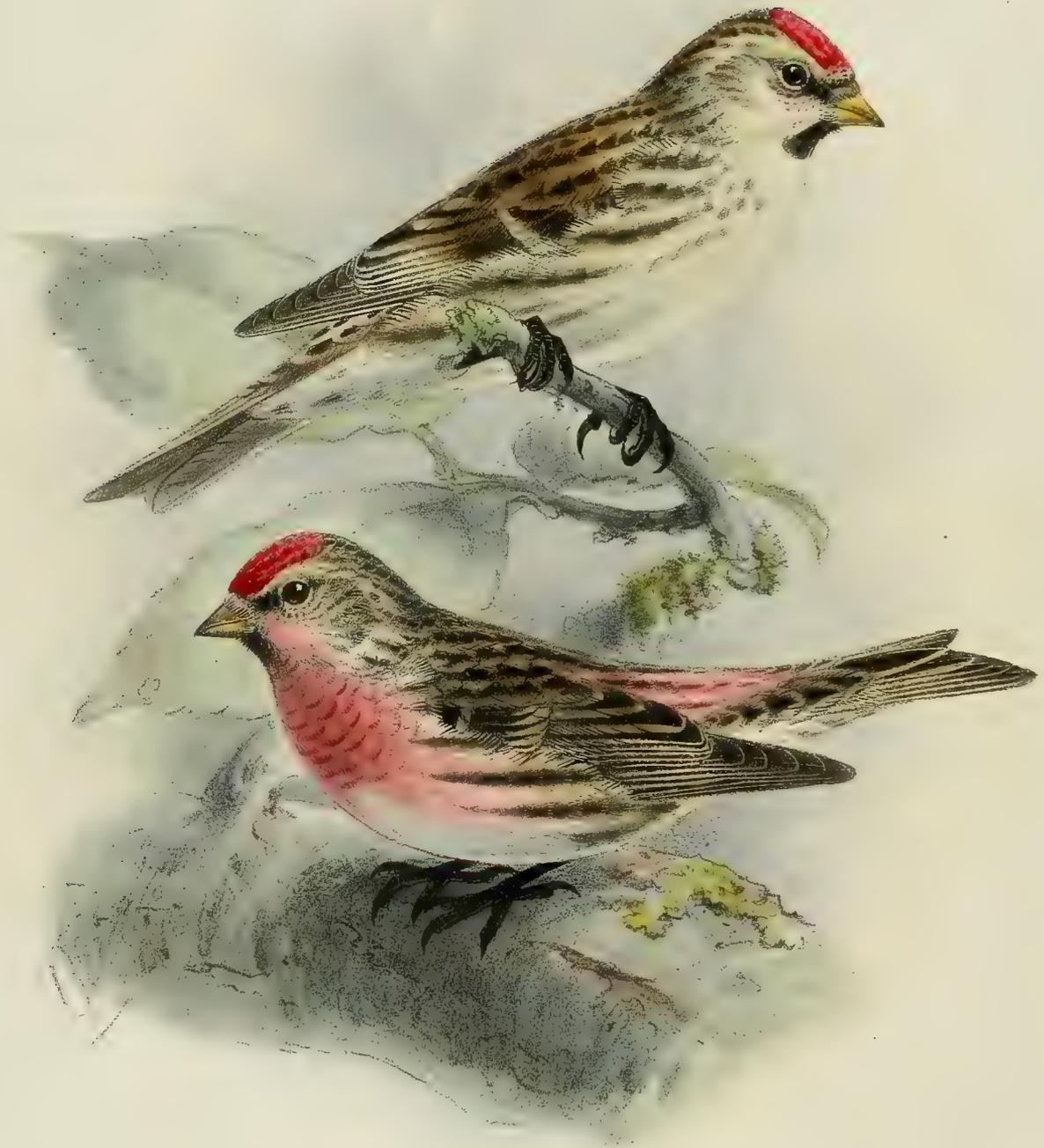
a, ♂. Malta, March 17th, 1864 (*C. A. W.*). *b*. Malta, spring (*C. A. W.*). *c*, ♀. April 24th, 1869 (*C. A. W.*).

E Mus. Howard Saunders.

a, ♂. Granada, January 1871. *b*, ♂. Sierra Nevada, April 1871 (*Sanchez*). *c*, ♂. Malaga, July 20th, 1873 (*Rios*). *d*, *e*, *f*, ♂. Valencia, April 6th to 11th. *g*, ♂. Valencia, April 15th (white-headed variety). *h*, *i*, ♀. Valencia, April 4th.

E Mus. G. E. Shelley.

a, ♂. England, August 19th, 1870 (*G. E. S.*). *b*, ♂. Tangier, March 18th, 1873. *c*, ♀?. Nile delta, February 14th, 1870 (*G. E. S.*).



J.G. Keulemans del.

M & N. Hanhart imp.

MEALY REDPOLL.
LINOTA LINARIA.

LINOTA LINARIA.

(MEALY REDPOLL.)

- Passer linaria rubra minor*, Briss. Orn. iii. p. 138 (1760).
Fringilla linaria, Linn. Syst. Nat. i. p. 322 (1766).
 ?*Fringilla flammea*, Linn. Syst. Nat. i. p. 322 (1766).
 ?*Fringilla vitis*, P. L. S. Müller, Natursyst. Suppl. p. 163 (1776).
Le Sizerin, Montb. Hist. Nat. Ois. iv. p. 216 (1778).
Passer linaria (Linn.), Pall. Zoogr. Rosso-As. ii. p. 25 (1811).
Spinus linaria (Linn.), Koch, Baier. Zool. i. p. 233 (1816).
Linaria borealis, Vieill. Mem. Real. Accad. Sc. Tor. xxiii. Sc. Fis. p. 199 (1816-1818).
Fringilla borealis (Vieill.), Roux, Orn. Prov. i. p. 165, pls. 101, 102 (1825).
Linaria holboellii, C. L. Brehm, Vög. Deutschl. p. 280 (1831).
Linaria alnorum, C. L. Brehm, op. cit. p. 281 (1831).
Linaria agrorum, C. L. Brehm, loc. cit. (1831).
Linaria betularum, C. L. Brehm, op. cit. p. 282 (1831).
Linaria canescens, Gould, B. of Eur. part xi. pl. 193 (1834).
Linaria vulgaris, Rüpp. Neue Wirbelth. p. 101 (1835).
Linota canescens (Gould), Bp. Comp. List, p. 34 (1838).
Linota borealis (Vieill.), Bp. ut suprà (1838).
Cannabina linaria (Linn.), Rüpp. Syst. Uebers. p. 77 (1845).
Acanthis linaria (Linn.), Bp. Consp. Gen. Av. i. p. 541 (1850).
Acanthis holbölli (Br.), Bp. ut suprà (1850).
Aegiothus linarius (Linn.), Cab. Mus. Hein. i. p. 161 (1850-51).
Aegiothus holbölli (Br.), Cab. ut suprà (1850-51).
Linaria robusta, C. L. Brehm, Vogelfang, p. 107 (1855).
Linaria rufescens, C. L. Brehm, ut suprà (1855, nec Vieill.).
Linaria canigularis, C. L. Brehm, ut suprà (1855).
Linaria dubia, C. L. Brehm, ut suprà (1855).
Linaria assimilis, C. L. Brehm, ut suprà (1855).
Linaria leuconotos, C. L. Brehm, ut suprà (1855).
Linaria septentrionalis, C. L. Brehm, ut suprà (1855).
Linaria flavirostris, C. L. Brehm, ut suprà (1855).
Linaria pusilla, C. L. Brehm, ut suprà (1855).
Ægiothus fuscescens, Coues, Proc. Phil. Acad. 1861, p. 222.
Cannabina canescens (Gould), Swinhoe, Ibis, 1861, p. 335.
Ægiothus canescens (Gould), Blakiston, Ibis, 1863, p. 71.
Fringilla rufescens, Elwes & Buckley, Ibis, 1870, p. 193 (nec Vieill.).
Ægiothus rufescens, Alston & Harvie-Brown, Ibis, 1873, p. 64 (nec Vieill.).

Ægiothus borealis (Vieill.), Swinhoe, Ibis, 1874, p. 160.

Linota linaria (L.), Newton, Yarr. Brit. Birds, ed. 4, ii. p. 133 (1876).

Stone-Redpoll, *Mealy Redpoll*, English; *Sizerin boréal*, French; *Birkenzeisig*, *Flachszeisig*, *Bergzeisig*, German; *Barmsijsje*, Dutch; *Graasidsken*, Danish; *Orpingmiutak*, *Anarak*, Greenlandic; *Rödkop*, *Sisserönnike*, *Moirisk*, Norwegian; *Gråsiska*, Swedish; *Urpovarpunen*, Finnish; *Sljepuschka*, Russian.

Figuræ notabiles.

Werner, Atlas, *Granivores*, pl. 49; Kjærb. Orn. Dan. taf. 27; Fritsch, Vög. Eur. taf. 26. figs. 15, 16; Naumann, Vög. Deutschl. taf. 126; Sundevall, Svensk. Fogl. pl. 3. figs. 4, 5, 6; Gould, B. of Eur. pl. 193; id. B. of G. Brit. iii. pl. 51; Schlegel, Vog. Nederl. pl. 171; Audub. B. of Am. pl. 179; Wilson, Am. Orn. pl. 30. fig. 4; Bp. & Schlegel, Mon. Lox. pls. 52, 53.

♂ *ad. ptil. æst.* fronte et pileo antico sanguineo-rubris: corpore suprâ nigro-fusco, plumis conspicuè pallidè fusco vel fusco-albido marginatis: uropygio pallidiore et rubro lavato: remigibus nigricantibus, primariis angustè et secundariis latiùs albido marginatis et apicatis: tectricibus alarum majoribus albo terminatis: caudâ nigro-fuscâ, rectricibus centralibus albo marginatis: loris et mento nigris: regione paroticâ fuscâ albo lavatâ: gutture et pectore supremo pallidè sanguineo-rubris: corpore reliquo subtùs albo, hypochondriis nigro-fusco striatis: rostro fusco-corneo, ad basin flavido: iride fuscâ: pedibus brunneis.

♀ *ad.* mari similis sed minor, nec pectore, gutture et uropygio rubris, et corpore suprâ saturatiore.

Ad. ptil. hiem. plumis in corpore suprâ latiùs pallidè fusco-albido marginatis, plagâ frontali rubrâ minore, et plumis ad basin maxillæ cervino-griseis: uropygio haud rubro: corpore subtùs albo, gutture fusco-cervino lavato: rostro flavido, fusco apicato.

Adult Male in spring (Stockholm, 14th April). Upper parts blackish brown, the feathers tolerably broadly margined with pale brown or brownish white; forehead and fore part of the crown deep blood-red; rump paler than the rest of the upper parts and washed with red; quills blackish, the primaries very narrowly and the inner secondaries more broadly margined and tipped with white, larger wing-coverts tipped with white, the lesser coverts coloured like the back; tail blackish, the central rectrices margined with white; lores and chin black; ear-coverts brown, marked with dull white; throat and upper breast pinkish red; rest of the underparts white, the flanks streaked with blackish brown; bill dark brownish horn, yellowish at the base; iris dark brown; legs dark brown. Total length about 5 inches, culmen 0.38, wing 3.08, tail 2.58, tarsus 0.58.

Adult Female in summer. Differs from the male in lacking the red on the breast and rump, in having the upper parts rather darker, and in being smaller in size.

Adult in winter dress (Sweden, December). Differs from the bird above described in lacking the red on the throat, breast, and rump, in having the margins to the feathers on the upper parts broader and lighter; the red cap is smaller, and the feathers at the base of the upper mandible are yellowish grey; the black patch on the chin is larger, and the underparts of the body are white, the throat and upper breast washed with brownish buff, and the flanks streaked with dark brown; bill yellow, tipped with brown; iris and legs dark brown.

Young in nestling dress (Stockholm, 16th June). Head and nape blackish brown, the feathers margined with buffy grey; back similarly coloured, but the feathers are tinged with reddish brown; wings and tail as in the adult bird, but the margins are warm rufous buff, not white; entire underparts buffy white streaked with blackish brown; bill brown; legs brownish flesh.

Obs. After the autumnal moult the plumage is much lighter than in the summer, owing to the long light fringes to the feathers; and this dress is retained throughout the winter. When spring advances the plumage gradually changes, not, it would seem, by a moult, but by the gradual abrasion of the light fringes; and by degrees the red appears on the breast and rump, and the red cap increases in size and in intensity of colour. The spring plumage above described is that worn at the commencement of the breeding-season; but as the summer advances the upper parts become much darker, and the feathers worn and abraded, and the red colour becomes much more intense; thus in a specimen in my collection, shot at Quickjock in July 1867, the light markings on the upper parts are reduced to a few streaks, the red cap extends over half the crown, and the red on the breast extends over the whole breast and on the upper part of the flanks. In this plumage it is *Ægiothus fuscescens* of Coues. The same change in plumage also takes place in the other Redpolls; but the difference in the coloration of the upper parts in *L. rufescens*, between the summer and winter dress, is not so great as in the other allied species. There is some dissimilarity in size; but this is, so far as I can see, chiefly individual. The following table will show how far the variation in size ranges in individuals from different localities:—

		Wing.	Tail.	Tarsus.
		inches.	inches.	inch.
<i>Linota linaria</i>	Great Britain ♂	2.95	2.5	0.58
"	" ♀	2.80-2.85	2.40-2.5	0.52-0.55
"	Central and S. Sweden . ♂	2.90-3.02	2.50-2.65	0.54-0.58
"	" " ♀	2.85-2.96	2.50-2.54	0.52-0.56
"	West Finmark ♂	2.90-2.95	2.45-2.65	0.58-0.62
"	" ♀	2.8	2.5	0.52
"	East Finmark ♂	2.94-2.95	2.56-2.59	0.60-0.64
"	" ♀	2.80-2.85	2.30-2.52	0.55-0.58
"	North Bothnia ♂	2.90-2.96	2.50-2.69	0.57-0.6
"	European Russia ♂	2.85-2.98	2.45-2.65	0.57-0.6
"	" ♀	2.82-2.92	2.42-2.6	0.55-0.6
"	S. E. Siberia ♂	2.85-2.95	2.35-2.55	0.60-0.62
"	North America ♂	2.85-2.95	2.50-2.62	0.54-0.62
<i>Linota rufescens</i>	Great Britain ♂	2.65-2.8	2.40-2.5	0.53-0.58
"	" ♀	2.50-2.65	2.40-2.45	0.50-0.55
<i>Linota hornemanni</i>	Greenland ♂	3.3	3.0	0.62
"	" ♀	3.10-3.15	2.62-2.75	0.65
"	Spitsbergen ♂	3.3	2.75	0.7
<i>Linota exilipes</i>	Tromsø, Norway . . . ♂	3.0	2.68	0.64
"	" ♀	2.72	2.48	0.55
"	European Russia . . . ♂	2.90-3.0	2.45-2.62	0.55-0.62
"	" ♀	2.65-2.94	2.30-2.52	0.51-0.58
"	Darasun ♂	2.89	2.5	0.56
"	North America	2.90-2.98	2.60-2.65	0.58-0.6

The measurements of the bill are not given, as they are most variable—not only in different individuals, but, according to the nature of the food, at different seasons in the same individual.

Mr. Wolley appears to have been the first to notice this circumstance; but his observations remained unpublished, and Gloger, who subsequently made a suggestion to the same effect, was the first to publish (J. f. O. 1856, pp. 433-440) an account of the variation in the bills of seed-eating birds, in which the present species is cited as an example. Professor Newton, referring to this, writes (*l. c.*) as follows:—“But another and yet more remarkable seasonal change occurs in these birds, of which Wolley, during his long residence in Lapland, seems to have been the first observer, though his full explanation of it has not been made public. It had long been known that examples differed greatly in the size, and especially in the length, of the bill; and many naturalists were inclined to believe that this difference indicated two races, if not species, of Redpoll. A certain amount of it, indeed, was obviously rather apparent than real, being due to the length of the feathers on the bird's face; thus the bill of a specimen obtained in winter always seemed much shorter than that of one procured in the summer; but from repeated examination of birds killed out of the same flock he satisfied himself that during the latter season the horny covering of the mandibles was constantly growing longer, and attributed the fact to the softer nature of the food then eaten, observing that when winter really set in, and the birds were living solely on hard seeds, the edges and tip of the mandibles were rapidly worn down, so that the bill at the beginning of spring had become considerably shorter than it was at the end of the preceding summer. If this mode of accounting for the change be the true one, we can well understand that there should be cases in which the waning and waxing of the bill may go on independently of the season, provided only that the bird's food varies in places or at times sufficiently to produce the effects as observed by Wolley at Muonioniska with reference only to the season.”

Few groups present more difficulty in working out than do the Redpolls. When first I took this group in hand I found that a far larger series of specimens than I then had at my disposal was indispensable; but since that time, thanks to my friends, I have been able to make use of a considerable series, and have found my views materially modified after having examined these examples. I am also indebted to Professor Newton for much valuable cooperation. This gentleman was just preparing his articles on *Linota linaria* and *Linota rufescens* for the new edition of Yarrell on which he is engaged, and proposed that he and I should work conjointly, an offer which I gladly accepted. I was at first inclined to treat them all as one species; for they certainly do run into each other in a most perplexing manner: but I am now convinced that Professor Newton is correct in keeping them separate; for they certainly do range into four races or forms, which it is more convenient to treat as distinct species than to unite together into one. As may be imagined, owing to the confusion which has existed amongst these forms, owing chiefly, it would seem, to the lack of an adequate number of specimens for examination by those who have hitherto worked at this group, the synonymy of the Redpolls has been in a rather tangled condition. Dr. E. Coues (*l. c.*) did good work in trying to bring the synonymy into some order; but it appears to me that he erred on the side of subdividing too much, though one, at least, of the species differentiated by him will, in my opinion, stand; and Professor Newton seems now to have reduced the number of really distinguishable European forms to their legitimate limit. There can be no doubt that the present form (or species, as it will perhaps be the most convenient to term it) is, as stated by Professor Newton, the true *Fringilla linaria* of Linnæus, though, as this gentleman remarks (Yarr. Brit. B. ed. 4, i. p. 134), “authors, through imperfect knowledge, have very generally misapplied it to the other. The difference between the two was first clearly shown by Vieillot, who, in an admirable paper read before the Academy of Sciences of Turin, July 7th, 1816, very accurately described them under the respective names of *Linaria borealis* and *L. rufescens*, and rightly identified the former with the Linnæan *F. linaria* (Mem. Accad. Sc. Torino, xxiii. p. 199). This communication, perhaps from the discredit cast upon it by Temminck, has been much neglected; and to the zoologist last named is certainly due the confusion that long existed on this subject; for he at first refused to recognize the distinctness of the two forms; and when at last compelled by evidence to do so, he wrongly identified

the smaller, and to him best-known, with the Linnæan *linaria*. Temminck's faulty course was unfortunately followed by nearly all his contemporaries; and matters were further complicated by a third form of Redpoll being confounded by him with the larger of the two that inhabited Western Europe."

THE range of this species is much more extensive than that of any of the other three Redpolls; for it inhabits the northern portions of both the Old and New continents, straggling southward during winter in Europe to the shores of the Mediterranean, and in Asia to Japan. It visits Great Britain at irregular intervals during the seasons of passage and in winter, but has not been known to breed with us. It is far more frequently seen on the eastern than on the western side of our island; and it appears probable that the flocks which visit our island are migrants from Norway or Sweden. To begin from the most northern portions of Great Britain, I find it recorded by Saxby (B. of Shetl. Isl. p. 104) as "a regular winter visitant to Shetland, appearing first in the north of Unst, and gradually, though very slowly, proceeding southwards." He "first met with it on the 25th of September, 1860. The name of Stone-Redpoll has been very appropriately bestowed upon it, bare stony hillsides being its favourite haunts." Mr. Robert Gray also says (B. of W. of Scotl. p. 148), on the west side of Scotland "it is of irregular and uncertain occurrence only. Some seasons pass without any being seen, while in others they are frequently obtained. The winter of 1863-64 may be noted as one in which this species was comparatively common, numbers having been taken by the birdcatchers even in the neighbourhood of Glasgow. Six specimens were seen in the outskirts of the city in 1861, two of which were caught with bird-lime. The season was a very severe one. Mr. Tottenham Lee found several specimens in Kirkcudbrightshire in 1854; and in 1868 Mealy Redpolls were again taken in that county and in Dumfriesshire, and sent to the Glasgow bird-market. I have seen several specimens that were taken near Forfar; and it has frequently occurred in Midlothian." In Northumberland and Durham it is stated to be a common winter visitant, and occasionally seen in large flocks; and Professor Newton writes (*l. c.*) as follows:—"It is not recorded from Lincolnshire. In Norfolk and Suffolk it cannot be called an annual visitor, yet flocks of greater or less size may be met with in several consecutive seasons; it sometimes arrives so early as the middle of October, and in the years 1847, 1855, 1861, and 1873 it was extremely plentiful. From those counties it seems to pursue its way through Essex to the London district, where the author has been told it was abundant about the year 1815 (in which season the Lesser Redpoll is said to have been scarcely got by the birdcatchers), and again in 1829; but though it continues to show itself at times, there is no evidence of its having since occurred in any great numbers. In some seasons it also appears commonly near Brighton, especially, says Mr. Knox, about 1834, but, according to the same authority, less frequently of late years, though a few are almost always taken by the birdcatchers in winter. Further to the westward its occurrence is open to doubt; for, though Mr. Cocks has mentioned (Nat. 1851, p. 112) its appearance near Penzance, and the statement is confirmed by Dr. Bullmore, Mr. Rodd expressly says of it 'not Cornish.' It is comparatively seldom noticed in spring; but the Museum of Saffron-Walden contained a male that was killed in that neighbourhood in May 1836, while one shot at Oundle by the late Mr. Pelerin was sufficiently advanced in its plumage to have acquired a considerable portion of red colour on the breast. The Editor saw a cock, in full breeding-dress, which was obtained at Riddlesworth, in Norfolk, in July 1848 (Zool. p. 2382). Mr. Stevenson also mentions the occurrence of a flock of

twenty or thirty so late as the middle of April 1862 in the same county, and (Zool. s. s. p. 871) a male netted near Norwich, May 25th, 1867. The only known instance of this bird's appearance in Ireland has been kindly communicated by Mr. Harting, who received for identification the remains of one shot by Mr. W. J. Haughton at Levitstown, near Athy, February 9th, 1876."

In Greenland the present species is stated to be a migrant; but it breeds in the southern parts of the country. It does not, however, appear to be found in Iceland, being there replaced by *Linota hornemanni*; and it is only a rare visitant to the Færoes. Captain Feilden says that in September 1861 Mr. Müller saw ten in his garden; one was brought to Captain Feilden in the island of Sandoe on the 23rd May, 1872; and another obtained about the same time near Thorshavn was given to him. In Scandinavia the present species is common, breeding on the elevated fells in the southern districts, or in the more northern districts, and never in the lowlands of the southern portions of the country, which it visits during passage and in the winter. Mr. Robert Collett informs me that in Norway it is a true alpine species, frequenting the elevated fells, but never the valleys or lowlands in Southern Norway; but in the north it inhabits the birch-woods of Nordland and Finmark down to the sea-level. In the fall of the year large flocks come down from the fells and wander about in the lowlands all through the winter; some, however, migrate further south, and return in March or April. In May all have disappeared from their winter quarters. Professor Sundevall says that during the breeding-season it is common in the northern districts of Sweden, migrating southwards in the autumn, some remaining throughout the winter in the country, and others passing on to Continental Europe. According to Magnus von Wright it is common in Finland on passage and during winter in the southern districts, and at least as far north as Kuopio. In the northern portion of the country from Kuopio upwards it is found breeding in considerable numbers. Throughout Northern Russia it is very common up to the coasts of the Arctic Ocean. In the Archangel Government it is very common; and Messrs. Seebohm and Harvie-Brown state (Ibis, 1876, p. 116) that both the present species and *Linota exilipes* are "very abundant along the Petchora valley. They remained in the town of Ust Zylma in flocks up to the second week in May, and then dispersed to their breeding-quarters in the woods. The first eggs were found on the 10th June; and the young of the latter species were seen in the nest on the 13th June. Both the common and Mealy Redpolls are found as far north as Stanavoialachta." Mr. Sabanäeff informs me that it breeds but rarely in the Jaroslaf and Moscow Governments and in Novgorod, but is very common further north. During passage he met with it commonly in the Ural; but it nests only in the northern portion of that range. Throughout the whole of North Germany the present species is a tolerably common winter visitant, appearing early in November and leaving again in January or February. Bechstein says that some few remain to breed in Thuringia. Professor Kjærbölling states that during passage it is often very numerous in Denmark; and it visits Belgium, Holland, and Northern France at the same season; but its appearances are, though not unfrequent, very irregular. Mr. Adrien Lacroix says that it occurs in the French Pyrenees as a rare winter straggler at irregular intervals of one or two years, during severe weather; and the same may be said respecting its occurrence elsewhere in the south of France. It is stated to have bred near the lake of Como; but this statement may reasonably be doubted, and Salvadori says that it does not pass beyond the middle of the peninsula of Italy, though

Malherbe states that it is "of accidental occurrence during passage in Italy and Sicily." In Southern Germany it is also a winter visitant. Dr. Anton Fritsch says that it sometimes visits Bohemia in large flocks, remaining until March; the Ritter von Tschusi-Schmidhofen states that it has occurred near Hallein, in Austria, and Herr Hanf that it breeds annually in Styria. Count Casimir Wodzicki writes (J. f. O. 1853, p. 439) that it visits the Carpathians in large flocks, and a few pairs remain to breed, though only in exceptional instances. Messrs. Danford and Harvie-Brown say that in Transylvania it is "common in harvest-time in large flocks, and nests not unfrequently in bushes among the lower mountains;" and, according to Messrs. Elwes and Buckley, it has been obtained in Turkey during the winter by Mr. Robson. Dr. Krüper says that during severe winters it straggles as far south as Greece; but I find no instance of its occurrence in Asia Minor; and though Rüppell states that it occurs during winter in Egypt, later travellers in that country have not met with it.

To the eastward it is found right across the continent of Asia; but as the Siberian travellers have, to some extent, confused the present species and *Linota exilipes*, it is difficult to decide to which their remarks refer. Von Middendorff met with the Redpoll on the Jenisei (60° N. lat.) in February, on the 12th March at Turuchansk (66° N. lat.), and on the 29th April on the Boganida (in 71° N. lat.). At Jakutsk he first saw them on the 7th March, and in Manchuria again on the 25th December, after having lost sight of them in the autumn. Von Schrenck found the present species common in the Amoor country throughout the winter, from the 28th October (O. S.) to the early part of May; and he also observed it in Saghalien. Dr. Radde appears to have obtained both *L. exilipes* and *L. linaria*, the former at Irkutsk in October; for he describes the specimen with tolerable accuracy. He says that the Redpolls were common at Irkutsk in October, and he saw them in the Bureja Mountains in September. In the elevated steppes of Dauria they remained over the winter. He observed a few in the Bureja Mountains as late as the 10th April (O. S.), but not later. It has been obtained in Japan; and Mr. Swinhoe says that it winters in North China. I must not omit to mention that, according to Dr. Severtzoff, it straggles as far south as Turkestan during the winter; but, he adds, it is a rare visitant to that country.

On the American continent the present species is found in the northern portions of the country from the Atlantic to the Pacific, straggling south during the winter as far as the State of New York. Mr. Bannister found it common at St. Michael's, in Alaska, both in summer and winter; and at Nulato Mr. Dall met with it commonly in winter, and very little less numerous in summer. Mr. J. K. Lord observed it in British Columbia, where it is rare; and Dr. Cooper only found it as far south as Washington Territory. During the winter my brother Arthur met with it commonly in Manitoba; and the Indians who accompanied him assured him that it bred there. In the Hudson's-Bay Territory, Canada, and Labrador it is said to be common; and when in New Brunswick I found it common there during the autumn, winter, and spring. During the winter it is said to migrate as far south as Massachusetts, Pennsylvania, and the State of New York.

In habits this Redpoll does not differ from its ally *Linota rufescens*; but the notes of the two species are somewhat different, that of the present species being sharper and very closely resembling the call-note of the Canary. I have met with the Mealy Redpoll in different parts

of Scandinavia, Finland, and Russia, as well as in the lonely forests of North America, and have observed no difference in its actions and general habits from those of the common British species. When living in the dense forests of North America, where during the dreary long winter animal life is comparatively so scarce, the Redpoll and the Titmice were frequently almost the only birds we saw; and on bright days, when the sun shining on the birches used to make them look as if covered with thousands of diamonds, the Redpolls would enliven the scene by their clear lively call-notes and sprightly movements as they flitted from tree to tree, or climbed about amongst the branches in every variety of attitude, now hanging head downwards like a Titmouse, and now fluttering at the end of a twig, trying to extract the seed. It seems to be able to bear intense cold; for we used to see small flocks in the birch-woods during the most severe weather, especially when the atmosphere was clear and the sun shining. We generally found them at the edges of the birch-woods, near a clearing or small open place, and but seldom deep in the forest; and, unlike the Crossbills (which used to visit our camps to pick up any food that might be thrown out), the Redpolls were but seldom seen close to the camp-clearing, and I never recollect seeing any pecking about amongst the refuse thrown out. Usually they were seen in straggling flocks, very frequently in company with Titmice, and but seldom in very large flocks.

When the snow commences to melt and the streams to thaw up, the Redpolls commenced to take possession of their breeding-quarters. I never found them breeding when in North America, but had ample opportunities of watching them during the breeding-season when in the north of Finland and Sweden. They usually select an open place in the forest, not far from water, where the birch- or alder-growth predominates; and the nest is placed in a bush or on a birch tree, sometimes near the ground, and seldom at any great altitude. A nest of the present species from Norway differs considerably in size from, being much larger than, the nest of *L. rufescens*. It is cup-shaped, neatly and closely constructed of fine bents and green moss intermixed with a few dark grey lichens and a few hairs, and is neatly lined first with fine bents, and then with white Ptarmigan's feathers. It measures 3.55 inches in outside diameter, and 2.45 in height; and the cup measures 2.0 in diameter by 1.4 in depth.

The eggs of three at least of the four forms of Redpolls which inhabit Europe differ appreciably from each other in size, though not in coloration. I possess eggs of *Linota hornemanni* from North Greenland, of *Linota linaria* from Southern Greenland, Norway, and Finland, and of *Linota rufescens* from North England and Scotland. All these eggs are pale greenish blue, somewhat sparingly marked and blurred with dull rufous; and in some specimens there is here and there a dark reddish brown spot. Some are more closely marked than others; but the variation is, on the whole, not very great. In size eggs of this species from Greenland and North Finland are larger than those from Scandinavia; but it is possible that those from Greenland may be referable to *L. hornemanni*. Thus eggs from Greenland measure from $\frac{5.4}{80}$ by $\frac{1}{2}$ to $\frac{5.8}{80}$ by $\frac{1}{2}$ inch, those from Finland, obtained by myself when at Uleåborg, $\frac{5.7}{80}$ by $\frac{1}{2}$ to $\frac{5.8}{80}$ by $\frac{1}{2}$ inch, whereas those from Norway average only $\frac{5.2}{80}$ by $\frac{3.9}{80}$ inch; on the other hand, the eggs of *Linota hornemanni* in my collection vary from $\frac{6.0}{80}$ by $\frac{4.2}{80}$ to $\frac{6.2}{80}$ by $\frac{1}{2}$ inch, and eggs of *Linota rufescens* vary from $\frac{4.8}{80}$ by $\frac{3.5}{80}$ to $\frac{5.0}{80}$ by $\frac{3.7}{80}$ inch. Unfortunately I do not possess eggs of *Linota exilipes*.

Mr. Collett, writing from Christiania, informs me that the male sings diligently during the

breeding-season, usually whilst flying high over the tops of the trees from one part of the forest to the other. The song, which is only heard at this season of the year, consists of a prolonged trill and a soft twitter uttered several times in succession. In some seasons it is much more numerous than in others at its breeding-haunts in Norway. In 1872 it was very common everywhere in the vicinity of Tromsö and in Lapland, and the song of the males was heard everywhere; but in 1874 and 1876 it was comparatively scarce in the same localities. The same can be said of the Brambling, which was also unusually common in 1872. The nests Mr. Collett found in Finmark contained eggs about the middle of June, the usual number being five. Both the male and the female incubated in turn, the male keeping watch for hours together by the side of his mate. The nests, he writes, "were almost invariably placed in the fork of a birch tree, between the stem and one of the main branches, and at some distance from the ground, often upwards of ten feet, and seldom lower down when on trees; but in brushwood it is frequently placed less than a foot from the ground. The nest is constructed externally of lichens and the stalks of a *Poa*, the base being frequently a layer of fine dry birch twigs; and the inside is well lined with feathers of the Ptarmigan and the down of *Salix lanata* and *Eriophorum*. Nestling birds, scarcely three days old, were invariably found to have sand in their stomachs, which were crammed full of insects, or the green-coloured larvæ of a *Geometra* very numerous on birch-leaves."

The specimens figured are both adult males, one in full summer dress and the other in winter plumage, both being from Sweden, and belonging to my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Stockholm, April 14th, 1872. *b*, ♂. Stockholm, October 19th. *c*, ♂. Stockholm, June 16th. *d*, ♂, *e*, ♀. Stockholm. *f*, ♀. Wermland, January 1st. *g*, ♂. West Gothland, December 24th. *h*, ♂. Wermland (*Meves*). *i*. Norway, June 27th, 1871 (*Alston*). *j*, ♂. Quickjock, July 1867 (*T. E. Buckley*). *k*, ♂. Archangel, April 21st. *l*, ♂, *m*, ♀. Petchora, N. Russia (*H. Seebohm*). *n*. Philadelphia (*Krider*). *o*, ♂. Bitterroot valley, U. S. (*E. Coues*). *p*, ♂. Musquash, New Brunswick, April 5th. *q*, ♂, *r*, ♀. Musquash, April 4th (*A. R. Dresser*). *s*. Labrador, 13th August, 1871 (*Dodge*).

E Mus. Salvin and Godman.

a, ♂, *b*, *c*, ♀, *d*. Cambridge, March 1856 (*O. Salvin*). *e*, ♀. Cambridge, November 10th, 1866 (*O. S.*). *f*, ♂, *g*, ♀. Borregaard, Norway, April 12th, 1859 (*F. D. Godman*). *h*, ♂, *i*, ♀, *k*. Bodö, Norway, June 1857 (*Godman*). *l*. Greenland (*Holböll*).

E Mus. Cantabr.

a, *b*, *c*. N.W. America (*Hepburn*).

E Mus. P. L. Sclater.

a. N. America. *b*. Simiahmoo, N. America (*Kennerley*). *c*. Red River (*Gunn*). *d*. Bear Lake (*B. H. Ross*). *e*. Fort George (*Drexler*). *f*. New Brunswick (*Osburn*).

E Mus. H. Seebohm.

a, ♂. Tromsö, June 13th, 1874 (*H. S.*). *b*, ♂, *c*, *d*, *e*, *f*. Vadsö, East Finmark, June 1874 (*H. S.*). *g*, *h*, ♂, *i*, ♀. Petchora, N. Russia. *k*, ♂, *l*, ♀. Ust Zylma, Petchora river, May 22nd, 1875 (*H. S.*). *m*. Archangel, March 28th, 1875. *n*, ♂, *o*, ♀. Ust Zylma, April 28th. *p*, ♀. Ust Zylma, April 15th, 1875 (*H. S.*).

E Mus. Feilden and Harvie-Brown.

a, ♀. Archangel, June 18th, 1872 (*H.-B.*). *b*. Archangel, March 27th, 1875 (*H.-B.*). *c*. Ust Zylma, Petchora, April 17th, 1875 (*H.-B.*).

E Mus. Norv.

a, ♂. Muonioniska, Lapland, September 29th, 1853 (*J. Wolley*). *b*. Muonioniska, April 7th, 1855 (*J. W.*).
c. Quickjock, Lapland, July 6th, 1872 (*Wheelwright*).

E Mus. A. Newton.

a, *b*, ♀. Nyborg, Varangerfiord, June 1855 (*A. N.*). *c*, *d*. Lapland, June (*J. Wolley*).

E Mus. R. Swinhoe.

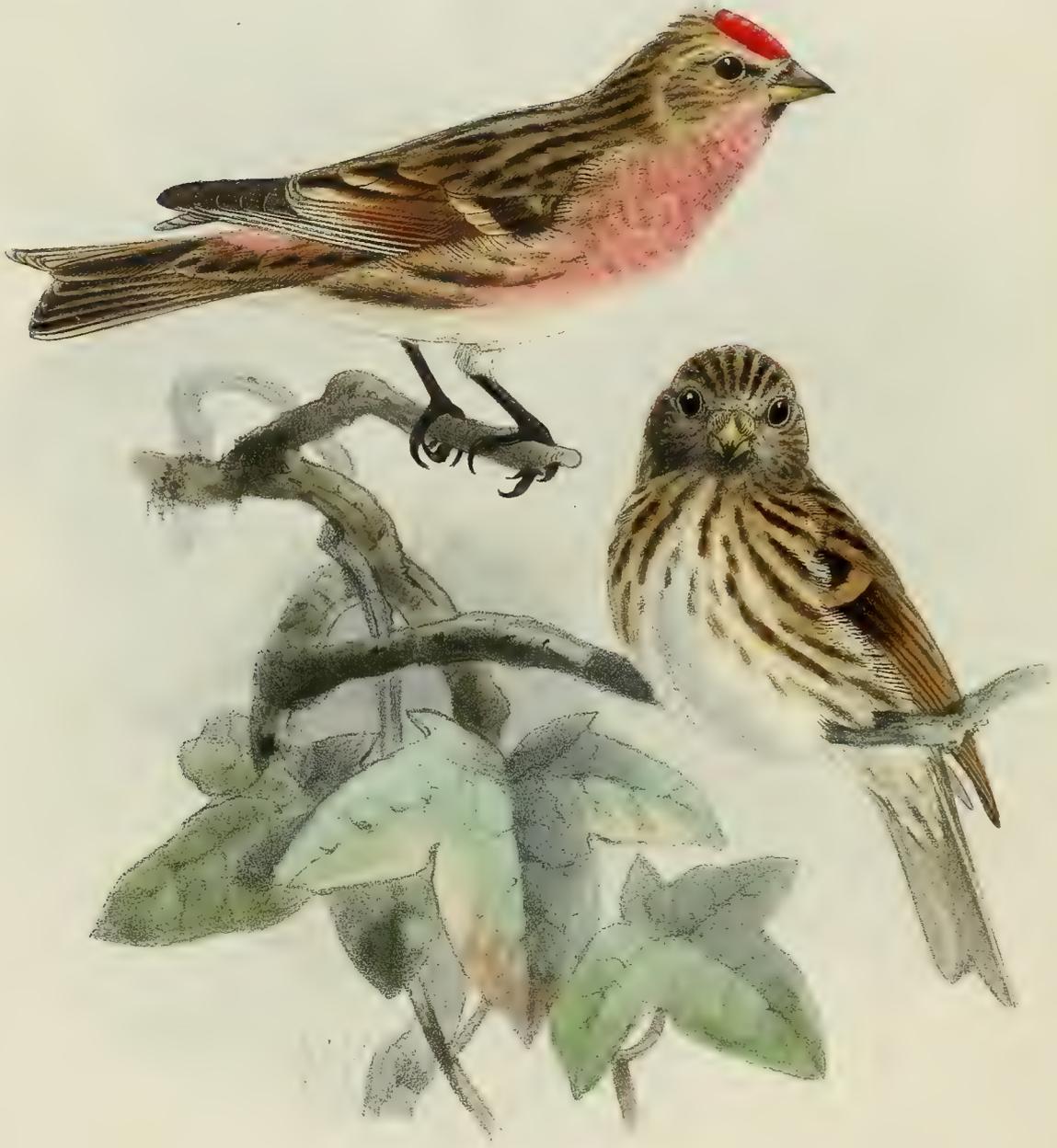
a, *b*, ♂, *c*, ♀. Amoor, November (*Schrenck*). *d*, ♂. Hakodadi, Japan, March. *e*, ♀. Hakodadi, January.

E Mus. J. Hancock.

a, *b*, *c*, *d*. Yorkshire, 1848 (*Mark Booth*). *c*. Durham (*Proctor*).

E Mus. H. B. Tristram.

a. N. America (*Krider*). *b*, ♂. Musquash, New Brunswick, 1864 (*A. R. Dresser*).



J. Keulemans del.

M & N Hanhart imp.

LESSER REDPOLL.
LINOTA RUFESCENS.

LINOTA RUFESCENS.

(LESSER REDPOLL.)

- Passer linaria minima*, Briss. Orn. iii. p. 142 (1760).
Le Cabaret, Montb. Hist. Nat. Ois. iv. p. 76 (1778).
Fringilla linaria, var. β , Lath. Ind. Orn. i. p. 459 (1790).
 ? *Fringilla cabaret*, P. L. S. Müller, Natursyst. Suppl. p. 165 (1776).
Linaria rufescens, Vieill. Mem. Real. Accad. Sc. Tor. xxiii. Sc. Fis. p. 202 (1816-1818).
Linaria minor, Selby, Brit. Orn. i. p. 320 (1833).
Acanthis rufescens (Vieill.), Bp. Consp. Gen. Av. i. p. 540 (1850).
Ægiothus rufescens (Vieill.), Cab. Mus. Hein. i. p. 161 (1850-1851).
Linacanthus rufescens (Vieill.), Des Murs, Encycl. d'Hist. Nat. v. p. 304, fide Degl. & Gerbe,
 Orn. Eur. i. p. 297 (1867).
Linota linaria, auctt. Britt. (excipe Newton), nec Linn.
Linota rufescens (Vieill.), Newton, Yarr. Brit. Birds, ed. 4, ii. p. 146 (1876).

Figuræ notabiles.

Selby, Ill. Brit. Orn. pl. 54. fig. 10; Bp. & Schlegel, Mon. des Lox. pl. 54; Gould, B. of G. Brit. iii. pl. 52.

Ad. ptil. æst. *Linotæ linariæ* similis sed minor, corpore suprâ magis rufescenti-fusco, tectricibus alarum superioribus pallidè brunnescente cervino nec albo terminatis.

Ad. ptil. hiem. corpore suprâ sicut in *Linotâ linariâ* colorato, sed plumis pallidè rufescente fusco nec albido marginatis.

Adult Male in spring (Hampstead). Resembles *Linota linaria*, but is smaller in size; the upper parts are darker and more rufous in tinge of colour; rump more strongly marked with dark colour than in *L. linaria*; and the bands on the wing are pale reddish buff, not white; soft parts as in *L. linaria*. Total length about 4.25 inches, culmen 0.4, wing 2.75, tail 2.4, tarsus 0.55.

Adult Female. Differs from the male in being rather smaller in size, in lacking the pink on the rump and breast; underparts dull white with a brownish tinge; breast, sides of body, and flanks streaked with dull brown. Wing 2.65, tail 2.4, tarsus 0.54.

Adult Male in winter. Upper parts as in summer dress; but the edgings to the feathers are longer, making the general coloration of the upper parts more rufescent; underparts white; throat and breast washed with brownish buff; flanks streaked with dark brown; bill yellow, tipped with brown; iris and legs dark brown.

Young. Resembles the young of *L. linaria*, but is rather more rufescent brown in general tone of colour.

OWING to the confusion that has hitherto existed in the determination of the various forms of

Redpolls, and the difficulty in obtaining specimens for examination from the various localities on the outskirts of their range, it is difficult to determine, with any degree of accuracy, the precise limits of the area inhabited by the present species; but, so far as I can at present state, with the materials at my command, it appears to be restricted in the breeding-season to the British isles, whence later in the year it wanders southward into Western Europe. As regards its range in England, I cannot do better than quote Professor Newton, who writes (Yarr. Brit. B. ed. 4, ii. p. 147) as follows:—"In some English counties, particularly in the south, this Redpoll is known only or chiefly as a winter visitor, appearing in flocks from Michaelmas till April, though in others it breeds more or less regularly; and the nest has been found, according to the late Mr. Bury, so far to the southward as the Isle of Wight (Zool. p. 643). Towards the north, and in Scotland especially, it is resident all the year, changing its haunts, however, according to the season. Information collected by Mr. More shows that of English counties it occasionally breeds in Dorset, Hampshire, Oxford, Warwick (where, indeed, Mr. Rake says, Zool. p. 9248, he has repeatedly taken its nest), and Salop (where Mr. Rocke, Zool. p. 9781, believes it breeds regularly). To these Middlesex must be added, on the authority of Mr. Harting, Kent on that of Mr. Wharton (Zool. p. 8951), Surrey on that of Newman (Zool. s. s. p. 3235), Cambridgeshire on that of the Editor, and Worcestershire on that of Mr. J. A. Drake, as cited by Mr. Morris. Mr. More further states that it breeds annually in Gloucestershire; and it certainly does so in Suffolk, Norfolk, Lincolnshire, Nottinghamshire, Derbyshire, Cheshire, and thence in every county lying to the northward throughout the island. But the places it frequents vary year by year, and, without our being able to account for the fact, otherwise than on the general supposition that its choice is influenced by the supply of food, it may be found in a locality abundantly during one season and during the next may be altogether wanting. Mr. F. Norgate has known of thirty or more nests in one year at one locality in Norfolk, and in the next year scarcely any." To this I may add that the Rev. Murray A. Mathew, of Bishops Lydeard, Taunton, informs me that there this species "is a common winter visitant, generally met with in company with Siskins, on alders by the side of streams, or in damp bottoms in woods. Last year and the year before a little party of six or eight frequented the vicarage garden for a fortnight in the spring, and were extremely tame, allowing a very close inspection. In North Devon, towards the end of March, I shot from a willow bush overhanging a stream a very mealy example of this pretty little bird. I have never known an instance of *Linota rufescens* having nested in the south-western counties."

In Scotland it is generally distributed where woods and thickets of brushwood are found; but Mr. R. Gray says that he has not traced it in districts where such shelter is absent. It visits Iona, and one has been obtained on Islay. On the mainland of Argyleshire, this gentleman writes (B. of W. of Scotl. p. 149), "it is common enough even in summer, and breeds in that county as well as in Renfrewshire and Dumbartonshire. It also breeds near Glasgow, and is sparingly distributed in other parts of Lanarkshire, especially where birch-plantations are numerous. The same remark, indeed, applies to its occurrence in most Scottish districts. In Orkney as many as fifty are sometimes seen in a flock." In Shetland, according to Dr. Saxby, it is less numerous than the Mealy Redpoll; but, "under stress of weather, a few may occasionally be seen beneath the shelter of walls or in ditches, contenting themselves with such food as may

be obtained there until a favourable change enables them to depart." In Ireland, Thompson says, though probably resident everywhere, it is more plentiful in the north. It is stated to visit Cork rarely in the winter, and is very rare in Kerry. It has been observed on the banks of the Blackwater, in Waterford, late in May or early in June, and is presumed to breed there, as it does about Clonmel.

In Western continental Europe the present species is found here and there not unfrequently, and is in some seasons numerous on passage in Belgium and Holland. In France it is a regular winter visitant; but it does not appear to breed there. M. Adrien Lacroix states that it is met with every season on the northern slopes of the Pyrenees, and in some years reaches Southern Spain and Provence; and Colonel Irby writes (Orn. Str. Gibr. p. 121), that on the Spanish side of the Straits of Gibraltar it can only be considered a very rare and irregular winter visitant. Bailly asserts that it breeds in the Alps of Savoy; but Salvadori considers its occurrence in Italy very doubtful. It may, and possibly does, occur in Western Germany; but, in spite of every endeavour, I have not succeeded in obtaining a specimen from there, and am almost inclined to doubt if it has been procured in that country, and agree with Professor Newton in suspecting that young examples of one of the other forms have been mistaken for it. In Scandinavia and Eastern Europe it is replaced by *Linota linaria* and *Linota exilipes*; and it appears very doubtful if it ever crosses the Mediterranean, though MM. Jaubert and Barthélemy say that it sometimes visits Algeria; but they do not give any authentic instance of its capture, and Loche does not include it in his work on the avifauna of that country. Mr. C. F. Tyrwhitt Drake also states (Ibis, 1867, p. 427) that he *saw* one in Morocco; but he was probably mistaken in his identification of the bird seen by him.

In general habits the present species is lively and gay; and though a sprightly and restless bird, it is exceedingly unsuspecting and confiding towards man. It is essentially a woodland species, frequenting plantations, especially where the birch predominates, and bush-covered localities; but during the late summer season it may frequently be seen in the open country, where plantations are not far distant, feeding on groundsel-seeds, or those of the thistle and other allied plants, which it picks out whilst clinging to the plant, in the same manner as the Goldfinch. When the autumn draws on they collect in flocks, and many wander away from their breeding-haunts southwards, frequenting wooded districts, hedgerows, &c., and remain roving about until the return of spring. During the winter it may often be seen frequenting the birch and alder trees, sometimes in company with other small birds, clinging to the ends of the branches in all kinds of attitudes, like the Titmice and Goldcrests. When moving about they keep up a continuous twittering, and appear to be incessantly fluttering from branch to branch and tree to tree. So unsuspecting are they that not only can one shoot as many as one pleases, but they may also be captured with limed rods without any difficulty. Early in the spring, or even late in the winter, the song of the male may be heard; and though not of a high quality, yet the song of this bird is clear, rather loud than low, and agreeable.

Not only is the Lesser Redpoll eminently gregarious during the autumn and winter, but even during the breeding-season several pairs will construct their nests close together—though, so far as I can ascertain, this is rather the exception than the rule, and may depend on the locality being a favourite one. The place selected for nidification is where the shelter is good,

usually near (but sometimes at some distance from) water; and the nest is generally placed in a bush or low tree in a coppice or small plantation, or in the hilly districts amongst the brushwood that skirts the flanks of the mountains or covers the margins of the streams in the rugged dells. The nest of this bird is exceedingly neatly and skilfully constructed of dry bents intermixed with wool and moss, lined with wool, vegetable down (chiefly that from the catkins of the willow), hair, or feathers. Compared with that of *Linota linaria* it appears very small. One in my collection, from Scotland, measures 2·8 inches in outside diameter and 1·8 in height, the cup measuring 1·75 in diameter by 1 inch in depth. It is neatly constructed of dark-coloured bents, intermixed with wool and a few hairs, and is lined with white wool as well as a few white and black horsehairs. The eggs, from four to six in number, are usually deposited early in May. In colour and shape they resemble those of *Linota linaria*, but are smaller in size, those in my collection measuring only $\frac{4.8}{80}$ by $\frac{3.5}{80}$ to $\frac{5.0}{80}$ by $\frac{3.7}{80}$ inch.

The specimens figured are an adult male in full summer dress, and a young bird in its first autumn plumage, both of which are in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, ♂. Hampstead, Middlesex, October 14th, 1869. *c*. Hampstead, October 27th, 1869. *d*. Hampstead, November 11th, 1869. *e, ♂*. Hampstead, April 20th, 1870. *f, juv.* Hampstead (*Davy*). *g*. Woolwich, February (*Whitely*). *h*. Hampstead, October (*Davy*).

E Mus. Salvin and Godman.

a, ♂, b, ♀. Cambridge (*O. Salvin*).

E Mus. Cantabr.

a. Worcestershire, 1828. *b, ♂*. Worcestershire, April, 1834. *c, ♀*. Worcestershire, May 12th, 1837 (*Strickland*).

E Mus. J. Hancock.

a, ♂, b, c, ♀. Oatlands, December 8th, 1875. *d*. May 1876, caught at the nest (*T. Thompson*).



J.G. Keulemans lith.

M & N Hanhart imp

1. COES' REDPOLL.
LINOTA EXILIPES.
2. GREENLAND REDPOLL.
LINOTA HORNEMANNI.

LINOTA EXILIPES.

(COUES'S REDPOLL.)

Fringilla borealis, Aud. Orn. Biogr. v. p. 87, pl. 400 (1839, nec Vieill.).

Linaria borealis, Aud. B. Am. iii. p. 120, pl. 178 (1841, nec Vieill.).

Ægiothus canescens, Ross, Edinb. Phil. Journ. 1861, p. 163, nec Gould.

Ægiothus exilipes, Coues, Pr. Phil. Acad. 1861, p. 385.

Ægiothus linaria, var. *exilipes*, Coues, Key, p. 131 (1872).

Ægiothus canescens, var. *exilipes*, Ridgw. B., Br. & R. N.A. B. i. p. 493 (1874).

Linota canescens, Seeb. & H.-Br. Ibis, 1876, p. 116, nec Gould.

Linota exilipes (Coues), Newton, Zoologist, 1877, p. 6.

Figuræ notabiles.

Aud. Orn. Biogr. pl. 400; id. B. Am. pl. 178; Elliot, B. N. Am. pl. 9; Coues, Key, pl. 3. fig. 6; Ridgw. *op. cit.* pl. 22. fig. 2.

♂ *ad.* *Linotæ hornemanni* similis sed minor, corpore suprâ pallidiore, rostro brevior et angustior.

♀ *ad.* mari similis sed minor, corpore suprâ saturatiore, uropygio et pectore albis nec rosaceo lavatis.

Adult Male (Ust Zylma, 17th April). Crown red; lores blackish; sides of the head, hind neck, and back greyish, tolerably closely striped with blackish grey; rump white with a slight rose tinge; wings and tail blackish, narrowly margined with white, the inner secondaries and wing-coverts tolerably broadly tipped with white; chin and a spot on the upper throat black; underparts white, with faint striations on the flanks, throat, and upper breast washed with rosy red; bill dark horn, yellowish at the base; iris brown; legs dark brown. Total length about 5 inches, culmen 0.35, wing 3.0, tail 2.7, tarsus 0.6.

Adult Female (Petchora). Differs from the male in being rather smaller in size, in having the upper parts rather darker, and in lacking the rosy red tinge on the rump and breast.

Obs. Examples of this species obtained in May and in June differ merely in having the white margins to the feathers on the upper parts rather narrower, and the males have the red tinge on the rump and breast rather brighter, but all have the rump unstriped, white tinged with red. The male specimen from Darasun, killed in the winter, differs from the male above described in lacking all trace of rosy red on the rump and breast, and in having the upper parts and sides of the head faintly washed with buff, the throat being also faintly tinged with this colour.

In some stages of plumage the present species is very difficult to separate from *L. linaria*; and this I find especially the case in the series from the Petchora. In winter dress its extreme whiteness and the white rump render it easily distinguishable; and from examples of *L. linaria* from Scandinavia and North America it is tolerably easily separable at all seasons; but amongst the Redpolls obtained by Messrs. Seeborn and Harvie-Brown on the Petchora in the summer season are some which it is difficult to determine as to whether they should be referred to *L. linaria* or *L. exilipes*; for they resemble the latter in form and measurements, but have the rump more or less striped and not white.

THE present form of Redpoll is but a somewhat doubtful species, and can only be regarded as one still in the process of differentiation; yet it is, I consider, sufficiently distinguishable to merit specific rank. So far as I can judge from the series of Redpolls I have examined, it is a form of *Linota linaria* breeding in the north-eastern portion of the Old World and presumably in some at least of the Arctic portions of America, the great majority migrating southward during the winter. In general appearance it closely resembles *Linota hornemanni*, but is considerably smaller in size, and has a constantly smaller bill. I have examined specimens from North America, Northern Scandinavia, North Russia, and Siberia; and, so far as I can ascertain, these are the countries inhabited by this bird. It does not occur in Great Britain, and does not appear to have been obtained in France, Germany, or in Central or Southern Europe; but in the series of Redpolls sent to me for examination I find two specimens from Tromsö (in Northern Norway), two from Muonioniska (in Lapland—where it appears to be an autumnal visitant from the eastward, as are so many other species in that locality); and amongst the birds collected on the Petchora, in Northern Russia, are numbers of the present species; but I do not find any amongst the Redpolls collected near Archangel, where, however, it doubtless occurs. Messrs. Seebohm and Harvie-Brown inform me that the present species and *Linota linaria* were amongst the first birds which arrived in the spring, and remained in the town of Ust Zylma in flocks up to the second week in May, and then dispersed to their breeding-quarters. They were met with as far north as Stanavoialachta.

The specimens obtained by Von Middendorff on the Boganida are certainly, judging from his description, referable to the present species; Dr. Radde obtained it at Irkutsk in October; and Von Schrenck met with it on the Amoor. It is, however, rather difficult to define its range in Siberia, as all three of these travellers unite it with *Linota linaria*; but they state that they observed two forms, one of which was undoubtedly the present species. I may add that I possess one from Darasun, in Dauria, in full winter dress; but it does not appear to range as far as North China and Japan. Dr. Severtzoff, when he examined my Redpolls, remarked, on seeing the specimen from Darasun, that he had called this species *Ægiothus sibiricus*; but he does not appear to have published this name anywhere; and if he had done so it would only figure as a synonym, being subsequent to the publication of Dr. Coues's description.

In North America *Linota exilipes* appears to be restricted to the more boreal regions; but I find but meagre data to define its precise range, as it has very generally been confused with *Linota linaria*.

In habits it does not differ from *Linota linaria*: and doubtless its nest and eggs closely resemble those of that species; but I have been unable to obtain authentic specimens for examination and description.

The specimen figured, on the same Plate with *Linota hornemanni*, is an adult male obtained on the Petchora in April, for which I am indebted to Mr. H. Seebohm.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Ust Zylma, Petchora, N. Russia, April 17th, 1875 (*H. Seebohm*). *b*, ♀. Petchora, April 1875 (*J. A. Harvie-Brown*). *c*, ♂. Darasun, Dauria (*Dybowski*).

E Mus. Norv.

a. Muonioniska, Lapland, October 24th, 1854 (*J. Wolley*). *b*. Muonioniska, September 29th, 1853 (*J. Wolley*).

E Mus. P. L. Sclater.

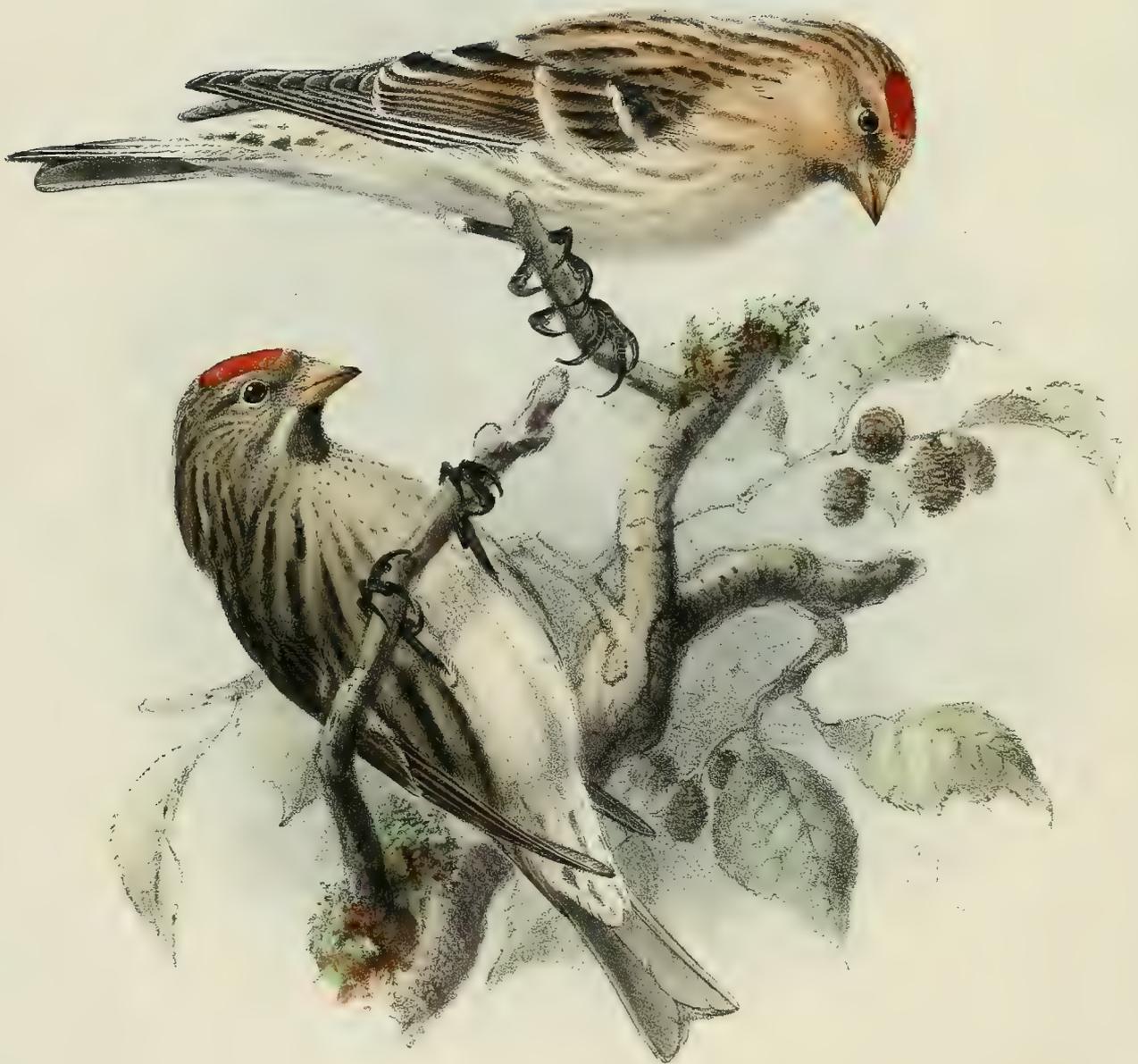
a. Red river, N. America (*Gunn*). *b*. Fort Simpson, N. America (*Ross*).

E Mus. Feilden and Harvie-Brown.

a, ♂. Umskaja, Petchora, April 24th, 1875. *b*, ♀. Ust Zylma, April 22nd, 1875. *c*, *d*, ♂. Ust Zylma, May 6th, 1875 (*J. A. H.-B.*).

E Mus. H. Seebohm.

a, ♂. Ust Zylma, April 15th, 1875. *b*, ♀. April 28th, 1875. *c*, *d*, ♂, *e*, ♀. May 6th, 1875. *f*, ♂. April 19th. *g*, *h*. ♂. April 22nd. *i*. Ust Zylma, May 20th. *k*. Petchora. *l*. Umskaja, April 15th, 1875 (*H. S.*).



J.G. Keulemans del.

Mintern Bros. imp.

GREENLAND REDPOLL.
LINOTA HORNEMANNI.

LINOTA HORNEMANNI.

(GREENLAND REDPOLL.)

Fringilla borealis, Temm. Man. d'Orn. iii. p. 264 (1835, nec Vieill.).

?*Linota canescens*, Bp. Comp. List, p. 34 (1838, nec Gould).

Linota hornemanni, Holb. Naturh. Tidsk. iv. p. 398 (1843).

Linota linaria, Newton, Notes Orn. Icel. p. 11 (1863, nec Linn.).

Auðnutitlingur, Icelandic; *Orpingmiutak*, Greenlandic.

Figuræ notabiles.

Werner, Atlas, *Granivores*, pl. 14; Hancock, Cat. B. North. & Durh. pl. 5.

♂ *ad. ptil. æst.* *Linotæ linariæ* similis sed major, rostro robustiore, coloribus pallidioribus, uropygio et supra-caudalibus albis vix rosaceo tinctis: colli lateribus et corpore subtus albis, pectore rosaceo tincto, hypochondriis fere immaculatis: rostro fusco: pedibus nigris: iride fuscâ.

Ad. ptil. hiem. plumis in corpore supra latiùs albido et cervino marginatis, plagâ rubrâ frontali obscuriore: uropygio albo: corpore subtus albo, hypochondriis indistinctè striatis: gulâ et capitis lateribus cervino lavatis: rostro flavo, nigro apicato.

Adult Male in summer (Spitzbergen, 20th July). In general plumage paler than typical *Linota linaria*; rump and upper tail-coverts white, unstriped, and tinged with rosy red; sides of the neck nearly white; and underparts white, without any stripes on the flanks; breast washed with rosy red; legs black; iris brown. Total length about 5.5 inches, culmen 0.4, wing 3.3, tail 2.75, tarsus 0.7.

Adult in winter (Greenland). Differs from the specimen above described in having the plumage fresher and newer; the red on the crown is slightly obscured; feathers on the upper parts blackish brown, very broadly margined with white, and washed with brownish buff; rump pure white; underparts white, the black on the upper throat restricted in area; the throat and sides of the head washed with warm buff, and the flanks slightly striped; bill yellowish, tipped with black.

Obs. An autumn-killed female, obtained at Lichtenfels, in Greenland, on the 9th September, is much darker than either of the birds above described, and appears to me to be a bird of the year. It so closely resembles some examples of *L. linaria* that I can only distinguish it by its greater size and large and stout bill. Holbøll says that the old female in winter dress and the young bird after its first moult differ from the old male in winter plumage merely in wanting the rosy red tinge on the breast and rump, and in being less white, there being a few grey streaks on the flanks. In the nestling-plumage the young bird is plain grey without any black on the throat.

In my article on *Linota linaria* I enter fully into the question of the various forms of Redpolls which inhabit the Palæarctic Region; and, as there stated, I find it advisable to treat them as separable though but ill-defined species. The present form (*Linota hornemanni*) is the largest

of all, being nearly as large as a Linnet, and is the one that inhabits the highest latitudes. Being a resident in Greenland and Iceland, it is only known elsewhere as a very rare straggler, and is, comparatively speaking, a rare bird in collections. It appears to be most common in Greenland. Mr. Holbæll gives (*l. c.*) a few particulars respecting it, which I translate as follows:—" *L. hornemanni* inhabits during the summer the extreme north, and does not breed below 69° N. lat. It is therefore much commoner in North Greenland than *L. linaria*, which becomes rarer towards the north, whereas *L. hornemanni* is still common in 73° N. lat. Its nest, like that of *L. linaria*, is placed on small bushes; and its eggs resemble those of that species. Its call-note, which is never responded to by *L. linaria*, is shrill, and is not unlike that of the Wax-wing. It is decidedly a resident, and during the winter frequents the fells in the interior of the country, but is commoner north of 66° than south of that latitude. In February 1826 I saw several flocks on the fells between Ritenbenk and Omanak; and on the journey undertaken by Mr. Kielsen in 1830 from Holsteensborg in midwinter, an account of which is given by Dr. Pingel in a Danish weekly journal, it is stated that large flocks of this bird were seen, and that the Reindeer-hunters also see large flocks when they penetrate far into the interior in the winter. In Southern Greenland it is never seen in the summer, and is, on the whole, rare; but during very mild winters it occasionally appears in large numbers at the colonies, as was the case in the winters of 1828-29 and 1837-38. During the two following winters it was not seen at Godthaab; and during severe seasons it never approaches the coast. In the spring and autumn it is sometimes seen singly." In Iceland, Professor Newton writes, in his notes on the ornithology of that island, it is "rare. Faber found a nest on the 13th July, 1820, in the north; but the young had flown from it. It occurred in small flocks at Akureyri in the following winter; and Mr. Proctor met with a pair near that place, August 10, 1837. Dr. Krüper was more fortunate, obtaining several nests with eggs at Myvatn. Olafsen is thus entirely justified in his supposition that it bred in Iceland. He also mentions its appearance on the islands of the Breiðifjörðr." Mr. Eaton in 1873 found this bird breeding at Wide Bay, at Spitzbergen, where, long before, Scoresby asserted that a Redpoll was found; and it possibly occurs as a rare straggler to the northern portions of Scandinavia and Russia. One example has been obtained in Great Britain; and I am indebted to the courtesy of Mr. J. Hancock for an opportunity of examining this and other rarities in his collection. This specimen, which is in very full and white winter dress, was knocked down with a clod of earth on the 24th April, 1855, on the sea-banks near Whitburn, where it had been seen flying about for several days. The only authentic instance of its occurrence on the continent of Europe appears to be that mentioned by Degland, who says (*Orn. Eur.* i. p. 242) that he saw one in the collection of M. Baillon, which had been taken in a net near Abbeville. It is probable that it occasionally visits the northern portions of America; but I have no definite data as regards its occurrence there.

I am indebted to Mr. A. Benzon, of Copenhagen, for the nest and eggs of this species, obtained in Greenland in 1862. The nest is a tolerably closely felted structure of wool and a sort of marsh-cotton, intermixed with lichens and a few straws, and sparingly lined with feathers; the eggs resemble those of our British Redpoll in coloration and markings, but are larger in size, averaging $\frac{2.9}{40}$ by $\frac{2.1}{40}$ inch.

The specimens figured are, on the first Plate, an adult bird in early winter dress and a bird

of the year in its first autumnal plumage, the latter being the lower figure; and on the Plate together with *Linota exilipes* I have figured the adult bird in full breeding-dress obtained in Spitzbergen by Mr. Eaton.

In the preparation of the above article I have examined the following specimens:—

E Mus. Cantab.

a. Greenland (*Holbæll*). *b*, ♀. Lichtenfels, Greenland, September 9th, 1873 (*Finsch*). *c*, ♂. Spitzbergen, July 20th, 1873 (*Eaton*).

E Mus. A. and E. Newton.

a. Greenland (*Holbæll*).

E Mus. J. Hancock.

a. Whitburn, April 24th, 1855 (*J. H.*). *b.* Iceland (*Proctor*).



J.G.Keulemans lith.

M&N.Hanhart imp

TWITE.
LINARIA FLAVIROSTRIS.

LINOTA FLAVIROSTRIS.

(TWITE.)

- Passer linaria montana*, Briss. Orn. iii. p. 145 (1760).
Fringilla flavirostris, Linn. Syst. Nat. i. p. 322 (1766).
Linotte de Montagne, Montb. Hist. Nat. Ois. iv. p. 74 (1778).
Pinson brun, Montb. tom. cit. p. 121 (1778).
Fringilla montium, Gmel. Syst. Nat. i. p. 917 (1788, ex Briss.).
Linaria montium (Gm.), Leach, Syst. Cat. M. & B. Brit. Mus. p. 15 (1816).
Cannabina montium (Gm.), C. L. Brehm, Vög. Deutschl. p. 278 (1831).
Cannabina flavirostris (L.), C. L. Brehm, op. cit. p. 278 (1831).
Cannabina media, C. L. Brehm, op. cit. p. 279 (1831).
Linaria flavirostris (L.), Macg. Hist. Brit. B. i. p. 379 (1837).
Linota montium (Gm.), Bp. Comp. List, p. 34 (1838).
Acanthis montium, Blyth, fide Bp. Consp. Gen. Av. i. p. 540 (1850).
Cannabina microrhynchos, C. L. Brehm, Vogelfang, p. 106 (1855).
Linota flavirostris (L.), Saunders, Ibis, 1869, p. 172.

Bigean-baintighcarna, Gaelic; *Linotte à bec jaune*, French; *Fanello-riska*, Italian; *Berg-Hänfling*, *Steinhänfling*, *Gelbschnabel*, German; *Fratertje*, Dutch; *Moirisk*, *Bjergfinke*, Danish; *Gulnæbbet-Irisk*, Norwegian; *Vinterhämpling*, Swedish; *Keltanokkavarpunen*, Finnish.

Figuræ notabiles.

Werner, Atlas, *Granivores*, pl. 46; Kjærb. Orn. Dan. taf. 27; Fritsch, Vög. Eur. taf. 26. fig. 19; Naumann, Vög. Deutschl. taf. 122; Sundevall, Svensk. Fogl. pl. 3. fig. 3; Gould, B. of Eur. pl. 192; id. B. of G. Brit. iii. pl. 50; Schlegel, Vog. Nederl. pl. 170; Roux, Orn. Prov. pl. 93; Schlegel & Bp. Mon. des Lox. pl. 50.

♂ *ad.* capite, collo postico et dorso cum tectricibus alarum superioribus et scapularibus nigro-fuscis fulvido marginatis: uropygio rosaceo: remigibus nigricantibus, primariis intimis albo marginatis, secundariis fulvido marginatis: caudâ valdè furcatâ, rectricibus extûs albo angustè marginatis et externis in pogonio interno albo marginatis: striâ superciliari, capitis lateribus sub oculis et gulâ fulvo-cervinis: gutture imo, pectore et hypochondriis fulvo-cervinis nigro-fusco striatis, corpore reliquo subtûs albo: rostro flavo, ad apicem corneo: iride fuscâ: pedibus nigris.

♀ *ad.* mari similis sed pallidior, nec uropygio rosaceo, corpore subtûs magis fulvo-cervino.

Adult Male (Southend, 20th February). Crown, hind neck, back, scapulars, and upper wing-coverts dark hair-brown, laterally margined with tawny lighter brown; rump rose-red; quills blackish brown, the inner primaries externally edged with white, secondaries margined with tawny brown; larger wing-

coverts tipped with light brown; tail deeply forked, blackish brown, the outer rectrices margined on the inner web with white, and almost all externally narrowly edged with the same colour; a streak over the eye, sides of the face below the eye, and throat warm tawny buff; lower throat and sides of the breast streaked with blackish brown on a warm tawny buff ground; rest of the underparts white; bill yellow; iris brown; legs black. Total length about 5·5 inches, culmen 0·4, wing 2·95, tail 2·55, tarsus 0·65.

Adult Female (Hampstead, 13th October). Resembles the male, but has the upper parts lighter, the red on the rump is wanting, and the underparts are less white.

Young. Resembles the female, but has the margins to the feathers on the upper parts, especially the wing-coverts, rather more clearly defined.

THE Twite or Mountain-Finch inhabits Europe generally, breeding in the northern portions, and wintering in the southern countries.

In Great Britain it is only a visitant to the southern and eastern portions of England, but breeds in some of the midland counties, and in the west and north. Professor Newton says that "in the south-west, Devonshire and Cornwall, it is of very rare occurrence indeed; but it breeds in some abundance in the more hilly districts of the midland counties—Hereford, Salop, Stafford, Derby, and Chester, as well as in North Wales and the Isle of Man, and on elevated moorlands in the higher glens, with increasing frequency northward from Lancashire and the West Riding of Yorkshire." Mr. Stevenson states that it is only an occasional visitant to Norfolk during the seasons of passage, and is decidedly scarce compared with the Siskin and other species of Redpoll; but Mr. Cordeaux says that it visits the Humber district regularly in the autumn, and during mild winters small flocks remain throughout the season in the vicinity of the coast. He has shot them on the Humber marshes as early as the 10th of August.

In Scotland it is very generally distributed, and breeds throughout the country. Mr. Robert Gray says that the stronghold of this species in the west of Scotland is unquestionably the Outer Hebrides, but that on the mainland, though not quite so abundant, it is still numerous, extending from north to south. In the east of Scotland it is much less numerous than in the west, but is nevertheless a well-known species. Mr. Harvie-Brown says that it is a common species in many parts of Sutherlandshire, avoiding, however, wooded or cultivated parts, though exceptions may be found. It affects the neighbourhood of the sea-shore or sheltered localities near the long arms of the sea so numerous on the west coast. Dr. Saxby states that it is resident and extremely common on the Shetland Isles. In Ireland, according to Thompson, it is resident, and found from the north to the south of the island; but Professor Newton adds that the only counties in which he knows it to breed are Donegal, Tyrone, Armagh, and Antrim in the north, Sligo and Mayo in the west, Dublin and Wicklow in the east, and Tipperary and Cork in the south.

It does not occur in Iceland; nor do I find it recorded from the Færoes; but it is not uncommon in Scandinavia. Mr. Collett informs me, "it breeds here and there along the entire west coast of Norway up to Finmark, but it is scattered, and on the whole nowhere common. I found it most numerous on the islands of Bergen Stift, and on the Trondhjemsfiord and on Hitteren. North of the arctic circle it was met with by Godman at Bodö, by Boie in the

Lofoten Islands, and at Tromsö by Liljeborg. In the interior it also occurs here and there during the summer, but only as a straggler in the subalpine and alpine districts, as, for instance, on the Fillefjeld, in the upper part of the Gudbrandsdale, and on the Dovre. In the autumn and spring it is often very numerous in the southern lowlands." Professor Sundevall says that it is only met with during passage in Southern and Central Sweden, and is never numerous. It is somewhat rare in Finland. Von Wright says that it is sometimes met with near Helsingfors in the spring and autumn and in the winter. He adds that he thinks it possibly breeds on the islands off Uleåborg; but when I was collecting eggs there I never met with it.

Mr. Sabanäeff informs me that it is not uncommon in Central Russia; but he does not appear to have met with it in the Ural. Throughout the whole of North Germany it is an irregular winter visitant, but does not breed there; and Mr. Benzon informs me that it is only met with in Denmark during winter and on passage, sometimes occurring in tolerably large flocks, but not seen every year.

In Belgium it only occurs sparingly and at irregular intervals on the spring and autumn passage; and the same may be said respecting its occurrence in Holland. Mr. Labouchere writes to me, it "seems, however, to avoid the low-lying parts of the country, and the bird-catchers in this province (North Holland) tell me they hardly ever catch one; numbers, however, are annually brought to the Amsterdam cage-bird market from the province of Gelderland, where they are caught near the town of Harderwijk." In the northern departments of France it occurs regularly on passage; but in the south it appears to be either rare or else overlooked; for Jaubert and Barthélemy-Lapommeraye state that they have only once obtained it. Professor Barboza du Bocage includes it in his list of the birds of Portugal with a query; but it is found in Spain, and is, according to Colonel Irby, a rare winter straggler to Andalucia. Mr. Howard Saunders obtained a specimen at Murcia in November, but did not meet with it in Spain on any other occasion. In Savoy it appears to be only an irregular visitant on passage; and Bailly mentions that some of the bird-catchers look on it as a hybrid between the Goldfinch and the Linnet, and call it *Cardinalin bâtard*. Salvadori states that it is decidedly rare in Italy, and has only occurred in winter in the provinces of Lombardy, Venetia, and Modena; and Doderlein says that he has not obtained it in Sicily. Throughout the whole of Southern Europe it appears to be rare. Dr. Fritsch says that it is but seldom met with during the winter in Bohemia; and I do not find it recorded from Greece or Turkey; but Professor von Nordmann cites one instance of its occurrence near Odessa, in Southern Russia, in the winter of 1837, and adds that he considers it a very rare bird there. In Asia the Twite appears to be replaced by a tolerably closely allied species (*Linota brevirostris*, Gould), which differs in being very much paler in general coloration, and the wings, quills, and especially the tail-feathers are much more broadly margined with white. Of this eastern species I have a tolerably large series from Turkestan; and it occurs also in Persia and in Yarkand, and westward as far at least as Erzeroum, whence it was obtained by Messrs. Dickson and Ross.

In habits the Twite has much in common with the Lesser Redpoll, except that it frequents the moors and open places in preference to the woods and groves. In the heather-covered localities in Scotland it is common during the summer season, and in the winter collects in small flocks and ranges about the country. It is a rather shy and wild bird, jealous of intruders, and

even somewhat cautious and shy in out-of-the-way places where it is not molested. Its call-note is not so harsh as that of the Linnets, but rather more so than that of the Redpoll; and its song, which is cheerful and pleasant, is rather better than the song of the latter species, which it somewhat resembles. The male is a very industrious songster, and may be heard uttering his song during fine, bright weather in the winter; and when caged it sings throughout the year.

It breeds early in May, selecting for the purpose of nidification open moors or rocky and stony localities. Mr. Collett says that in June he met with it numerous on the sterile treeless islands off the Trondhjemsfjord, in Norway, where it seeks for food on the grass-grown mountain-ledges.

Dr. Saxby, writing respecting the nidification of the Twite in the Shetland Isles, says:—"One very favourite situation for the nest is under a long strip of turf which has been nearly reversed by the plough. In such a situation I once found the commencement of a nest, and derived much interest from watching the progress of the work. When one of the birds disclosed to me the site chosen for its future habitation by flying out suddenly at my feet, I could perceive nothing more than a slight hollow which had been scraped beneath the turf; and although I frequently visited the spot in the course of the day, nothing more was seen of the bird until about twenty hours afterwards, when the pair began placing a number of fibrous roots in front in the form of a half-circle, the back part of the cavity being left untouched. In a few hours' time some stalks of plants were added, and from four o'clock in the afternoon until noon next day the birds disappeared. They next laid the foundation of the other half of the circle, continuing steadily at their task until the structure was equal in height all round. They now appeared more eager to proceed, working so diligently that by the evening of the fourth day the mass of roots, grass, and stalks of plants formed a perfectly circular wall, an inch and a half in height and about two inches in thickness, somewhat loose and irregular upon the outside, but with the inside neatly interwoven, and sloping rather suddenly to the bare patch of ground enclosed. On the morning of the fifth day I observed a few feathers upon the ground in the centre, and the number rapidly increased until the sides were covered more than halfway towards the brim; in the evening the feathers were almost concealed by a quantity of cow's hair, among which a little wool was intermingled. More work was done upon that day than any other. Having often found rabbit's fur in the nest of the Twite, I now procured a quantity of that material, and strewed it over the ground not too near, lest it might cause suspicion. Although it was soon discovered, the birds were not quite contented, using it rather sparingly, and working it into a felt-like mass with wool and the hair of cows and ponies. This process appeared to be one of difficulty and to require great care; for it was not before the evening of the eighth day that the task was completed, the brim of the cavity being by that time neatly finished off with a few long black horsehairs, and measuring exactly two inches and a quarter in diameter. On the ninth day the birds were not to be seen; but by the morning of the tenth day the first egg was laid. Every succeeding morning I found an additional egg, until five had been laid, and the female began to sit. It is seldom that the lining of the nest touches the ground, as it did in this instance, a layer of fibrous roots &c. being generally interposed. I observed that the thickness of the lower part of the nest is greatest in those specimens which have been found in bushes far above the ground. On another occasion, in August 1865, my attention being attracted by the

peculiar notes of a pair of Twites, I searched among some tall shrubs, and found three newly-fledged young ones, and soon afterwards a nest with one addled egg, near the top of an elder, about nine feet from the ground. The nest was very large and clumsily made, and altogether different in appearance from the neat little structures one finds in walls or upon hill-sides. These in the latter situations usually have very little beneath the lining, sometimes nothing at all; but in this one there was a mass, about three inches and a half in thickness, of coarse roots and pieces of dried brittle elder twigs, entirely filling the fork of the branch. The outer portion of the nest itself was composed of coarse roots and stalks of plants; and next to this was a layer of very fine roots; then came a layer of curved white Ducks' feathers, and lastly a thick layer of wool intermixed with hair of cows and ponies. The straggling appearance of the nest was partly due to the very unusual addition of large quill feathers above the upper edge, the longest measuring eight inches in length. The inside diameter of the nest was about three inches."

I am indebted to Mr. Macdonald, of Lochmaddy, for a nest containing five eggs of the Twite, together with another clutch of eggs, all taken this year. The nest is rather a neat and well-formed structure, composed of fine roots and bents intermixed with a little wool and a good many heads of the down of a small thistle, and is lined with fine hair and rootlets. It measures 2 inches in height, 3·2 in outside and 1·5 in inside diameter, the cup being 1·5 in depth. The eggs are pale blue, marked chiefly at the larger end with dark red, and measure $\frac{27}{40}$ by $\frac{20}{40}$ inch in size.

The specimens figured are an adult male in early spring plumage and one in autumn dress, the latter being the upper figure on the Plate.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, ♂. Hampstead, October 13th, 1869. *c, ♀*. Hampstead, October 14th, 1869 (*Davy*). *d, e, f, ♂*. Southend-on-the-Thames, February 20th, 1870 (*Davy*). *g, ♂*. Dovre, Norway, June 15th, 1871 (*Collett*).



J. J. Semens del.

Hanhart imp.

EASTERN TWITE.
LINOTA BREVIROSTRIS.

LINOTA BREVIROSTRIS.

(EASTERN TWITE.)

Linaria montana, Dickson & Ross, Proc. Zool. Soc. 1832, p. 121, nec Linn.

“*Linota brevirostris*, Gould,” Bp. Comp. List, p. 34 (1838).

Acanthis flavirostris, Severtz. Turk. Jevotnie, p. 64 (1873, nec Linn.).

Acanthis brevirostris (Gould), Severtz. J. f. Orn. 1874, p. 438.

Ægiothus brevirostris (Gould), Oustalet, Ois. de la Chine, p. 547 (1877).

Figura unica.

Henderson & Hume, Lahore to Yarkand, pl. 26.

♂ *ad. ptil. æst.* *Linota flavirostri* similis sed pallidior, plumis in corpore suprâ pallidè fusco et cervino-albido marginatis: uropygio rosaceo: supracaudalibus albis fusco-cervino notatis: rectricibus albo marginatis: remigibus pallidè cervino marginatis, secundariis et tectricibus alarum majoribus cervino-albido apicatis: corpore subtùs pallidiore quam in *Linotâ flavirostri*: subalaribus albis.

Ad. ptil. hiem. præcedenti similis sed uropygio haud rosaceo, plumis in corpore suprâ latiùs cervino marginatis, mento et gulâ ochraceo-cervinis.

Adult Male in summer (Leh, 1st July). Differs from *Linota flavirostris* in being very much paler, the upper parts having the feathers margined with pale brownish buff or buffy white; rump rosy red; upper tail-coverts white, tinged with brownish buff; tail-feathers margined with white, these margins being broader at the base; quills margined with buff, the secondaries and larger wing-coverts tipped with buffy white; underparts much paler than in *Linota flavirostris*; under wing-coverts white. Total length about 5 inches, culmen 0·33, wing 3·15, tail 2·7, tarsus 0·7.

Adult Female. Resembles the male, but lacks the red rump.

Adult in winter (Turkestan, 17th October). Differs from the above in lacking the red on the rump, in having the pale margins to the feathers broader and rather more of a fawn-buff tinge, chin and upper throat pale fawn-buff.

THE present species bears the same relation to *Linota flavirostris* as *Linota exilipes* does to *Linota rufescens*, being in fact a pale-mealy eastern representative of our common Twite, which it replaces in Asia. Its range is but limited; for, so far as we know at present, it is only found from Asia Minor eastward to Northern Thibet. First described by Mr. Gould (*l. c.*) as distinct, from examples obtained near Erzeroom, it was noticed there by Messrs. Dickson and Ross in companies from the 20th September to the 18th November; and Mr. Zohrab informs me that he found it very numerous there. According to Dr. Severtzoff, to whom I am indebted for several specimens, this Twite occurs in Turkestan in winter; but it is rare in Persia, for Major St. John only obtained one pair on the high plateau between Shiraz and Isfahan. Mr. J. Scully

writes (Stray Feathers, iv. p. 171):—"This species was fairly numerous in the hills on the south side of Eastern Turkestan, at elevations of from 8000 to 13,000 feet. It was first observed near the Chuchu Pass, and was quite common near Gulgun Shah, in the Karakash valley, where a young nestling was obtained, thus proving that the bird breeds in that locality—probably in July and August. The birds flew about in pairs or in small flocks, perpetually twittering, generally perching on the small bushes, but sometimes running among the stones and efflorescent ground in a very similar manner to *Calandrella brachydactyla*. Only one of the specimens I obtained (a male shot near the Chuchu Pass on the 16th August) has the pink colour on the rump; and the bird I shot between Balakchi and Gulgun Shah, if it be correctly referred to this species, seems to be abnormally large: length (in the flesh) 5·65, tail 2·8." Dr. G. Henderson obtained three examples on the banks of the Arpalak river, in Hill Yarkand, a short distance from where the plains commence; and Mr. Hume adds that it is occasionally found in Ladak, and he possesses one procured somewhere in Northern Sikkim. Von Pelzeln records it from Lake Gyagar, in Rupshu; and Colonel Przevalsky, who obtained it in Mongolia, says that he first met with it in Kan-su, where, though it principally frequents the bare mountains, it descends also to the plains, not particularly avoiding inhabited places. In Northern Thibet he found it wintering on the southern slope of the Burham-Bud, and on passage, about the middle of February, in Tsaidam.

How far north this Twite ranges I am unable to say; but it is not included by any of the Siberian travellers as occurring in that country. Dr. Severtzoff says that he observed it throughout the Irtysch district, southward to Ajagus; but in Turkestan it is, as a rule, not found further south than Dschulek and Vernoë.

Respecting the breeding-habits of this bird I find no record; but it probably approaches closely to its western ally *Linota flavirostris*.

The specimens figured are the adult male in summer and the adult in winter above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. Erzeroom (*J. Zohrab*). *c*, ♂, *d*, *e*, *f*, ♀. Jany Darya, Turkestan, October 15th (27th) and 17th (29th) (*Severtzoff*). *g*, ♂. Leh, Yarkand, July 1st, 1874 (*J. Biddulph*).

E Mus. J. Zohrab.

a, *b*, *c*, *d*, *e*, *f*, *g*, *h*. Erzeroom (*J. Z.*).

Subfamily LOXIINÆ.

Genus CARPODACUS.

- Pyrrhula* apud Pallas, Nov. Com. Petrop. xiv. p. 587 (1770).
Loxia apud Gldenstdt, Nov. Com. Petrop. xix. p. 464 (1775).
Coccothraustes apud Pallas, Zoogr. Rosso-As. ii. p. 13 (1811).
Fringilla apud Meyer, Vg. Livl. p. 77 (1815).
Linaria apud Boie, Isis, 1822, p. 552.
Pyrrhula apud Temminck, Pl. Col. 375 (1825).
Erythrina apud C. L. Brehm, Isis, 1828, p. 1276.
Carpodacus, Kaup, Natrl. Syst. p. 161 (1829).
Erythrothorax apud C. L. Brehm, Vg. Deutschl. p. 249 (1831).
Chlorospiza apud Bonaparte, Faun. Ital. Ucc. pl. 38 (1832).
Erythrospiza apud Bonaparte, Comp. List, p. 35 (1838).
Hmorrhous apud Jerdon, Madr. Journ. 1840, p. 36.
Strobilophaga apud G. R. Gray, Gen. of B. ii. p. 387 (1844).
Pyrrhulina apud Hodgson in Gray's Zool. Misc. p. 85 (1844).
Propasser apud Hodgson, ut supr (1844).
Bucanetes apud Cabanis, Mus. Hein. i. p. 164 (1850-51).

THE Rose Finches are, on the one side, tolerably closely allied to the Linnets and Redpolls, and on the other to the Bullfinches; and, indeed, some authors have united them with the former in the same genus. They inhabit the Palarctic, Oriental, and Nearctic, as well as the extreme northern portions of the Neotropical and Ethiopian Regions, three species only being found within the limits of the Western Palarctic Region. They frequent groves, gardens, and well-wooded marshy places, as also hilly country. They are sprightly active birds, and good songsters, having a clear musical note. They build a rather loose, slight nest, resembling a Bullfinch's rather than a Linnet's, placing it on a tree or bush, and deposit deep-greenish-blue eggs marked with blackish-brown spots, chiefly at the larger end. They feed principally on buds and seeds of various kinds.

Carpodacus erythrinus, the type of the genus, has the bill rather short, stout, thick at the base, culmen rather rounded; nostrils round, basal, hidden by recurved feathers; gape nearly straight; wings moderately long, first quill finely attenuated, very small, second, third, and fourth nearly equal, the third longest; tail rather long, slightly forked; tarsus and toes rather slender than stout, the latter long, tarsus covered in front with four large and three inferior scutell; claws moderate, curved, laterally grooved, acute; plumage rather close, the males much marked with red, the females with greenish.

Carpodacus roseus (Pall.), an inhabitant of the Eastern Palarctic Region, has been included in the European list, but, so far as I can ascertain, without valid reason; and I have therefore not admitted it.



J. G. Leuvenans del.

Hannart imp.

CAUCASIAN ROSE-FINCH.
CARPODACUS RUBICILLUS.

CARPODACUS RUBICILLUS.

(CAUCASIAN ROSE FINCH.)

Loxia rubicilla, Gld. Nov. Com. Petr. xix. p. 464, pl. 22 (1775).*Coccothraustes caucasicus*, Pall. Zoogr. Rosso-As. ii. p. 13 (1811).*Pyrrhula caucasica* (Pall.), Keys. & Blas. Wirbelth. Eur. p. 40 (1840).*Strobilophaga caucasica* (Pall.), Gray, Gen. of B. ii. p. 387 (1844).*Carpodacus rubicillus* (Gld.), Bp. & Schl. Mon. Lox. p. 23, pl. 26 (1850).*Propasser rubicillus* (Gld.), Horsf. & Moore, Cat. B. E.I. Co. Mus. ii. p. 457 (1856).*Figuræ notabiles.*Gld. *l. c.*; Bp. & Schl. *l. c.*

♂ *ad.* pileo, capitis lateribus, gulâ, gutture et corpore subts sanguineis argentaceo-albo guttatis: faciei lateribus argentaceo lavatis, plumis ad basin rostri nigricantibus: collo postico, dorso, scapularibus et tectricibus alarum fuscis saturatè rosaceo tinctis, dorso indistinctè nigro-fusco striato: uropygio et supracaudalibus saturatè rosaceo-coccineis: alis fuscis rosaceo tinctis et pallidiore marginatis: caudâ saturatè fuscâ, vix pallidiore marginatâ: abdomine imo et subcaudalibus rosaceis, his fusco striatis: hypochondriis fusco-griseo tinctis: rostro flavo-corneo: iride et pedibus saturatè fuscis.

♀ *ad.* mari dissimilis: capite et corpore suprâ sordidè fusco-cinereis, plumis centraliter fusco striatis, fronte flavo-cervino tinctâ: remigibus et tectricibus fuscis, cinereo-fusco marginatis: corpore subts cervino-cinereo, plumis centraliter saturatiore striatis: subcaudalibus cervino-albidis.

Adult Male (Caucasus). Crown, sides of the head, throat, and underparts to the lower abdomen rich scarlet-red spotted with silvery white, the feathers on the ear-coverts tipped and glossed with silvery grey; feathers all round the base of the bill blackish; hind neck, back, scapulars, and wing-coverts dusty brown tinged with deep rose-red, the back indistinctly striped with blackish brown; rump and upper tail-coverts deep rose-red; wings dark brown with light margins to the feathers and tinged with rose-red; tail dark brown with imperceptibly lighter edges; lower abdomen and under tail-coverts rosy red, the latter striped with dark brown; flanks tinged with brownish grey; bill light horn-yellowish; iris and legs dark brown. Total length about 8 inches, culmen 0.55, wing 4.6, tail 3.95, tarsus 0.92.

Adult Female (Thibet). Upper parts dusty ashy or pale earthy brown, pale in general coloration, the forehead tinged with yellowish buff, all the feathers with dark central lines; wings and tail dark brown, the feathers with light-ashy-brown margins; underparts ashy buff with a faint yellowish tinge, the feathers with dark central stripes; under tail-coverts buffy white.

Young (Pangong, *fide* A. O. Hume). Entire head, neck, breast, back, and scapulars dull pale earthy brown, more or less yellowish in places, the feathers very lax and showing everywhere a great deal of the basal three fourths, which is of a pale blue-grey; abdomen similar but paler; lower tail-coverts brownish white, the shafts brown; the wings are pale hair-brown, most of the quills and coverts

more or less broadly margined with dull pale yellowish earthy brown, only the earlier primaries excessively narrowly margined at and near their tips with brownish white; tail pale hair-brown, exterior web of outer laterals fawny white, other feathers margined on their outer webs with pale yellowish brown.

BUT very little is known respecting the present species, and especially respecting its habits and nidification. It is only met with in South-eastern Europe, in the Caucasus; but it ranges eastward into the Himalayas, and it is more especially an Asiatic species whose range extends westward into Europe than a European bird which straggles eastward into Asia. According to Gldenstdt it inhabits the more elevated portions of the Caucasus and the Altai, frequenting the banks of mountain-torrents, and feeding principally on the berries of *Hypophæa rhamnoides*, which grows plentifully there. It is, he adds, usually seen in large flocks, and its call-note resembles that of a Bullfinch.

Dr. Severtzoff met with this bird in Turkestan, but gives no particulars respecting its habits. Referring to its range in India, Dr. Jerdon writes (B. of India, ii. p. 398) as follows:—"It has only been obtained, in India, in the far N.W. Himalayas, Mr. Blyth having received one from the neighbourhood of Pind Dadun-khan; and it has also been found in Cashmere. It varies much in the brightness of its plumage, according to the season. It is probably this species which Adams alludes to in his 'Birds of Cashmere,' No. 68, as being like *Carpodacus erythrinus*, but larger, and of a brighter red, and only seen in flocks, high up near the snow."

Dr. Henderson writes (Lahore to Yarkand, p. 258):—"One fine specimen, marked a female at the time, but obviously, I think, a male in full summer plumage, with a wing 4.75 inches in length, was obtained on the 9th October near the Pngong lake. Two young birds of the same species, clearly fledged but recently, were obtained on the 13th and 15th August at the Arpalak river. It is therefore probable that we have here one at least of the breeding-places of this rare species." Captain Biddulph had several examples of this rare Rose Finch in the collection he recently brought over to England from Yarkand, which I compared with my single specimen from the Caucasus, and cannot find any difference, except that the latter is deeper in colour, the red being more of a blood-red than a deep rose-red.

Mr. A. von Pelzeln, in his notes on the ornithology of Thibet and the Himalayas (Ibis, 1868, p. 318), states that it occurs "below the Parang Pass, Ankhang;" but it does not appear to range into Mongolia, as it is not included by Colonel Prjevalsky.

Beyond what is cited above, I find nothing on record respecting the habits of this rare species; and, so far as I can ascertain, nothing is on record respecting its nidification.

I am indebted to Mr. Gould for the loan of three specimens (a male and two females) of this rare bird from Thibet. The male differs from the male from the Caucasus in having the back scarcely tinged with red, but more as in the female; and the red portions of the plumage are paler, the red being more of a rose-red than blood-red, the white spots being more distinct; and it is also rather smaller in size, the wing measuring only 4.1 inches. I do not, however, see that there is any specific difference between these two birds. I have no female or young bird from the Caucasus, and therefore cannot say if they differ from eastern examples.

The specimen figured is an old male from the Caucasus, for which I am indebted to my friend Dr. G. Radde of Tiflis.

In the preparation of the above article I have examined (besides those in the collection of Captain J. Biddulph) the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *ad.* Caucasus (*Radde*).

E Mus. John Gould.

a, ♂, *b*, *c*, ♀. Thibet.



J. G. Keulemans. lith

M. & N. Harhart imp

SINAITIC ROSE-FINCH.
CARPODACUS SINAITICUS.

CARPODACUS SINAITICUS.

(SINAITIC ROSE FINCH.)

Fringilla sinaïtica, Licht. in litt.*Pyrrhula synoïca*, Temm. Pl. Col. 375. figs. 1, 2 (1825).*Pyrrhula sinaïca* (Temm.), Rüpp. Neue Wirbelth. p. 101 (1835).*Carpodacus synoïca* (Temm.), Gray, Gen. of B. ii. p. 384 (1844).*Carpodacus sinaïticus* (Licht.), Bp. & Schl. Mon. Lox. p. 17 (1850).*Carpodacus sinaïcus* (Licht.), Bp. & Schl. op. cit. pl. 18 (1850).*Erythrospiza sinaïtica* (Licht.), Bp. Consp. Gen. Av. i. p. 534 (1850).*Bucanetes sinaïticus* (Licht.), G. R. Gray, Hand-list, ii. p. 102 (1870).*Figuræ notabiles.*Temminck, *l. c.*; Bp. & Schl. *l. c.*

♂ *ad.* plumis ad basin rostri saturatè rubro-roseis: fronte, capitis lateribus et gulâ rubro-roseis, plumis acuminatis et versus apicem albo argenteo nitentibus: pileo postico et dorso fusco-cinereis rubro lavatis: uropygio rubro-roseo: remigibus et rectricibus fuscis, pallidè fusco-cinereo marginatis et vix roseo limbatis: corpore subtùs rubro-roseo, abdomine et subcaudalibus fere albis: rostro corneo vix roseo tincto: iride fuscâ: pedibus pallidè brunneis.

♀ *ad.* pallidè fusco-isabellina, suprâ saturatiore et fusco striata: subtùs magis albescens.

Adult Male (Râhah, Sinai). Feathers round the base of the bill deep rosy carmine; fore part of the crown, sides of the head, and the entire throat rose-carmine, the feathers pointed, and on the terminal portions glossed with silvery white, giving these portions of the plumage a silvery appearance in certain lights; central and hind crown rather duller red, and tinged with brownish grey; back smoky brownish grey, washed with red and indistinctly striped with darker brown; rump rose-carmine; wings and tail dull brown, the feathers with lighter edges, the lesser wing-coverts washed with red; underparts, except as above stated, rather paler rose-carmine, becoming nearly white on the centre of the abdomen and under tail-coverts; bill light horn with a faint red tinge; iris dark brown; legs light brown. Total length about 5·5 inches, culmen 0·42, wing 3·5, tail 2·72, tarsus 0·8.

Adult Female (*fide* Bonap.). Greyish isabelline brown, darker on the upper parts, and striped with rather darker brown; underparts whiter.

THIS, one of the rarest of the Rose Finches, inhabits the Sinaitic peninsula and Arabia Petræa, and is only known as an occasional straggler within the limits of the Western Palæarctic Region. Count von der Mühle, it is true, includes it as having been met with in Greece; but his description agrees far more closely with the Trumpeter Bullfinch, and in all probability the bird obtained by him near Lamia is referable to that species. Canon Tristram states (*Ibis*, 1868, p. 208) that he saw it several times in the vicinity of the Dead Sea, in Palestine, but did not

obtain a specimen; and he assures me that he is quite convinced that he was not mistaken as to the bird observed by him being really the Sinaitic Rose Finch. It appears to be tolerably common in Mount Sinai, where it was first discovered by Hemprich and Ehrenberg; and Mr. C. W. Wyatt, who obtained in the Sinaitic peninsula the specimen I have figured, says (*Ibis*, 1870, p. 16) that it is "local, frequenting the higher parts of the mountains, the plains of Er Ráhah, and Wádys Lejah and T'láh," and he also met with it in Wády Aleiyát, at the foot of Mount Serbal.

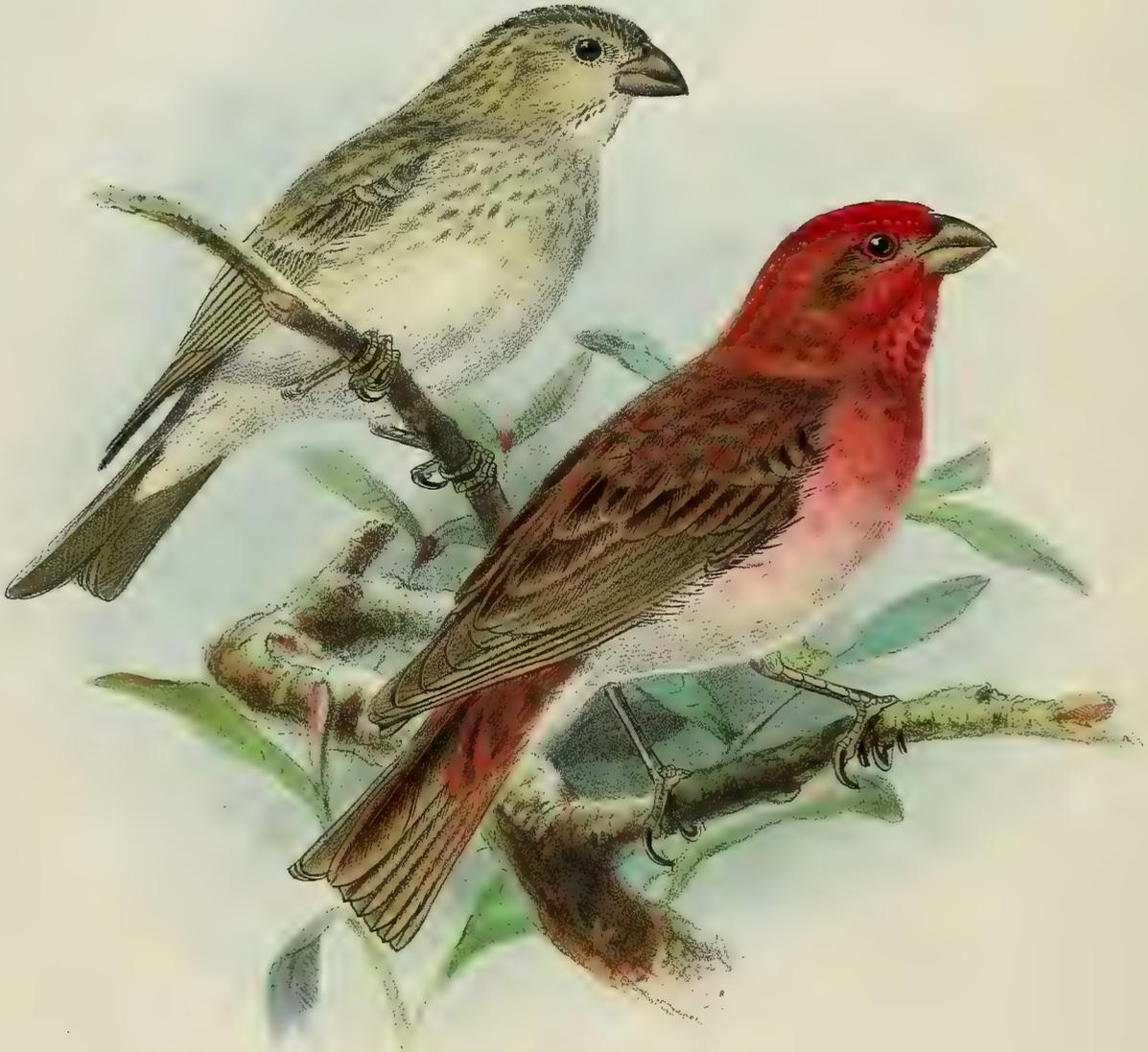
Von Heuglin says (*Orn. N.O.-Afr. i. p. 654*), the present species "lives in pairs and small flocks in Arabia Petræa, frequenting rocks, sunny places in the precipices, pastures, and places where the rain collects. It is a very lively and somewhat shy species, feeds on small seeds, and probably migrates during the winter. I never saw it on bushes. When disturbed it flies off uttering its call-note, flying close to the ground, and generally settles again amongst stones." Beyond the above meagre data I find no information respecting the present species.

In habits it is stated to assimilate more closely to the Trumpeter Bullfinch than to any other of the *Carpodacus* group, and to be a frequenter of arid, stony localities, seldom found amongst bushes, and never on trees, whereas the other species of *Carpodacus* are frequenters of trees and woodlands. Judging, however, from an examination of the feet of the specimen I have before me, I should say that it does perch not unfrequently.

I purposed to figure this species, however, seated on a stone; but my artist has in error put it on the branch of a bush, a position far less suited to its general habits—a mistake I discovered only when too late to have any alteration made.

In the specific name of this bird I have followed Bonaparte and other later authorities in reverting to the name given, but not published, by Lichtenstein (who forwarded to Temminck the specimens figured in the 'Planches Coloriées'), as being more correct than the name given by Temminck.

The specimen figured, the only one I have had an opportunity of examining, is an adult male obtained by Mr. C. W. Wyatt on the plain of Er Ráhah, in the peninsula of Sinai, on the 29th March, 1869, and is now in the collection of Canon Tristram.



SCARLET GROSBEAK.
CARPODACUS ERYTHRINUS

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(SCARLET GROSBEAK.)

- Pyrrhula erythrina*, Pall. N. Comm. Acad. Sci. Imp. Petrop. xiv. p. 587, tab. 23. fig. 1 (1770).
Loxia cardinalis, Beseke, Vög. Kurlands, p. 77 (1792, *nec* Linn.).
Loxia rosea, Vieill. Ois. Chant. pl. lxx. (1805).
Loxia erythræa, Endler & Scholtz, Schlesische Naturf. i. p. 17, pl. 5; ii. p. 185, pl. 77 (1809–10).
Fringilla erythrina, Meyer, Vög. Lif- und Esthl. p. 77 (1815).
Coccothraustes rosea, Vieill. Nouv. Dict. d'Hist. Nat. xiii. p. 539 (1817).
Linaria erythrina, Boie, Isis, 1822, p. 552.
Coccothraustes erythrina, Bonn. et Vieill. Enc. Méth. p. 1003 (1823).
Fringilla incerta, Risso, Hist. Nat. Europ. Mérid. iii. p. 52 (1826).
Carpodacus erythrinus, Kaup, Natürl. Syst. p. 161 (1829).
Erythrothorax rubrifrons, Brehm, Vög. Deutschl. p. 249 (1831).
Chlorospiza incerta, Bonap. Faun. Ital. Ucc. pl. 38 (1832).
Erythrospiza erythrina, Bonap. Comp. List of B. of Eur. and N. Am. p. 35 (1838).
Hæmorrhous roseus, Jerd. Madr. Journ. Lit. & Sci. p. 36 (1840).
Erythrospiza rosea, Blyth, J. A. S. B. xi. p. 461 (1842).
Pyrrhulina rosea v. *P. rosea*, Hodgs. in Gray's Zool. Misc. p. 85 (1844).
Propasser sordida, id. tom. cit. p. 85 (1844).
Pyrrhulina roseata, id. P. Z. S. 1845, p. 36.

Figuræ notabiles.

Vieill. Ois. Chant. pl. lxx.; Meyer, Vög. Liv- und Esthl. p. 77; Kittl. Kupf. Vög. t. 32. fig. 1; Naum. Vög. Deutschl. iv. Taf. 113. figs. 1, 2; Gould, B. of Eur. iii. pl. 206; Bonap. Faun. Ital. Ucc. pl. 38; Bonap. & Schl. Monogr. Lox. pl. 14; Jaub. & Barth.-Lapom. Rich. Orn. pl. to p. 118; Sundev. Svensk. Fogl. pl. lxx. fig. 1; Bree, B. of Eur. iii. p. 69; Fritsch, Vög. Eur. tab. 22. figs. 12, 13; Gould, B. of Gt. Br. part xix.

♂ *æstiv.* suprâ rosaceus vix coccineus, pileo et uropygio lætioribus, plumarum basibus einerascenti-brunneis: pilei plumis acutiusculis: facie laterali rosacæ, regione auriculari albido striolatâ: tectricibus alarum brunneis, roseo lavatis et majoribus eodem colore terminatis fasciam duplicem alarem formantibus: remigibus brunneis, pogonio interno albido, extus angustè rosaceo marginatis: caudâ brunneâ, rectricibus cum tectricibus supracaudalibus imis rosaceo aut flavicante marginatis: gutture lætè coccineo, pectore magis rosascente versus abdomen albicante: abdomine et crisso albis, paullò roseo tinctis: subalaribus albicanti-brunneis, roseo paullulum lavatis: rostro flavicanti-brunneo: pedibus brunneis: iride brunneâ.

♂ *vern.* cinerascenti-brunneus, ubique rosaceo lavatus, pileo et uropygio lætioribus: subtus rosaceus, abdomine albo, pectore coccineo notato.

♀ cinerascens-brunnea, dorso postico minime olivascenti lavato : plumarum omnium parte basali plus minusve conspicuâ maculas brunneas formante : loris et strigâ malari indistinctâ albicantibus : facie laterali reliquâ brunneâ, regione auriculari albicante obscure striolatâ : tectricibus alarum brunneis, medianis et majoribus albo terminatis, fascias duas alares conspicuas formantibus : remigibus brunneis extûs albicante marginatis : caudâ brunneâ, obscure olivaceo marginatâ : subtus albicans, pectore summo et corpore laterali olivaceo tinctis : gulæ lateribus punctulis brunneis notatis, vix fasciam mystacalem formantibus : gulâ mediâ brunneo sparsim notatâ : pectoris summi et hypochondriorum plumis parte medianâ brunneâ strias longitudinales plus minusve distinctas formante : abdomine medio crissoque purè albis : subalaribus albis, fulvescente tinctis.

Male in spring plumage. Above ashy brown, with a rosy tinge to all the feathers of the back ; the head and rump much brighter-coloured and inclining to carmine ; lores brown ; sides of the face rosy, tinged with carmine ; wing-coverts brown, washed with rosy, the median and greater coverts tipped with pale rose-colour, forming a double alar bar ; quills and tail brown, all the feathers narrowly edged with rosy ; under surface of the body clear rose-colour, with feathers of bright carmine becoming apparent on the throat and gorget ; lower abdomen and under tail-coverts white, with the faintest tinge of rose-colour ; under wing-coverts brownish white, slightly tinged with rosy, especially along the edge of the wing ; bill yellowish brown ; feet horny brown ; iris brown. Total length 5·8 inches, culmen 0·5, wing 3·3, tail 2·5, tarsus 0·75.

Male in summer plumage. Brighter than in spring, all the feathers of the head and rump exceedingly rich carmine, this colour being also suffused all over the breast ; the feathers of the back and the margins of the quills and tail deep carmine.

Female. Ashy brown, with a very slight tinge of olive on the upper surface, the centres of the feathers a very little darker on the back, producing a slightly mottled appearance ; on the head the centres of the feathers very distinctly marked, giving the appearance of being scaled ; wing-coverts brown like the back, the median and greater coverts tipped with yellowish white, forming two distinct alar bars ; quills and tail dark brown, externally edged with dull olive, the secondaries with whitish ; sides of the head brown, the lores and malar stripe buffy white ; under surface of the body whitish, becoming pure white in the centre of the abdomen ; the throat, upper part of the breast, flanks, and under wing- and tail-coverts tinged with brown, the centres of the feathers darker, producing on the flanks a slightly mottled appearance, but on the throat and chest the semblance of longitudinal streaks. Total length 5·8 inches, culmen 0·45, wing 3·4, tail 2·5, tarsus 0·75.

Young. The immature birds resemble the adult female, being brown in colour, but are washed with yellowish olive above, and the head is very distinctly mottled ; the edges to the wing-coverts and innermost secondaries are very broad, white in colour, with a distinct tinge of olive ; sides of the face pale brown ; under surface of the body whitish, with very broad and distinct brown streaks all over the throat and breast.

THE present bird is by no means rare in Russia, where it breeds ; and during the autumn migrations it wanders into the more western countries of Europe, but has rarely been known to breed out of Russia and Poland. In the east it is widely distributed, being found in Siberia, as well as China, and, in the winter season, also occurs plentifully in India.

Under its true name of *Carpodacus erythrinus* it has been twice recorded in Great Britain, though it is quite possible that more examples have really occurred. Mr. F. Bond writes to

us:—"I believe the only specimens of this bird that have occurred in this country are the one in Mr. Monk's collection at Lewes, in Sussex, taken near Brighton in September 1869, and my own specimen caught near Hampstead, October 5th, 1870; both birds are females." Naumann once found the Scarlet Grosbeak nesting on the Danish island of Sylt; and Mr. A. Benzon, of Copenhagen, writes that "since it bred on Sylt in 1819, it has not been observed in Denmark." According to Nilsson a female was caught on Gottland in the autumn, and is now in the Stockholm Museum. In Finland Von Wright states that it is found only in summer, being not uncommon in the south-eastern part of that country. It arrives early in June, and leaves before the end of August. A pair or two are found every year as high up as Kuopio. Dresser observed it at Helsingfors, and procured a nest and eggs in the Botanical Gardens of that town, where it is now found annually, although some years ago the bird was scarcely known in the neighbourhood; it appears to be extending its migration westward every year. The fact of its breeding in Finland was first noticed by Herr von Nordmann, who observed that it nests every year in the Botanical Gardens at Helsingfors, in the tops of the maple and the *Carangana sibirica*. Shortly after, Pastor Sommerfeldt stated that Nordvi and Schrader saw this bird near Nyborg, on the Varanger Fiord; and he has eggs from Polmak, which he has good reason to believe are those of the Scarlet Grosbeak; and Mr. R. Collett mentions that Herr Nordvi wrote to him in 1867 and 1868 to the effect that this bird is not uncommon in East Finmark, along the Tana river, and has been found breeding at Polmak and Skugge. Commenting on the above, Professor Newton remarks, "The fact that *Carpodacus erythrinus* has now been found breeding at Polmak, on the Tana, is particularly interesting when taken in connexion with the recent increase of its range in Finland, as observed by Nordmann." Meyer says that in the Baltic provinces it was first observed at the end of August 1803 by Germann, when several were caught near Dorpat. The Rev. Mr. Stoll found it several times near Riga and Jürgensburg. Naumann himself saw it during the summer in Silesia, but he states that in Central Germany it is of rare occurrence, but has been seen in Hesse, on the Rhine.

Concerning its capture in Germany, Dr. O. Finsch writes to us as follows:—"Tobias states that this rare bird breeds in the deep valleys, as for instance in the Queissthal, near Flinsberg. According to this, one would expect that it occurs here regularly; this, however, is not the case, as it has only once been found breeding in the valley of the Queiss river, at Flinsberg, in the Iser mountains. I have seen the old birds, as also the young taken from the nest, in the collection of Mr. Heydrich, of Flinsberg, a most excellent field naturalist, who discovered it." Herr A. Von Homeyer, in his notes on Borggreve's 'Birds of N. Germany,' says, "R. Tobias goes too far when he says it 'breeds in the deep valleys of the Silesian mountains.' The truth is that Tobias procured a nest *once* from the Queiss valley, *once*, and only once. I can state most decidedly that it does not now breed at Queiss."

De Selys-Longchamps, in his 'Faune Belge,' writes:—"A single specimen was killed near Tournay, another near Abbeville. It has also been found in the valley of the Rhine." Degland and Gerbe say that it "appears more or less regularly on migration in Italy and Southern France. In Lombardy, Liguria, Nice, and Provence its occurrence is not unfrequent. It is sometimes even found in the north of France, as is shown by the capture of a young male in the suburbs of Lille, on the 17th of September 1849." According to Baron J. von Müller it is met with

annually in Provence in pairs during the months of August and September. Respecting its occurrence in Spain, our friend Mr. Howard Saunders sends us the following note:—"Lopez-Seoane states that it is 'rare in Sierra Nevada in February,' which is certainly *possible*, though I have never succeeded in finding it in any part of Spain, dead or alive, nor have any of my collectors during the last four years been more fortunate." Mr. C. A. Wright chronicles its appearance in Malta in these words:—"Schembri records the capture of two examples on the 25th of December 1839, under the name of *Fringilla incerta*, a pseudo-species, now recognized as the young of *P. erythrina*." Italy, likewise, is visited in the autumn by this species; and it was here that Risso obtained the birds he named *Fringilla incerta*, of which more anon. It has also been included in the avifauna of Greece by those authors who suppose the *Pyrrhula sinaica* of Von der Mühle to be referable to the present species; but of the correctness of this identification we are by no means certain, and should prefer waiting for further evidence before merging the above-named bird into a synonym of *C. erythrinus*. In Southern Russia, Professor von Nordmann says it appears regularly on the spring migration, singly or in pairs, in the Botanical Gardens of Odessa. It calls incessantly from the tops of high trees, its note sounding like *hi-u-ti-u hi-u-ti-u*, which may be heard at some distance. It is common in the provinces to the east of the Black Sea. Ménériés says:—"It is common enough on the Caucasian Alps, and affects the top of the high grasses, whence it utters a song very similar to that of the Common Chaffinch, only at a height of six or seven thousand feet. The female is rather rare, and does not sing at all." Dr. E. Eversmann writes as follows:—"Very common on the Central Volga, in Kazan, and the Southern Ural. Towards the autumn they collect in flocks, and wander through the scattered groves for a time, leaving us in September and October, returning again early in April." Lehmann says it was "observed at Orenburg and on the east coast of the Caspian Sea in May." In Dauria, according to MM. Dybowski and Parrex, it is common during passage, but rare in the summer. Dr. L. von Schrenck says that it is found in all Siberia to Kamschatka, and nests on the Amoor, in the willow thickets on the low and marshy islands. Radde states that the first of these birds arrived at the Tarei-Nor in the night of the 25th to 26th March, and says they breed there. In the Baikal mountains he saw small flocks on the 14th of April 1859; the males were then in full song. On the 13th of June 1856, in ascending the Sochondo he observed a pair at an altitude of 8000 feet above the sea-level. Middendorff found it all through the Stanowoj mountains, on the Uda, and south coast of the Sea of Ochotsk, common and breeding. In the middle of April it arrived at Udskoj-Ostrog. From Kamschatka Kittlitz brought specimens, which were remarkable for brilliancy, and which might, so thought Bonaparte and Schlegel, constitute a distinct race.

Mr. Swinhoe records it as a winter visitant to China; and Père David says it "abounds during the spring passage, but does not repass here in autumn."

We copy the following notes from Dr. Jerdon's most excellent work on the Birds of India:—"The Rosefinch is found as a cold-weather visitant throughout the greater part of India, more rare towards the south, common in Central and Northern India, and in the Himalayas, chiefly, however, at the foot of the hills and in the valleys; and it extends into Assam and Arracan. Out of India it is found over a great part of Central and Northern Asia and Europe. It visits the plains during October, and leaves in April. In March many are taken in fine breeding-

livery. In the extreme south I have chiefly seen it in bamboo jungle; and so much is this its habitat that the Telugu name signifies 'Bamboo-Sparrow.' Herr von Pelzeln (J. f. O. 1868, p. 34) gives the following localities where the present bird was obtained by Dr. Stoliczka:—"Kotegurh only in winter, Pangi in summer, Chamba, Serahan, Sisu, in Lahul, in June." Captain Beavan procured it at Darjeeling, and writes:—"I observed it abundantly about Simla, but was unable to procure any specimens." Mr. W. E. Brooks writes as follows:—"Common at Almorah in the beginning of April, when I arrived there; early in May they all disappeared, having, I suppose, gone further north to breed. Seeing the birds in pairs everywhere, gave me great hopes of obtaining the eggs;" and, again, in a letter from Etawah he says:—"Mr. Buck found *Carpodacus erythrinus* close under the snows." The Rev. P. Phillips, in his paper on the birds observed by him in the plains of North-western India, says:—"This comes from the hills in the spring, and feeds on the mulberries. It is caught by the natives in nets, before which two or three decoys are tied." Dr. Leith Adams's list of localities and notes are as follows:—"Scinde, not common; lower ranges of the Himalayas, districts of Cashmere, pretty common; seen generally solitary or in small flocks. Habits resemble Linnets'."

Wherever this bird occurs it is not difficult to be seen, as the male generally perches quite in the open when singing, and does not appear to be at all shy. In its habits it much resembles its American congener *Carpodacus purpureus*, to which both in song, nest, and eggs it also bears great affinity. We doubt, however, if it is anywhere so common as that bird appears to be in some portions of North America. As a cage-bird it would doubtless thrive excellently, and its pleasant song would certainly render it a favourite; its rarity, however, prevents its being found as a cage-bird in this country at least, and we have seen very few in confinement. Respecting its habits we give the following excellent notes sent us by Dr. Taczanowski, of Warsaw:—

"Only comes to us to breed. The first appear generally about the 15th of May; and after a few days they are found at their regular nesting-places. They arrive singly, and take up their habitation in the bushes near water, in the middle of fields and marshes. Nowhere numerous, they are generally rather rare. The males announce their arrival by a characteristic song, which is easily recognized even at a great distance. They are very restless, whereas the female, on the other hand, is quiet. When singing, the male generally perches on the top of a tree or bush, always in full view, and during the short intervals of the song utters a deep clear whistle, which may be rendered as follows:—*tiü tiü fi tiü, tiü, tiü fi tiü tiü*; after having repeated this about ten times, it descends amongst the branches and searches after food. While thus engaged it sometimes warbles in a very low tone. After about a quarter of an hour of repose, it reappears in full view and recommences its song. In singing it raises the feathers of its crown and throat, and in the sun looks much more beautiful than it really is. The food consists chiefly of the various seeds of trees and bushes, tender buds, &c. They seldom feed on seeds of plants; but sometimes they resort to the fields to pick up hempseed. They are not often seen on the ground, and only go there in search of materials for their nest. The latter is placed on small bushes, generally on thorns (*Prunus spinosa*), wild rose-trees, hawthorns, and amongst hops. In form it resembles that of *Sylvia cinerea*, and is constructed of fine elastic dry bents, particularly those of ranunculus and hops, clover, and umbelliferous plants. The interior is formed of delicate dry shoots of plants, often interlaced with a few horsehairs or other coarse hairs. The nest is loosely

constructed, and the exterior almost carelessly; but it is regular and neat in the inside, and in form is almost semicircular. It is placed in a fork of the bush without being fastened to the branches, and is always well hidden in the foliage. The total diameter is ten centimetres, depth four centimetres.

“The general complement of eggs is five, rarely four or six. They are slightly elongated, slender, oval, or sometimes almost pyriform. In colour they are of a beautiful blue-green, almost like the eggs of the Song-Thrush, and are marked with spots of reddish black, more numerous at the larger end, and but few on the rest of the surface. These spots are often mixed with a few streaks of different shapes. These markings can be easily washed off, and leave then only reddish-coloured spots. The shell is delicate, fragile, and transparent. In size the eggs measure 20 millimetres by 16 mm., 21 by 15½, 20 by 15, 20 by 14½. In general character they resemble those of the Common Bullfinch, but are less in size, and the ground-colour is more intense and pure, while at the same time the spots are deeper. During the period of incubation, and when the young are still small, the male sings continually, but in different places, and often far off, but it frequently returns to the vicinity of the nest. When any person approaches, it calls exactly like a Canary; and the female uses the same alarm-note. As soon as the young commence to be feathered, the male ceases his song, and becomes as shy as the female. When they leave the nest, the whole family conceal themselves in the foliage, and it is very difficult to get sight of them; and they remain thus until they leave. Owing to their shy habits, then, I cannot say when they do leave, but suppose it is as soon as the young birds can travel. In Siberia they are common, and remain longer there than they do here. They nest there on young conifers.”

Von Nordmann gives the following account of its breeding in Finland:—“The nest consists of thin twigs loosely put together. The eggs are white, with a few blackish red spots at the large end. The bird arrives in Helsingfors in the middle of May, and in 1857 had fledged young on the 25th of June. After having once heard the loud flute-like voice of this bird, there will be no difficulty in recognizing it a second time, as it conceals itself in the tree-tops. It has a Finch-like call-cry resembling that of *Fringilla chloris*.”

In India, Dr. Jerdon says:—“It frequents alike groves, gardens, and jungles, feeding on various seeds and grain, also not unfrequently on flower-buds and young leaves. Adams states that in Cashmere it feeds much on the seeds of a cultivated vetch. Now and then it is seen in large flocks, but in general it associates in small parties. It breeds in Northern Asia. It is frequently caught and caged, and has rather a pleasing song. Blyth says, ‘the *Tuti* has a feeble twittering song, but soft and pleasing, being intermediate to that of the Goldfinch and that of the small Redpoll Linnet; the call-note much resembling that of a Canary-bird.’”

The following account of a caged specimen is given by Ménétriés:—“A male of this species, taken in the neighbourhood of St. Petersburg, was kept in a cage for nearly two years. At first it was of a beautiful rose-colour; but in the following spring it moulted, and became altogether grey (that is to say, like the female); and at the different seasons the moulting was effected without returning to the first colour. It was easily tamed, did not sing, and was rather stupid; and when the other birds, especially the Titmice, attacked it, it contented itself with merely opening its beak and shaking its wings; and this was generally sufficient to drive away its assailants.”

In Dresser's collection are three eggs, obtained by himself at Helsingfors, Finland, on the

3rd July, 1858, and several from Darasun, Dauria, collected by Messrs. Dybowski and Parrex. These eggs vary in size from $\frac{2.9}{40}$ by $\frac{2.3}{40}$ inch to $\frac{3.2}{40}$ by $\frac{2.4}{40}$ inch, and are rich blue in colour, darker in tinge than any Bullfinch eggs we have ever seen, sparingly dotted at the larger end with dark-red and blackish-brown spots, which sometimes form an irregular ring round the larger end. In shape they resemble the eggs of the Common Bullfinch, but are, if any thing, slightly more taper at the smaller end.

We cannot conclude the account of the present species without one word on that much vexed question of the identity of the *Fringilla incerta* of Risso; and we feel this to be the more necessary as neither Dr. Bree, in his 'Birds of Europe,' nor Mr. Gould, in the lately published part of the 'Birds of Great Britain,' has said a word on the subject. This doubtful species was first described by Risso (*l.c.*), who says that it occurs in Italy in the month of November in passage. Some years afterwards Prince Bonaparte figured a supposed male and female in his 'Fauna Italica;' and we have little doubt that he was right in his identification of the sexes. But at the same time we firmly believe that his figures were taken from birds that had lived in confinement, the female being fairly represented, but the male, on the other hand, defying identification, unless allowance be made for the changes produced by its being kept in a cage (see Ménétriés, *suprà*). Every one is aware that Linnets and Redpolls, not to mention other Finches, after having been caged for some time, lose the rose-colour on the head and breast, which turns to saffron-yellow, and never regains its pristine hue. Instances of birds having been shot in a wild state in this dress are not rare; and the Scarlet Grosbeak forms no exception; for Radde records a curious specimen of a male bird he procured in which the red colour was replaced by yellow. It is therefore not difficult to imagine that the bird figured by Prince Bonaparte as the male of *Chlorospiza incerta* is nothing more than a specimen of *C. erythrinus* which had been confined in a cage. Many interesting notices upon the supposed occurrence of *Fringilla incerta* in England have been published, chief among which may be mentioned a paper by Professor Newton (P. Z. S. 1862, p. 128), a letter by Mr. G. Dawson Rowley in 'The Ibis' for the same year (p. 385), and, again, a notice by Mr. J. Jenner Weir in the 'Zoologist' for 1867 (p. 877). The birds about which Professor Newton wrote are in the collection of Mr. T. J. Monk, of Lewes; and that gentleman most kindly sent them up to us for inspection. He has kindly sent us the following information in answer to our inquiries:—"Swaysland, of Brighton, has had, he believes, eight specimens of this Finch (which, with me, has always gone by the name of *Fringilla incerta*), the first being brought to him about twenty years ago. The two birds in my collection were taken at somewhat long intervals; the male bird was caught near Shoreham on the 28th of October 1864, and the hen bird near Brighton race-course on November 20th, 1869. Major Spicer, of Esher Place, Surrey, has, I believe, two specimens; Mr. H. Byne, of Taunton, has one; and Mr. Bond, I think, has two,—which will account for seven out of Swaysland's eight birds. All of them were captured near Brighton, and all, with one exception, in the months of October and November, the exception being a hen bird in full plumage taken in April. To me these birds savour strongly of a cross between the Linnet and Greenfinch." This last suggestion of Mr. Monk's is undoubtedly correct; for the birds are undoubtedly hybrids between these last-named species, and are not *C. erythrinus*.

Our friend Mr. J. H. Gurney, jun., has very kindly given us references to all the supposed

occurrences of this pseudo-species in England; but it is impossible to identify the greater part of them. We trust, however, that, now that the adult female has been carefully figured by us, and the young of the same sex by Mr. Gould, there will henceforth be less difficulty in recognizing its occurrence in this country. Mr. Louis Fraser, writing to the Huddersfield 'Naturalist,' says, in a letter dated the 13th of July, 1864:—"Your readers will be pleased to learn that I have a living specimen of that exceedingly rare and doubtful British bird, *Fringilla incerta* of Risso. I at first mistook it for a hen Greenfinch." It will be noticed that Mr. Fraser does not say that the bird had been captured in England; but we presume from his writing the above to an English periodical, that such was the case. We ourselves have not the least hesitation in saying that the *Fringilla incerta* of Risso is nothing but *C. erythrinus*, and is not a hybrid, as has been often supposed. On the Continent this fact has long been recognized, and a very spirited controversy was carried on between Dr. Degland and Prince Bonaparte as to whom was due the credit of this identification.

The figures of the adult pair of birds represented in the Plate are drawn from specimens sent to us by Mr. Karl Sachse, who received them direct from Moscow. The description of the adult male in spring dress is taken from one of Mr. Dode's Turkestan skins, procured by him at Temscken on the 20th of April, 1866, and now in the collection of Mr. Howard Saunders. The female is also described from a skin belonging to the last-named gentleman, as it is a bird in fully adult breeding-dress, having been procured at Darasun in June 1868, and four eggs taken at the same time. The male in summer plumage is described from an example in Lord Walden's collection, shot at Umballah by the late Dr. Scott, and the young bird from a skin procured in Turkestan by Dode, on the 9th of August, 1860, and marked a female, which is now in the cabinet of Mr. J. H. Gurney, jun.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b, c. Moscow (*C. Sachse*). *d, e.* Crimea (*W. Schlüter*). *f.* Etawah (*W. E. Brooks*).

E Mus. H. B. Tristram.

a, b. Himalayas.

E Mus. R. Swinhoe.

a, b. W. Siberia (*mus. Petrop.*). *c.* Peking (*Fleming*). *d.* Amoy (*R. S.*). *e.* Canton (*R. S.*).

E Mus. Howard Saunders.

a. Turkestan (*Dode*). *b.* Darasun, Dauria (*Verdier*).

E Mus. Lord Walden.

a, b. Candeish. *c.* Darjeeling. *e.* Umballah (*Scott*).

E Mus. J. H. Gurney, jun.

a, b. Turkestan (*Dode*).

Genus ERYTHROSPIZA.

Fringilla apud Gould, P. Z. S. 1837, p. 27.

Pyrrhula apud Audouin, Expl. Pl. Ois. d'Egypte, p. 286 (1825).

Erythrospiza, Bonaparte, Comp. List, p. 34 (1838).

Carpodacus apud Blyth, J. As. Soc. Beng. xvi. p. 476 (1847).

Montifringilla apud Gould, fide Bonaparte, Consp. Gen. Av. i. p. 535 (1850).

Bucanetes apud Cabanis, Mus. Hein. i. p. 164 (1850-51).

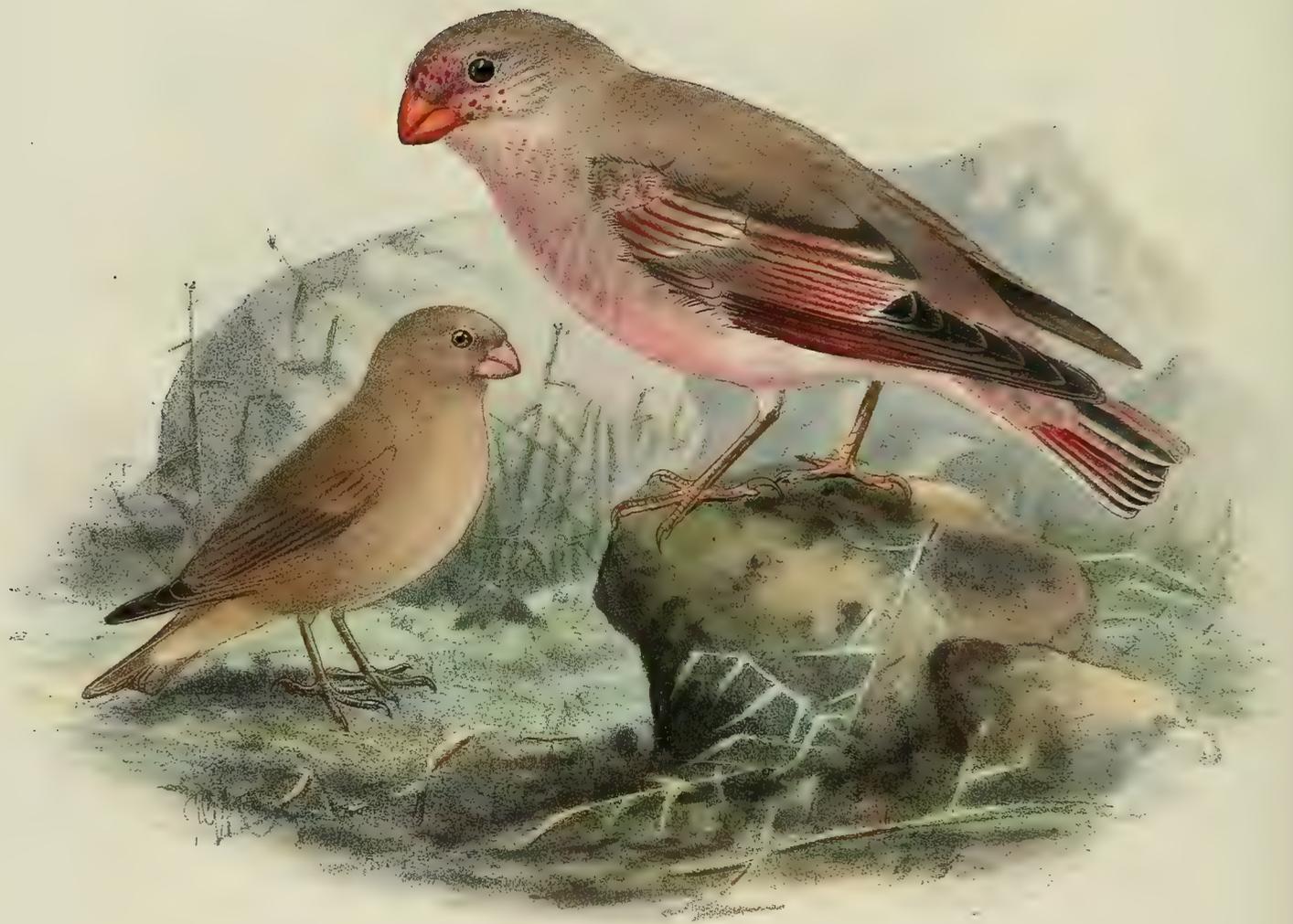
Rhodopechys apud Bonaparte, Cat. Parzud. p. 4 (1856).

Serinus apud Gloger, fide Bolle, Naumannia, 1858, p. 393.

Erythrothorax apud Brehm, fide Bolle, ut suprâ.

THE Scarlet winged Bullfinches are closely allied on the one side to *Carpodacus*, and on the other to *Pyrrhula*. They inhabit the southern parts of the Palæarctic and northern portions of the Oriental and Ethiopian Regions, two species only being found in the Western Palæarctic Region. They frequent wild, sterile localities in preference to cultivated places, and are usually found in rocky or else in sparsely bush-covered spots, either in the mountains or in the plains. As a rule, they are shy and wild. Their flight is tolerably strong, and their note pleasing. They make a tolerably well-constructed cup-shaped nest, which they place either in a hole or on a tree, and deposit pale greenish eggs marked with reddish brown or greyish.

Erythrospiza sanguinea, the type of the genus, has the bill stout, strong, nearly as broad as high at the base, compressed towards the tip, which is acute; upper mandible overhanging the lower at the tip; nostrils basal, concealed by recurved stiff feathers; wings rather long, pointed, the quills externally margined with red, first quill attenuated and very small, the second longest, the third scarcely shorter; tail moderately long, slightly forked; tarsus moderately slender, covered in front with four large and three inferior scutellæ; toes rather long and slender; claws moderately curved, laterally grooved.



TRUMPETER BULLFINCH.

ERYTHROSPIZA BITHAGINEA

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ERYTHROSPIZA GITHAGINEA.

(TRUMPETER BULLFINCH.)

Fringilla githaginea, Licht. Verz. Doubl. p. 24 (1823).*Pyrrhula payraudæi*, Aud. Expl. des Pl. d'Oiseaux de l'Égypte, p. 286, pl. 5. fig. 8 (1825).*Pyrrhula githaginea* (Licht.), Temm. Man. d'Orn. iii. p. 249 (1835).*Erythrospiza githaginea* (Licht.), Bp. Comp. List, p. 34 (1838).? *Pyrrhula sinaica*, Von der Mühle, Orn. Griechenl. p. 45 (1844).*Carpodacus crassirostris*, Blyth, J. A. Soc. Beng. xvi. p. 476 (1847).*Carpodacus payraudæi* (Aud.), G. R. Gray, Gen. of B. ii. (1849).*Bucanetes githagineus* (Licht.), Cab. Mus. Hein. i. p. 164 (1850).*Carpodacus githagineus* (Licht.), C. L. Brehm, Vogelfang, p. 91 (1855)." *Fringilla thebaica*, Hempr. in sched. Mus. Berol.," Bolle, Naumannia, 1858, p. 393." *Serinus githagineus*, Gloger," Bolle, ut suprâ." *Erythrothorax githagineus*, C. L. Brehm " (ubi ?), Bolle, ut suprâ.*Trumpeter Bullfinch*, *Vinous Bullfinch*, English ; *Trombettiere*, Italian ; *Trombettier*, Maltese ; *Pispo*, *Gorrion colorado*, *Pajaro moro*, *Pajaro majorero*, in the Canaries.*Figuræ notabiles.*Temminck, Pl. Col. 400 ; Werner, Atlas, *Granivores*, Suppl. pls. 7, 8 ; Gould, B. of Eur. pl. 208 ; Roux, Orn. Prov. pl. 74 bis ; Bonap. Faun. Ital. pl. 35. fig. 3 ; Bp. & Schl. Monogr. Lox. pl. 33 ; Shelley, B. of Egypt, pl. v. ; Bree, B. of Eur. pl. to p. 81.

♂ *ad.* pileo et capitis lateribus pallidè cinereis, versus dorsum brunneo lavatis, plumis ad basin rostri roseis : dorso cum scapularibus pallidè brunneis vix rosaceo lavatis : uropygio et supracaudalibus fusciscenti-roseis, his sanguineo marginatis : remigibus saturatè fuscis, secundariis et tectricibus alarum grisescente rosaceo marginatis, remigibus omnibus extùs sanguineo marginatis : caudâ fuscâ, rectricibus versus apicem sanguineo marginatis : corpore subtùs grisescenti-rosaceo : gulæ, pectoris et abdominis plumis vix sanguineo apicatis : rostro rubro : iride brunneâ : pedibus brunnescenti-carneis.

♀ *ad.* mari similis, sed sordidior et multo minus rosaceo et sanguineo colorata.

Adult Male (Egypt, March). Crown and sides of the head delicate ashy grey, on the nape gradually becoming brown ; feathers at the base of the bill rosy red ; back and scapulars soft, pale brown, faintly washed with pink ; rump and upper tail-coverts brownish pink, the feathers on the latter edged with carmine, quills dark brown ; secondaries and wing-coverts margined with pinkish grey, all the wing-feathers having an external narrow carmine border, and some of the inner primaries and the secondaries being slightly tipped with light brown ; tail dark brown, the feathers having carmine edges towards the tip ; underparts pinkish grey, the feathers on the throat, breast, and abdomen slightly tipped with carmine ; under tail-coverts pinkish buff ; flanks pale buffy grey ; beak bright red ; iris brown ; legs brownish flesh. Total length about 5 inches, culmen 0·4, wing 3·4, tail 2·15, tarsus 0·7.

Adult Female (Shiraz, Persia, June). Differs from the male in being much duller and in having scarcely any red in the plumage; upper parts dull dust-brown, underparts similar, but lighter; wings paler than in the male, the quills with only the faintest wash of pink on the edge of the outer web; tail dull brown, the feathers edged with pale red at the base; upper tail-coverts slightly tipped with rosy red.

Young (Algeria). Upper parts dull sandy fulvous brown; underparts warm brownish buff, no trace of red in the plumage; wings and tail dark brown, primaries slightly edged and tipped with light sandy brown; secondaries, wing-coverts, and tail-feathers more broadly edged with pale fulvous brown.

Male in winter (Malta, 15th November). Resembles the female above described, but has no trace of pink in the plumage.

THIS little Bullfinch inhabits Northern Africa, being but seldom found in Europe proper, and has been met with as far east as Sindh.

It is said by Roux to have been met with in Southern France; but there appears to be great doubt respecting the truth of this statement, which Baron J. W. von Müller and Messrs. Jaubert and Barthélemy-Lapommeraye strongly doubt.

According to Salvadori (Ucc. d'Ital. p. 160) it is an extremely rare straggler to Italy. Savi records the capture of a male specimen not far from Pisa in the spring of 1839, and it subsequently lived five years in confinement. A similar occurrence is recorded by Perini from the Venetian district in 1850. It is, however, somewhat singular that there should not be as yet a single authentic record of its occurrence in the island of Sicily, so much closer to the African coast. In Malta, according to Mr. C. A. Wright (Ibis, 1864, p. 51), "a few of these birds are taken annually, generally from October to March. One was caught in the last week of October 1860, and another in November 1862. It soon becomes very tame in captivity. Its note is like the sound of a penny trumpet, from which it derives its Maltese name;" and he further says (Ibis, 1870, p. 489) that several young birds were taken during the summer of 1869, and he found one amongst some Finches exposed for sale in the market in October in that year. It probably occurs as a rare straggler in Greece; for Von der Mühle describes a bird obtained near Lamia in the summer season, which appears to be the present species. I do not find any further record of its occurrence in Europe proper; nor does it appear to have been met with in Asia Minor; but Canon Tristram records it from Palestine, where, he says (Ibis, 1859, p. 34), it is found in the most desert portions of the rocky wilderness between Bethlehem and Hebron; and he further adds (Ibis, 1868, p. 208) that it was not uncommon near Beersheba, in the desert country.

In North-east Africa it is common in the desert country, according to Von Heuglin in the vicinity of the Nile, between 27° and 30° N. lat.; and Chalihl Effendi, in a few notes on this species (J. f. O. 1859, p. 469), says that it "is a resident in all portions of North-east Africa, where the desert reaches to the banks of the Nile, being met with in Upper Egypt, Nubia, the oases, and even in Arabia Petræa. The Egyptians know it well under the name of '*Asfûr el hadjar*' (Little Stonebird); but I do not know the Nubian name. In North and Central Nubia and Egypt it lives in large flocks of about eighty individuals, visits the fields like our Finches, and wanders about between the river and the mountains. The wilder and more rugged rocks are places where it is sure to be met with. Not being pursued, it is very tame, but keeps apart

from other species, even at the desert wells, at which it appears to be found in every oasis. At the wells of Bahiuda it was the commonest bird, being even more numerous than the Desert-Larks and *Emberiza striolata*. Near the confines of the desert it becomes rarer. I never saw it in Central and Lower Egypt, and only once in Arabia Petræa." Dr. Leith Adams also writes (*Ibis*, 1864, p. 23) as follows:—"Along the confines of cultivation and rocky situations bordering on the desert, the clear tinkling call of the Trumpeter Bullfinch is heard, where often the colour of its plumage prevents its being seen. It breeds among the old tombs at Thebes, associating there with the Domestic Sparrow. In Nubia the Sparrow-Hawk may be often observed sweeping around a cliff, with one of these birds in its talons, pursued by the loud lamentations of the whole flock, uttered in their characteristic clear and musical notes. They begin to pair about the end of January."

In North-west Africa it is also tolerably common. Loche says that "it is only found in the Sahara and the K'sours, being especially numerous in the M'zab from Ras Nili to Ouaregla;" and Canon Tristram writes (*Ibis*, 1859, p. 294) that it is "found generally dispersed on the gravelly steppes in the north of the Sahara, but not in the sandy districts. In winter it is gregarious, and may be seen in small flocks industriously searching under every stone or picking the buds of the desert plants. In spring these flocks disperse, and retire to pair among the lonely 'weds' and cliffs." Mr. L. Taczanowski also met with it in the barren hills of Algeria or amongst the bushes in the desert, and observes that it picks up its food on the ground under the bushes, and that flocks frequently disperse and reassemble. Mr. Chambers-Hodgetts records it (*Ibis*, 1867, p. 103) from Tripoli, where he saw a pair. It is found in the Canaries, where, according to Messrs. Webb and Berthelot and Dr. C. Bolle, it is not uncommon in Lanzarote, Canaria, and Fuerteventura; but Mr. Godman did not meet with it. Dr. Bolle writes (*Nau-
mannia*, 1858, p. 379), "it is to some extent found breeding at Lanzarote, Fuerteventura, and Gran Canaria. I found it distributed over the whole eastern half of Canaria, and think it may extend further west. I observed the first in April 1856, on the road which leads from Ciudad de las Palmas to the interior. I further observed it at Jinamar, Carrizal, and Juan grande, and I found it nowhere more common than at Arguineguin. It avoids the western islands, and has not yet been observed on Teneriffe, Gomera, Palma, and Ferro."

To the eastward it is found as far as Sindh. Mr. Blanford informs me that he met with it here and there in Persia, but did not observe it in Baluchistan near the coast, and only once shot specimens on the higher plains of Persian Baluchistan. Mr. A. O. Hume, who obtained it in Sindh, writes (*Stray Feathers*, i. p. 210) that "it was met with only at comparatively short distances from the lower slopes of the hills which divide Sindh from Khelat. They were seen exclusively on small patches of cultivation which here and there occur, oases in the barren waste which fringes the skirts of the mountains. They were always in small flocks, feeding on a kind of mustard; very tame, but difficult to shoot, because, invariably, when in the least disturbed, they run in amongst the mustard plants along the ground, with which their upper surfaces are almost absolutely unicolorous."

In its habits this elegantly coloured little Bullfinch is essentially an inhabitant of the desert and of sterile rocky localities, where its beauty tends to enliven the dreary landscape; and wherever it is found it must be looked for, not in the green flower-bestrewn gardens, but in the

most desolate localities that can be found. Dr. Carl Bolle, in an excellent monograph of this species (Naumannia, 1858, pp. 369-393) remarks that in the Canaries it likewise affects the treeless, stony, and hot localities, where the stillness is only broken by its low trumpet-note, which Dr. Bolle describes as "vox clamantis in deserto." It does not frequent the sand-country, nor yet the bolder mountain-rocks, but prefers the more level but rugged lava-covered districts, where it can at any moment find a hiding-place amongst the fissures, or amongst the loose masses of lava; and here it lives a peaceable life, being subject to no persecution, either from man or beast. In Africa it likewise frequents the borders of the desert, but seldom visiting the cultivated districts. Though not a true migrant, still, like all the Finches, when collected together during the autumn and winter, it wanders about, frequently straggling some distance from its breeding-haunts; and at this season of the year it is when it has been met with in other localities than those where it remains to breed.

In the Canaries, as also in North Africa, its breeding-season commences in March; and its nest is so carefully concealed that it has seldom been met with. He describes the nest as being rather roughly and loosely built of coarse bents of desert-grass, and lined with feathers, generally those of the Sand-Grouse or the Houbara, or with a little camel's or goat's hair, and says that it is carefully concealed in a fissure in the rocks or on the ground under a large stone. Canon Tristram says (Ibis, 1859, p. 294) that it "breeds in holes, laying an egg resembling that of the Bullfinch, but the ground is of a much deeper blue. The nest is slight, composed entirely of fine roots and fibrous grasses." Dr. Bolle, who succeeded in getting a pair to breed in an aviary, describes the eggs as being "large for the size of the bird, in colour pale sea-green, and dotted with reddish brown spots and blotches, which are very scattered at the smaller end, but collect and form a wreath round the larger one." I possess one egg, obtained in Algeria by Major Loche, which agrees closely with Dr. Bolle's description above given, and not with that of Dr. Tristram, being very pale sea-green, spotted with light and dark reddish brown, the spots being principally collected round the larger end, and in size measures $\frac{5}{8}\frac{6}{0}$ by $\frac{4}{8}\frac{1}{0}$ inch.

It feeds on seeds of various kinds of plants which grow in the dreary districts it frequents; and in spite of its love for desert places, it must have water at least so near within reach that it can visit it once in the day: hence in the deserts of North Africa it is generally found near the oases.

The song of the male is by Dr. Bolle said to closely resemble the low note of a small penny trumpet, sometimes loud and clear, and at others long drawn out and harsh. A note frequently used is a rather harsh *kä, kä, kä*; and they frequently call to each other using a cackling note like *kekek, kekeek*; and the alarm-note, or note of astonishment at any thing unusual, is a loud *schak, schak*. Von Heuglin says that "its call-note is a wooden *ter, ter*; and its song is very poor, resembling the sound produced by blowing into a child's wooden trumpet."

The specimens figured are an adult male, in full breeding-plumage, from Egypt, and a female from Persia, both in my own collection, these being the specimens described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Malta, November 15th, 1862 (*C. A. Wright*). *b*. Egypt, March 27th, 1870 (*G. E. Shelley*). *c*, ♂. Upper Egypt, March 1850 (*Baron J. W. von Müller*). *d*, ♂. Egypt (*Rogers*). *e*, juv. Algeria (*Verreaux*). *f*, ♂. Near Regan, Narmanshir, S.E. Persia, April 15th (*W. T. Blanford*). *g*, ♀. Shiraz, Persia, June (*Major St. John*).

E Mus. G. E. Shelley.

a, ♂, *b*. Egypt, April 20th, 1870. *c*, ♂. Egypt, May 7th, 1870. *d*, ♂. Egypt, February 15th, 1868 (*G. E. S.*).

E Mus. H. B. Tristram.

a, ♀. Laghouat, Sahara, November 18th, 1856 (*H. B. T.*). *b*, ♂. Laghouat, April 4th, 1870. *c*. Sahara. *d*, ♂. Biskra, Algeria, January 22nd, 1857 (*H. B. T.*).



CRIMSON-WINGED FINCH.
ERYTHROSPIZA SANGUINEA

ERYTHROSPIZA SANGUINEA.

(CRIMSON-WINGED FINCH.)

- Fringilla sanguinea*, Gould, P. Z. S. 1837, p. 127.
Carpodacus rhodopterus, Licht. Nomencl. Av. p. 48 (1854).
Erythrospiza phænicoptera, Bp. Consp. Gen. Av. i. p. 535 (1850).
Fringilla rhodoptera, Licht. Mus. Lugd. fide Bp. ut suprâ (1850).
Montifringilla sanguinea, Gould (ubi?), fide Bp. ut suprâ (1850).
Rhodopechys phænicoptera, Bp. Cat. Parzud. p. 4 (1856).
Fringilla coccothraustes phænicoptera, Bree, B. of Eur. iii. p. 95 (1867).
Carpodacus phænicopterus (Bp.), Tristram, Ibis, 1868, p. 208.

Figuræ notabiles.

Schlegel & Bonap. Monogr. des Lox. pls. 30, 31; Bree, B. of Eur. iii. pl. to p. 95.

♂ *ad.* fronte et pileo centrali nigro-fuscis, plumis indistinctè pallidiore marginatis: corpore suprâ cum tectricibus alarum minoribus umbrinis, plumis vix pallidiore marginatis: remigibus et tectricibus alarum majoribus saturatè fuscis, extùs fere ad apicem conspicuè sanguineo-rosaceo marginatis, secundariis intimis albo apicatis: supracaudalibus rosaceis: rectrice extimâ utrinque albâ rhachi fuscâ, reliquis saturatè fuscis vix albo apicatis: loris et plumis ad basin rostri lateralibus sanguineo-rosaceis: gulâ, capitis lateribus et collo postico cum pilei lateribus arenaceo-ochraceis, regione paroticâ fusco notatâ: gutture et hypochondriis dorso concoloribus sed valdè pallidioribus, plumis centraliter saturatioribus: pectore centraliter, abdomine et subcaudalibus albis vix rosaceo lavatis: rostro fusco-flavo: pedibus fulvis: iride saturatè fuscâ.

♀ *ad.* mari similis sed sordidior et pallidior: pileo fusco, plumis brunnescente ochraceo marginatis.

Adult Male (Chodjent, April). Forehead and centre of the crown to the nape dull blackish, the feathers with slightly lighter margins, sides of the crown, throat, and hind neck sandy buff; back, scapulars, and lesser wing-coverts umber- earth-brown, the feathers with lighter edges; quills and larger wing-coverts dark brown externally, except at the tip, broadly margined with rich rose-red tinged with carmine; inner secondaries tipped with white; upper tail-coverts rose-pink; outer rectrices white with brown shafts, remaining tail-feathers dark brown slightly tipped and marked with white; lores and feathers on the side of the head at the base of the bill carmine-red, auriculars coloured like the sides of the neck, but marked with dark brown; throat and flanks like the back, but paler, the feathers with dark centres; centre of the breast, abdomen, under tail-coverts, and under wing-coverts white slightly tinged with rose-colour; bill brownish yellow; legs light brown; iris dark brown. Total length about 5·75 inches, culmen 0·52, wing 4·15, tail 2·5, tarsus 0·78.

Adult Female (Chodjent, April). Differs from the male in being duller in colour, the red portions of the plumage much paler, the feathers on the crown having much broader sandy buff margins, and the white on the underparts covering a rather larger area. Culmen 0·5, wing 3·8, tail 2·35, tarsus 0·75.

THIS rare and beautiful bird seems to be met with only in the south-eastern portion of the region of the ornithology of which I am treating, being found in the Caucasus and Palestine, ranging eastward into Turkestan. It is, however, somewhat remarkable that Loche records its occurrence in Algeria, and states that it is only met with in the northern portions of the province. He says that he has seen one from the frontier of Tunis, obtained through Dr. Buvry, and another, in very bad condition, from near Zaatcha. I may, however, here remark that none of the later travellers has ever met with it in North-west Africa; and it seems possible that there may be some mistake as regards the true localities whence the specimens recorded by Loche were obtained. It was first described by Gould (*l. c.*) from a specimen obtained at Erzeroom, and has since been met with by Canon Tristram and Mr. Cochrane on Mount Lebanon. The former of these gentlemen writes (*Ibis*, 1868, p. 208) as follows:—"On the north side of Hermon occurs also *Carpodacus phœnicopterus*, Bp. It is not only local, but very scarce, yet unquestionably sedentary, concealing itself after the manner of our Bullfinch. We never could detect its nest, and very rarely caught a glimpse of it. It does not appear to descend as low as the villages of Lebanon, excepting in winter." Von Heuglin says that there is a specimen in the Mergentheim collection which is stated to have come from Arabia; and Mr. Blanford informs me that he only once met with it on his last expedition to Persia. A flock was sitting on some steep rocks by the side of the road in a high valley of the Elburz, and he had the good fortune to bag three. Dr. Severtzoff, who met with it in Turkestan, says it is resident in that country, but is rather sporadic in its distribution. Beyond the above data I find no information on record respecting its range; and, indeed, it appears to be nowhere common. Canon Tristram, who was fortunate enough to see this bird alive, gives me the following note:—"I never met with *Erythrospiza sanguinea* but twice in the Lebanon. On the first occasion I had a good view of a brilliantly plumaged male (I presumed), towards the end of May. It was flitting restlessly from tree to tree in an open space on the mountain-side, where the trees were sparse and isolated. There being no cover I was unable to secure it. A few days afterwards I shot a specimen among scrub and dwarf cedars, a female, but saw no others with it. There were many *Emberiza cia*, with whom it was on sociable terms. Mr. Cochrane shot a bird from the nest the same week, and brought the nest to camp, containing one egg. He kindly gave me the bird shot from the nest, which I have in my collection. He told me he found the nest in a tree. My impression is that the nest was an ordinary Finch-nest, of the character of that of the Greenfinch. The bird appears to affect the open spaces with scrub and a tree here and there, and to avoid the thicker forest." The egg above referred to by Canon Tristram is in my collection, and is, I believe, the only authentic specimen known. I received it from Mr. Cochrane, who informs me that he found the nest, which contained but one egg, near the celebrated grove of cedars on Lebanon, on the 24th May, 1864, and he succeeded in shooting the parent bird, which he gave to Canon Tristram. Unfortunately he did not keep the nest, and has supplied me with no further data respecting its structure, or, indeed, respecting the nidification of this rare bird. The egg is white with a faint greyish sea-green tinge, very minutely (almost imperceptibly) dotted with grey, chiefly at the larger end, and measures $\frac{3.9}{4.0}$ by $\frac{2.4}{4.0}$ inch.

The specimens figured are an adult pair from Chodjent, Turkestan, and are those above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *ad.*, *b*, ♀ *ad.* Chodjent, Turkestan, April (*Dr. Severtzoff*).

E Mus. Ind. Calc.

a, *b*, ♂, *c*, ♀. Karij valley, Elburz Mountains, north of Tehrán, August (*W. T. Blanford*).

Genus PYRRHULA.

Pyrrhula, Brisson, Orn. iii. p. 308 (1760).

Loxia apud Linnæus, Syst. Nat. i. p. 300 (1766).

Fringilla apud Meyer, Vög. Livl. p. 81 (1815).

THE Bullfinches form, as it were, a connecting-link between *Carpodacus* and *Loxia*, through *Pinicola*; and I have therefore thought them best placed between the first and last of these genera. The genus *Pyrrhula* is represented in the Palæarctic, northern portions of the Oriental and Ethiopian Regions, as also in the extreme north-western portion of the Nearctic Region. Three species are resident in the Western Palæarctic Region.

The Bullfinches inhabit wooded and cultivated districts, especially large orchards, greenwood groves where there is plenty of underwood and the trees do not stand too close, bush-covered districts, &c. They are active, sprightly birds, shy and retiring in their habits, seldom consorting with other allied species. They have a soft plaintive whistle, and a sweet and plaintive song. Their flight is quick and undulating; and their food consists chiefly of buds and seeds, and only to a small extent of insects. They construct a neatly and artistically formed cup-shaped nest of twigs lined with fine roots, and deposit several greenish blue eggs spotted and blotched with purplish grey and dark brown.

Pyrrhula europæa, the type of the genus, has the bill very short, strong, bulging at the sides, as high as broad at the base, the upper mandible considerably longer than and overhanging the lower one; nostrils basal, nearly hidden by recurved stiff feathers; wings moderately long, the first quill finely attenuated and scarcely discernible, the fourth longest; tail rather long, slightly forked; tarsus and toes short, the former covered in front with four large and three inferior scutellæ; claws somewhat long, arched, laterally grooved, acute; plumage soft and blended.



J. Kenlemaans lith.

M&N.Hanhart imp

NORTHERN BULLFINCH.
PYRRHULA MAJOR

PYRRHULA MAJOR.

(NORTHERN BULLFINCH.)

Loxia pyrrhula, Linn. Syst. Nat. p. 300 (1766).? *Pyrrhula rubicilla*, Pall. Zoogr. Rosso-As. ii. p. 7 (1811).*Fringilla pyrrhula* (L.), Meyer, Vög. Liv- u. Esthl. p. 81 (1815).*Pyrrhula major*, C. L. Brehm, Vög. Deutschl. p. 252 (1831).*Pyrrhula coccinea*, De Selys, Faune Belge, p. 79 (1842).*Dompap*, Norwegian and Danish; *Domherre*, Swedish; *Punatulkku-Leivonen*, Finnish; *Snigir*, Russian.*Figuræ notabiles.*

Sundevall, Svensk. Fogl. pl. 11. figs. 4, 5; Kjærb. Orn. Dan. taf. 28.

♂ *ad. Pyrrhula europæa* similis sed major, rostro robustiore, corpore subtùs colore clariore et lætiore.♀ *ad. Pyrrhula europæa* similis sed major.*Adult Male* (Uima, Archangel). Resembles *P. europæa*, but is larger, has a larger and stouter bill, and the red portion of the plumage is richer and brighter in tinge of colour. Total length about 6·25 inches, culmen 0·45, wing 3·8, tail 3·1, tarsus 0·8.*Adult Female* (Uima). Resembles the female of *P. europæa*, but is larger, measuring—culmen 0·45, wing 3·75, tail 2·95, tarsus 0·7.

THE present species, which is a larger and more richly coloured form of our British and West-European species, inhabits Northern and Eastern Europe, breeding in the north and visiting the southern countries during the winter.

It does not appear to have with certainty been known to occur in Great Britain, but is the common Bullfinch of Scandinavia. Mr. Collett says that it breeds commonly in Norway, both in the eastern districts, from Smaalehnene and the districts about the Christiania fiord, as also in all probability along the entire west coast. Northward it passes above the Polar circle. In the autumn and winter it visits the plains, and especially inhabited places. On the fells it scarcely ranges above the limit of conifer-growth.

Sundevall says that it is found throughout Sweden, and even occurs in Skåne in the summer season, as well as high up in Lapland, at Gellivara and Quickjock. In the winter it is found in Central and Southern Sweden. In Finland it is very generally distributed, but breeds chiefly in the northern districts, visiting the southern portions of that country in the cold season.

Throughout the whole of Northern Russia it is common during the breeding-season; and, judging from the collections I have received from Archangel, it would seem to be very numerous

in that Government. Mr. L. Sabanäeff states that it breeds commonly in the Jaroslaf Government, and less numerously in that of Moscow. According to Daniloff it breeds in the Orloff and Charkoff Governments. In the Perm Government Sabanäeff met with it only on passage, and it was observed almost exclusively in the conifer-woods on the eastern slope. In the Kaslinsky and Keshtemsky Ural it was rare.

So far as I can ascertain, the present species is the Bullfinch found in Poland and the Baltic Provinces; but it would be interesting to obtain a series from there for examination, especially as, according to Mr. H. Goebel (J. f. O. 1873, p. 9), it is resident in Courland. During the winter season it is met with here and there in Germany, and is stated to straggle also to Holland and Belgium; and, according to Messrs. Degland and Gerbe, numbers appeared near Lille in December 1830. It probably occurs in Heligoland; for Mr. Cordeaux says that specimens from there are more richly coloured than our bird; and Kjærbölling says that it visits Denmark, but only in the winter season on its wanderings, appearing soon after the first frost. I do not find any instance of its occurrence in France and Italy; but Dr. A. Fritsch says (J. f. O. 1871, p. 309) that it visits Bohemia during the winter. All the specimens I have examined from Greece belong to the present species; and Dr. Krüper states that it is a rare winter visitant to that country, and is not met with every season. Colonel Drummond-Hay speaks of it, however, as being common in Macedonia in winter; and Lord Lilford writes (Ibis, 1860, p. 138) that it is "a rare winter visitor to Corfu and Epirus, common in December in Albania proper, about the mouth of the river Drin," where he observed it feeding on the berries of the privet. In Southern Russia it appears to be common; and Professor von Nordmann states that it is abundant near Odessa from the autumn to the spring, and breeds in the mountains of Ghouriel. In the Uman district, in Southern Russia, it is, Mr. Goebel states, a regular winter visitor, appearing about the end of October and remaining until the end of March, when it migrates northwards.

It is somewhat difficult to trace the range of the present species in Asia, owing to the lack of reliable information; but I have examined specimens from Onon and the Ussuri river, which prove that it is met with thus far to the east; and I may add that I have also examined examples of *Pyrrhula cineracea*, the eastern representative of the present species, from Onon.

In habits, mode of nidification, and song the present species does not differ from the common European Bullfinch. I have received its nest and eggs from Sweden; and, except that the latter are a trifle large compared with the eggs of *Pyrrhula europæa*, I can detect no difference. Like that species it feeds on seeds and berries, and to some extent also on the tender buds of trees and bushes; and Mr. R. Collett informs me that in winter "it feeds on the seeds of *Sorbus aucuparia*, *Acer platanoides*, *Fraxinus*, *Symphoricarpos*, *Rubus idæus*, *Syringa*, and of other bushes and trees." In Norway it has eggs late in May; and about the end of June, when the young have left the nest, they wander about with the old females, the old males being usually found apart.

Like the common species the Northern Bullfinch is subject to melanism; and Mr. Collett says that there are four black specimens in the Christiania Museum.

The present species being the last of the European Bullfinches of which I shall have to treat, it may be of some use to working ornithologists to give a short review of the various allied species that are known to exist, taking, as usual, Gray's well-known 'Hand-list' as a basis.

7477. *Pyrrhula europæa*, Vieill., the type of the genus, is our common European Bullfinch, and inhabits Western and Central Europe. Full particulars respecting this species are given in the present work. I may here remark that *Pyrrhula rubicilla*, Pall. (Zoogr. Rosso-As. ii. p. 7), is certainly not referable to the present species, and it is very doubtful if it is referable to *Pyrrhula major*, Brehm. Pallas certainly gives *Loxia pyrrhula*, Linn., as a synonym; but he evidently had not our European bird before him, though he appears to have had specimens of *Pyrrhula cineracea*, Cab., which he looked on as being females of the common European bird; for in a note he writes as follows:—"Fœminæ in Siberia sæpius totæ plumbeo-canescens, subtus dilutioris sunt coloris, uropygio tamen niveo, vertice cærulescenti-aterrimo. Vulgo autem ibidem sunt vinacei subtus coloris, fere palumbi ut in Russia et Europa reliqua."
7478. *Pyrrhula erythrocephala*, Vig. (P. Z. S. 1830, p. 174). This is a somewhat smaller bird than *Pyrrhula europæa*, has the head dull crimson (continued round the sides of the neck), forehead and feathers round the base of the bill black; upper parts dull reddish ashy; rump white; wings and tail glossy black; underparts dull red, tinged with orange, becoming pale greyish fawn on the abdomen, and white on the under tail-coverts. Wings 3·0, tail 2·45, tarsus 0·62. The female has the head and neck dull greenish yellow, the back browner than in the male, and the underparts pale dull brown with an orange tinge. It inhabits the Himalayas, being commoner in the north-west than in the south-west. It is figured by Gould (Cent. Himal. B. pl. 32. and B. of Asia, pt. v. pl. 14).
7479. *Pyrrhula aurantiaca*, Gould (P. Z. S. 1857, p. 222). This very distinct and well-marked species is accurately figured by Gould (B. of Asia, part x.). I have not had an opportunity of examining a specimen of this rare Bullfinch, the male of which is recognizable in having the entire plumage reddish orange, except the face, wings, and tail, which are deep purplish black. The female has the back ashy, tinged with orange-red, and the underparts duller than in the male. Mr. Gould (*l. c.*) gives the measurements as follows—Total length $5\frac{1}{2}$ inches, wing $3\frac{1}{4}$, tail $2\frac{3}{8}$, tarsus $\frac{5}{8}$. It has hitherto only been found in Cashmere.
7480. *Pyrrhula nipalensis*, Hodgs. (As. Res. xix. p. 155, 1836), has some affinity with *P. cineracea* and *P. murina*, as the sexes differ but very slightly. The male is cinereous brown above, and similarly coloured but rather paler below, the under tail-coverts white; crown marked with blackish brown; upper tail-coverts black, tipped with white; outer web of innermost secondary crimson; a band round the base of the bill black; wings and tail glossy purplish black, the former crossed by a pale greyish brown band. The female has the outer web of the innermost secondary saffron-yellow, and not red. Wing (in a male in Captain Elwes's collection) 3·3 inches, tail 3·1 (and much forked), tarsus 0·7. It inhabits the South-east Himalayas, Nepal, and Sikkim. It is figured by Gould (B. of Asia, part v.).
7481. *Pyrrhula major*, Brehm. Full particulars of this species are given above. I may, however, add that the name *P. coccinea*, by which it has very generally been known, cannot stand, and must give place to *P. major* of Brehm. De Selys's name seems to be taken from *Emberiza coccinea*, Gmel. ex Sander (Syst. Nat. i. p. 873, 1788). Fortunately I possess the 'Naturforscher' where (xiii. p. 199, 1779) Sander describes that species; but he gives it no name, and certainly nothing can be made out of his description, which was taken from a caged bird; and this, though said to have been caught in Germany, may have been some foreign bird.
7482. *Pyrrhula griseiventris*, Lafresnaye (Rev. Zool. 1841, p. 241). The male of this species differs from *Pyrrhula europæa* in having only the throat red, this colour being pinker and not so brick-like in tinge as in the common Bullfinch,—the rest of the underparts being dull ashy grey, tinged with pinky vinous in summer. It also lacks the red colour on the innermost secondary that is always found in our European bird. The female resembles the female of *P. europæa*. A male from Hakodadi, in Mr. Swinhoe's collection, measures—wing 3·25, tail 2·6, tarsus 0·68. It inhabits Japan, and is figured in the 'Fauna Japonica' (pl. 53) under the name of *Pyrrhula orientalis*.

7483. *Pyrrhula erythaca*, Blyth (Ibis, 1862, p. 389), is perhaps the rarest of the known species of Bullfinch; and I am fortunate in being able to examine a specimen belonging to Captain Elwes, a male obtained in Sikkim in April 1864. It has the wings, tail, and a band round the base of the bill glossy black, the larger coverts broadly tipped with ashy grey, the feathers bordering the band round the bill pale ashy white; upper parts dull dark ashy; the feathers on the lower rump tipped with black, below which is a white patch; upper throat ashy grey; breast brick-red with an orange tinge, fading into grey on the abdomen; under tail-coverts white. Wing 3.1 inches, tail 2.9, tarsus 0.68. It inhabits Sikkim, at great altitudes. A good figure of this species is given, Ibis, 1863, pl. 10.

7484. *Pyrrhula murina*, Godman, inhabits the Azores. Full particulars and a plate of this species are given in the present work.

Besides the above, there are two species of Bullfinch known which will very probably have to be united. These are as follows:—

Pyrrhula cassinii, Baird (Trans. Chic. Acad. Sc. i. p. 316, pl. 29. fig. 1). This species, of which only one specimen (from the Yukon river, Alaska) is known, appears, so far as I can judge from the description and figure, to differ from the next species (*P. cineracea*) in having the outer tail-feathers with an elongated patch of white in the terminal half, along the shaft, but not reaching to the tip; and as I find indications of this patch in some of my specimens of *P. major*, I think this may not be of specific value; but before uniting these two species it would be necessary to compare the type of *P. cassinii* with examples from Eastern Siberia and Japan.

Pyrrhula cineracea, Cab. (J. f. O. 1872, p. 315, 1874, pl. 1). The female of this species very closely resembles the female of *Pyrrhula major*, differing only in having the outer web of the innermost primary grey and not red. The male resembles the female, but is much clearer grey on the upper as well as the under-parts, the latter being very clear, almost silvery ash-grey. An adult male from Onon in my collection measures—wing 3.45 inches, tail 2.9, tarsus 0.7. It inhabits Eastern Siberia and Japan, from which latter country I have examined several specimens in the collection of Mr. R. Swinhoe, which are, as a rule, a little more dull in general coloration than those from Siberia.

Pyrrhula cineracea appears to meet the species of which I am now treating (*P. major*) at Onon, as I have examples before me of both species from that locality.

The specimen figured is an adult male from Sweden in my own collection, and is the same as that above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀. Stehag, Sweden, January 28th, 1875 (*W. Meves*). *b*, ♂ *jun.* Christiania, October 3rd, 1866 (*Collett*).
c, ♂. Uima, Archangel, May 16th, 1873 (*Piottuch*). *d*, ♂, *e*, ♀. Uima, November 18th, 1873 (*C. Craemers*).
f, ♂. Moscow (*Dode*). *g*, ♂, *h*, ♀. Olympus, Macedonia, December 4th, 1869 (*Dr. Krüper*).

E Mus. Brit. Reg.

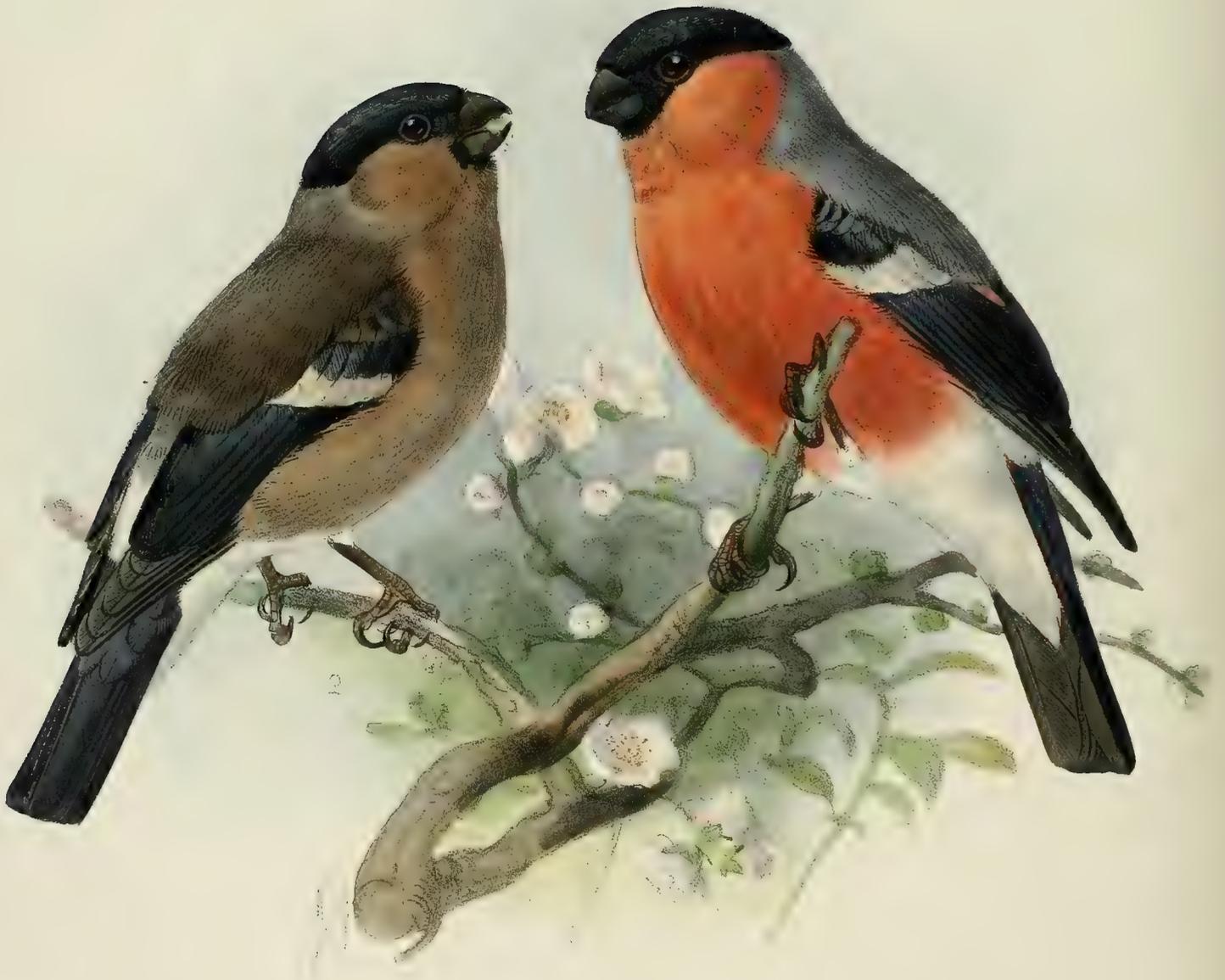
a, ♂, *b*, ♀. Stehag, Sweden, February and March 1869 (*W. Meves*). *c*, ♂, *d*, ♀. Denmark, winter. *e*, ♂. St. Petersburg (*Dode*).

E Mus. R. Swinhoe.

a, ♂ *ad.* Onon, January 8th, 1873 (*Dr. Dybowski*). *b*, ♂. Ussuri river, Siberia, November 8th, 1872 (*Dybowski*).

E Mus. Howard Saunders.

a, ♂, *b*, ♀. Helsingör, Denmark, October 14th, 1870 (*A. Benzon*). *c*, ♂ *ad.* Tiflis, Caucasus, 1873 (*F. Smith*).



COMMON BULLFINCH.
PYRRHULA EUROPEA.

PYRRHULA EUROPÆA.

(COMMON BULLFINCH.)

Pyrrhula, Briss. Orn. iii. p. 308 (1760).*Pyrrhula nigra*, Briss. tom. cit. p. 313 (1760).*Pyrrhula candida*, Briss. tom. cit. p. 313 (1760).*Le Bouvreuil*, Montb. Hist. Nat. Ois. iv. p. 372, pl. 17 (1778).*Loxia pyrrhula*, Lath. Ind. Orn. i. p. 387 (1790).*Fringilla pyrrhula* (Lath.), Temm. Man. d'Orn. p. 200 (1815).*Pyrrhula europæa*, Vieill. Nouv. Dict. iv. p. 286 (1816).*Pyrrhula rufa*, Koch, Baier. Zool. i. p. 227 (1816).*Pyrrhula vulgaris*, Temm. Man. d'Orn. i. p. 338 (1820).*Pyrrhula germanica*, C. L. Brehm, Vög. Deutschl. p. 252 (1831).*Pyrrhula peregrina*, C. L. Brehm, op. cit. p. 253 (1831).*Pyrrhula pileata*, Macgill. Hist. Brit. Birds, i. p. 407 (1837).*Corcan-coille*, *Deargan-fraoich*, Gaelic; *Bouvreuil commun*, French; *Dom-Fafe*, Portuguese; *Ciuffolotto*, Italian; *Rothgimpel*, *Dompfaffe*, *Blutfink*, German; *Goudvink*, Dutch.*Figuræ notabiles.*

D'Aubenton, Pl. Enl. 145; Werner, Atlas, *Granivores*, pl. 33; Frisch, Vög. Deutschl. taf. 2; Fritsch, Vög. Eur. taf. 22. figs. 1, 2; Naumann, Vög. Deutschl. taf. 111; Gould, B. of Eur. pl. 209; id. B. of G. Brit. iii. pl. 42; Schlegel, Vog. Nederl. pl. 174; Susemihl, Vög. Eur. v. taf. 2.

♂ *ad.* pileo, genis et mento nitidè nigris: dorso, scapularibus et tectricibus alarum minoribus cærulescenti-cinereis: uropygio albo: remigibus nigris, interioribus atro-violaceo nitentibus, intimo latere exteriori rubro: tectricibus alarum majoribus nigris, pallidè cinereo apicatis: caudâ et supracaudalibus nigris, atro-cæruleo nitentibus: gulâ, gutture et corpore subtùs miniato-rubro, abdomine imo et subcaudalibus albis: rostro nigro, iride fuscâ, pedibus saturatè fuscis.

♂ *ad.* mari dissimilis: dorso fusco-cinereo, corpore subtùs rufescenti-cinereo vix vinaceo tincto, rostro pallidiore.

Adult Male (near London, 10th February). Crown, nape, space round the eye, chin, and a narrow space all round the base of the bill glossy black with a purplish gloss; back, lesser wing-coverts, and scapulars bluish ashy, the feathers on the rump broadly terminated with white, forming a conspicuous white patch; quills black, the primaries externally slightly glossed and the secondaries richly glossed with bluish or purplish black, the innermost secondary with the outer web nearly all red; larger wing-coverts black tipped with cinereous; tail and upper tail-coverts black glossed with bluish purple; underparts generally brick-red, becoming white on the lower abdomen, the under tail-coverts being pure

white; bill black; iris and legs dark brown. Total length about 6.25 inches, culmen 0.35, wing 3.2, tail 2.6, tarsus 0.7.

Adult Female (Hampstead). Differs from the male in having the head, wings, and tail a trifle less richly glossed, the blue-grey on the upper parts being replaced by ashy brown; and the underparts, instead of being red, are warm brown with a faint tinge of vinous; the bill, especially at the base of the under mandible, is also lighter in colour; and the outer web of the innermost secondary is reddish grey.

Young (Hampstead). Resembles the female, but lacks the black on the head, the upper parts of the body are browner, the underparts have a warm ochreous tinge, and the larger wing-coverts are tipped with warm brownish ochreous.

It is somewhat difficult to define the exact range of this bird, owing to the fact that it has been so frequently confused with its larger ally, the Northern Bullfinch; but, so far as I can ascertain, it appears to be a resident in Central and Western Europe, ranging as far north as the British Isles, whereas the Northern Bullfinch inhabits Northern and Eastern Europe, migrating southward in the winter season.

In Great Britain the present species is very generally distributed in the wooded districts, and is resident, occurring, so far as I can ascertain, in every county of England; and Mr. Robert Gray writes (B. of W. of Scotl. p. 151) that on the western mainland of Scotland it "is common from Inverness-shire to the south of Wigtownshire. Mr. Sinclair has seen numbers at Loch Sunart, old and young frequenting birch trees and tangled hedges. In Ayrshire, Dumbartonshire, and Renfrewshire it breeds in considerable numbers; and Mr. Alston informs me that it appears to be on the increase in Lanarkshire as the county becomes better wooded and enclosed." Mr. Saxby records but one instance of its occurrence in Shetland, viz. that of a female, obtained at Halligarth in October 1863. In Ireland, according to Thompson, it probably occurs in every county, being very generally distributed; but it is somewhat scarce. It does not appear to occur in Scandinavia, being there, as well as in Finland and in Northern Russia, replaced by its larger ally. Mr. Sabanäeff certainly informs me that the common Bullfinch breeds near Moscow; but he seems to be unaware that there are two species, and examples from Moscow are all referable to the Northern Bullfinch, which is, I believe, the species which has been met with in Poland; but I have not the materials to enable me to decide this question, nor to state with any degree of certainty how far east the present species ranges. It certainly seems to be the only one which passes the summer in Germany, where it is a partial migrant, leaving its nesting-haunts in the winter to wander about, but it cannot be looked on as being a true or regular migrant. Borggreve writes (Vogelf. Nordd. p. 74) that "it appears to breed only in the mountains of North Germany and in the plains of the western and central portions, but during the winter it is met with everywhere. According to Brahts it breeds at Neuwied; according to Schäfer, on the Mosel; and I found it breeding in Münsterland; Von Negelein found it nesting in Oldenburg, E. von Homeyer in Pomerania, Baldamus in Anhalt, and Gloger in the mountains of Silesia. It occurs in winter only in the plains of Silesia, at Cöslin (*fide* Hintz), and at Neustadt-Eberswalde." When collecting in the countries bordering the Rhine, I found the present species breeding commonly, especially in the districts near Altenkirchen, where it is one of the commonest of the

Finches. It is tolerably common in Belgium; but Schlegel says nothing respecting its presence during the summer in Holland, except that, according to Nozeman, it is stated to breed in Gelderland. In France it is generally distributed as far south as the Pyrenees; and according to Professor Barboza du Bocage it inhabits the northern portion of Portugal, being met with chiefly in the wooded mountainous districts; but it is not included by Colonel Irby in his 'Ornithology of the Straits of Gibraltar,' and Mr. Saunders informs me that he never met with it in Spain. In Savoy it is numerous in the wooded mountains: and the large species is also stated to occur there; but I cannot indorse this statement, and think it must be founded on error. In Italy it inhabits the mountains as high up as the birch-region, and ranges as far south as Naples, visiting Sicily but rarely; and it has not been recorded from Sardinia. Mr. C. A. Wright records it (Ibis, 1864, p. 50) as a very rare visitant to Malta; and only four instances have come to his knowledge, viz. two caught in March 1835, one in 1840, and a fourth some years afterwards. In Southern Germany it is tolerably widely distributed; and Mr. Seidensacher informed me that a few breed in Styria, but in the winter season it is rather rare, at least near Cilli. Dr. Anton Fritsch states (J. f. O. 1871, p. 309) that it breeds in the mountains of Bohemia and wanders about the country during the winter season. He also remarks that during passage the Northern Bullfinch also visits Bohemia. All the specimens I have seen from Greece are referable to the Northern Bullfinch, and not to the present species; and probably this latter takes the place of *Pyrrhula europæa* entirely in Eastern Europe. Neither species has been met with in North-eastern Africa; but Loche states that it is a rare visitant to Algeria, and makes mention of two examples exposed for sale in the market of Algiers.

Essentially an inhabitant of the woodlands, the Bullfinch is found only in groves, gardens, and woods both in the mountains and plains, but in places where the undergrowth is tolerably dense, or in localities where bushes are thickly scattered around; and I have often met with it in such places where open fields or meadows are in the immediate vicinity. Though wary and cautious, it is not a shy bird, and is harmless and good-tempered towards others of its own species, being tolerably fond of companionship, and in the autumn and winter is frequently seen in small companies or flocks. It is lively and cheerful in its general habits, and is active and agile in its movements through the foliage and bushes; but on the ground it is heavy and somewhat awkward, moving by short, somewhat crooked, hops. Its flight is tolerably swift and undulating; but though it can and does occasionally fly considerable distances, yet, as a rule, it is generally seen flitting from bush to bush or tree to tree. Its call-note is a soft, plaintive whistle resembling the syllables *hoop, hoop*, or *dyou, dyou*; and by imitating this note it may often be enticed within gunshot-range. Its song is mellow, but not remarkable for either power or variety; and both male and female sing, though the former has a far better song than the latter and sings more frequently. The song consists of a series of short broken notes intermixed with a few more prolonged ones, and some few rather harsh notes. Bechstein not inaptly describes it by the following syllables:—*si, üt, üt, üt, üt, si, re, üt, üt, üt, üt, üt, üt, si, re, üt, la, üt, mi, üt, la*, amongst which harsh notes *dretschei aahi* are always intermixed. It sings at almost all seasons of the year, though chiefly in the spring. When singing, the male usually sits erect on an elevated perch, jerks his wings, and twitches the tail and hinder portion of his body, first to one and then to the other side, every now and then quickly spreading and closing his tail. It is

a well-known and favourite cage-bird, and can be taught to whistle tunes with great accuracy; and sometimes one can be brought to learn three or even four tunes; but, so far as I can ascertain, it is an exception to find a bird that can whistle several tunes with accuracy.

It commences nidification early in May, and builds a tolerably neat nest, which it places on a bush or a low tree, usually not high up, but sometimes as high as 15 to 20 feet above the ground. The outer portion of the nest is composed of thin, dry twigs of the birch, fir, &c., inside which are fine roots, bents, and sometimes a few leaves, the cup, which is usually rather carefully constructed, being lined with fine roots, hair, and occasionally with a little wool, though, so far as my own experience goes, the lining most frequently consists of fine roots. The eggs, usually four or five in number, are somewhat small for the size of the bird, measuring on an average about $\frac{2.9}{4.0}$ by $\frac{2.2}{4.0}$ inch; but I have one that measures $\frac{3.3}{4.0}$ by $\frac{2.3}{4.0}$ inch. In colour they are pale greenish blue, spotted with a few dark brownish red dots, which are sparingly scattered about the surface of the shell; but at or round the larger end there are larger spots and blotches of a dull reddish or dark reddish brown colour, and a few pale purplish red or violet-grey shell-markings.

The female alone incubates; but whilst sitting she is well supplied with food by her mate. The term of incubation extends over about two weeks; and when hatched the young are most carefully tended by both parents, and fed with husked seeds which have been softened in the crops of the old birds. Two broods appear usually to be raised in the season.

The food of the present species appears to consist almost exclusively of seeds, berries, and, to some extent, of tender buds, insects forming no part of its diet. In the spring it does some damage in the gardens, owing to its partiality to the tender buds of the fruit-trees; but on the other hand it is eminently beneficial in consuming vast quantities of the seeds of various weeds, especially those of the thistle; and Mr. Stevenson remarks that one individual in confinement was known to eat two hundred and thirty-eight seeds of the spear-plume thistle (*Cnicus lanceolatus*) in about twenty minutes, though at the same time it was plentifully supplied with hempseed.

Dark varieties of the Bullfinch are occasionally met with; and sometimes a specimen is to be met with black, this being caused in caged birds by feeding them on hempseed; but not only do birds in confinement assume this dark colour, but this variety has been met with in a wild state. Naumann remarks that he never knew of a wild melanistic specimen having been obtained; but Mr. J. H. Gurney writes (*Zool.* 1854, p. 4252) as follows:—"Last autumn a gentleman presented me with a Bullfinch entirely black, which had been found of that colour in a nest containing three other young birds all of the ordinary colour. This bird has subsequently moulted, and in doing so has totally lost its black colouring, and has assumed the ordinary plumage of the female Bullfinch." Pure white varieties appear to be the rarest; but partial albinos and pale greyish varieties sometimes occur.

The specimens figured are a very fine British-killed pair, male and female, being those above described. As a rule, our British specimens are rather duller in tint of red than those from the continent; but this is not always the case; I have therefore deemed it best to figure a rather bright-coloured British-killed male.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Near London, February 10th, 1870. *b*, ♀. Hampstead, Middlesex. *c*, ♀, *d*, ♀. Hampstead, October 27th, 1869 (*Davy*). *e*, ♀. Wolsingham, August 17th, 1866 (*J. H. Gurney, jun.*). *f*, ♂, *g*, ♀. Westphalia, April. *h*, ♂. Westphalia, February (*Schlüter*). *i*, ♀. Piedmont (*Count Salvadori*).

E Mus. Brit. Reg.

a, *b*, *c*, ♂, *d*, ♀. Avington, Hants (*E. Shelley*). *e*, ♂. Preston Hall, February (*J. Gould*). *f*, ♂. Belgium, May (*Dubois*).

E Mus. Howard Saunders.

a, ♂. Palermo, Sicily, December 1867. *b*, ♀. Naples, April 1870. *c*, ♀. Galicia (*W. Schlüter*).



J.G.Keulemans lith

M.&N.Harbart imp

AZOREAN BULLFINCH.
PYRRHULA MURINA.

PYRRHULA MURINA.

(AZOREAN BULLFINCH.)

Pyrrhula coccinea, Pucheran, Rev. Zool. 1859, p. 413, nec Selys.*Pyrrhula murina*, Godman, Ibis, 1866, p. 97.*Priola, Prior*, in the Azores.*Figura unica.*

Godman, Ibis, 1866, pl. 3.

♂ capite, alis et caudâ ut in *Pyrrhulâ europæâ* coloratis: dorso cinereo-murino vix fusco-aurantiaco lavato: uropygio dorso concolori sed magis cinereo: corpore subtus ut in fœminâ *Pyrrhulæ europææ* sed pallidè fusco-aurantiaco tincto: rostro, iride et pedibus ut in *P. europæâ* coloratis.

♀ mari similis sed pectore magis cinereo et colore aurantiaco carente.

Adult Male (St. Michael's, Azores, April). In general appearance resembling the female of *Pyrrhula europæa*, but has a larger and stouter bill, the upperparts are washed with dull orange-brown, especially towards the rump, which is the same colour as the back, and not white as in *P. europæa*; underparts brownish ashy with an orange-brown tinge; bill, iris, and feet as in *P. europæa*. Total length about 6.25, culmen 0.5, wing 3.45, tail 3.0, tarsus 0.9.

Adult Female (Azores). Resembles the male, but is rather smaller in size, and less tinged with orange-brown, especially on the underparts, which are greyer and paler than in the male.

THIS island form of our Bullfinch, having some affinity to the Siberian *Pyrrhula cineracea*, inasmuch as the sexes differ but slightly in appearance, is only known to inhabit the island of St. Michael's, in the Azores, and appears to be confined to the mountainous parts of that island. By M. Pucheran, who examined a single example obtained by M. Morelet, it was referred to *Pyrrhula coccinea*, De Selys, as being the female of that species, which it certainly resembles, but is easily distinguishable by the absence of white on the rump, besides a slight difference in coloration; it is indeed a most excellent and undoubtedly good species. Exceedingly little is known respecting this bird; and it is one of the rarest of the Bullfinches in collections. I find nothing on record respecting its habits beyond what is stated by Mr. Godman, who writes (*l. c.*) as follows:—"In habits the Bullfinch of the Azores resembles our *P. vulgaris*, feeding principally upon insects and the buds of trees. I believe that it is confined to the mountainous parts of St. Michael's, where it is tolerably abundant. It is so tame that it takes but little notice of the report of a gun, and I shot thirteen individuals in the same poplar tree in a few minutes. I know nothing of its breeding-habits, as I was not on the island at the right time of year, and it is difficult to obtain accurate information from the inhabitants."

The specimens figured are an adult male and female from the Azores, in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. St. Michael's, Azores, April 1865 (*F. D. Godman*).

E Mus. Salvin and Godman.

a, ♂, *b*, *c*, ♀. St. Michael's, Azores, March 1865. *d*, *e*, *f*, ♂, *g*, ♀. St. Michael's, April 1865 (*F. D. Godman*).

Genus PINICOLA.

Loxia apud Linnæus, Syst. Nat. i. p. 299 (1766).

Pinicola, Vieillot, Ois. d'Amér. Sept. i. p. 4 (1807).

Fringilla apud Meyer, Vög. Livl. p. 74 (1815).

Strobilophaga apud Vieillot, Analyse, p. 29 (1816).

Corythus apud Cuvier, Règne Anim. i. p. 391 (1817).

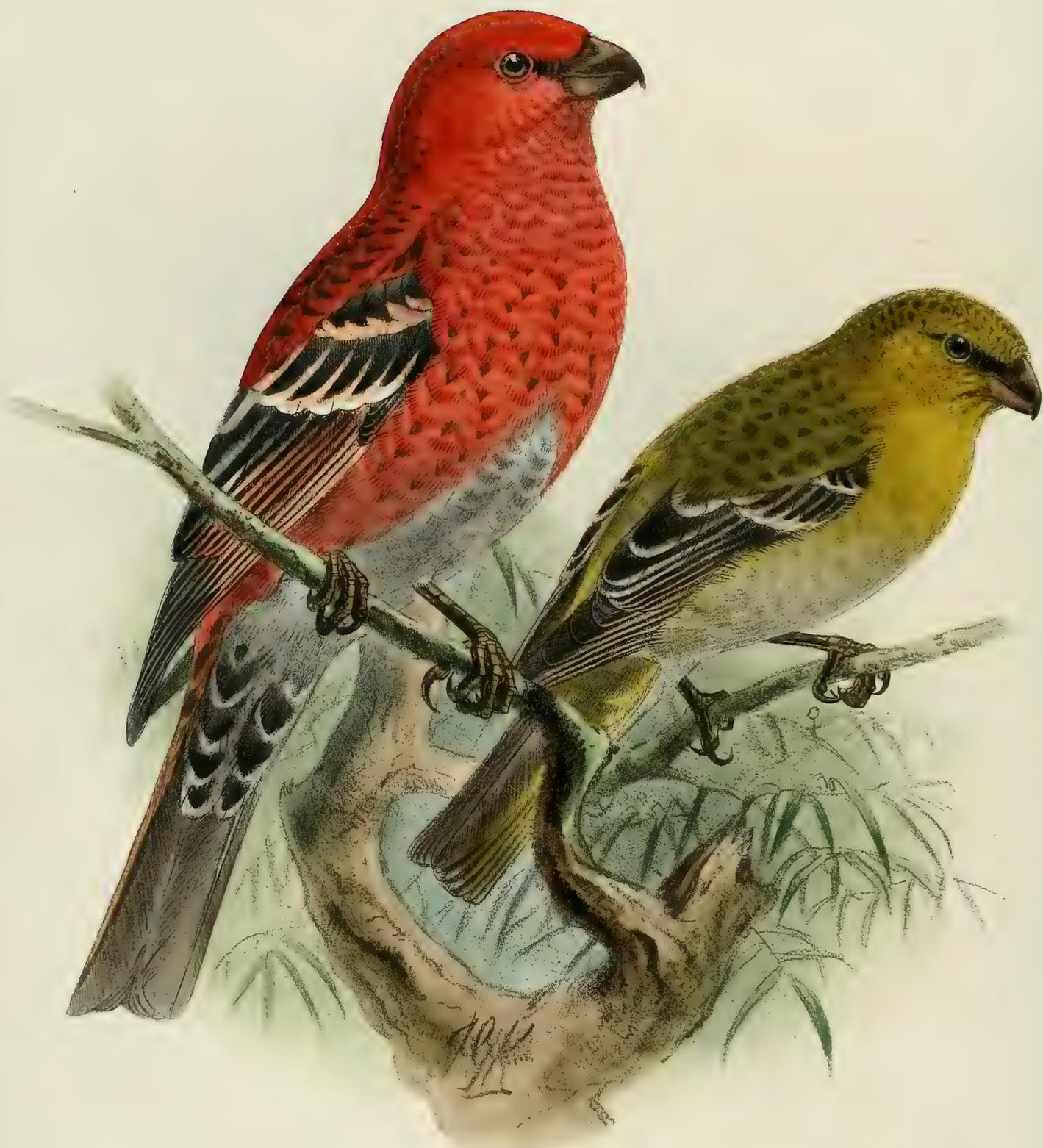
Pyrrhula apud Temminck, Man. d'Orn. i. p. 333 (1820).

Coccothraustes apud Bonaparte, Consp. Gen. Av. i. p. 528 (1850).

Enucleator apud C. L. Brehm, Vogelfang, p. 89 (1855).

CLOSELY allied on the one hand to *Loxia*, and on the other to *Pyrrhula* and *Carpodacus*, this genus cannot well be placed elsewhere than between the two former genera. By some authors, amongst whom I may mention Professor Newton, it is included in the genus *Pyrrhula*; but it appears to me well worthy of generic rank.

Only one species belongs to this genus, *Pinicola enucleator*, the range and habits of which are given in the following article. This species, which is consequently the type of the genus, has the bill like *Pyrrhula*, but longer, the upper mandible acute, declinate; nostrils basal, round, concealed by recurved bristly feathers; wings moderately long, the first quill attenuate, scarcely visible, the third or fourth the longest; tail rather long, rather deeply forked; tarsus short, compressed, with four large and three inferior scutellæ; toes stout; claws moderately long, curved, acute, laterally grooved; plumage soft and full.



J. G. Keulemans del.

Mintern Bros. imp.

PINE CROSSBEAK
PINICOLA ENUCLEATOR

PINICOLA ENUCLEATOR.

(PINE-GROSBEAK.)

- The Greatest Bullfinch*, Edwards, Nat. Hist. Birds, pls. 123, 124 (1751).
Le Gros-bec de Canada, Briss. Orn. iii. p. 250, pl. xii. fig. 3 (1760).
Loxia enucleator, Linn. Syst. Nat. i. p. 299 (1766).
Le Dur-bec, Buffon, Hist. Nat. Ois. iii. p. 457 (1775).
Loxia flamingo, Sparrm. Mus. Carls. no. 17 (1786).
Pinicola rubra, Vieill. Ois. d'Am. Sept. i. p. 4 (1807).
Fringilla enucleator (L.), Meyer, Vög. Livl. & Esthl. p. 74 (1815).
Strobilophaga (le Dur-bec), Buff., Vieill. Analyse, p. 29 (1816).
Strobilophaga enucleator (L.), Vieill. Nouv. Dict. ix. p. 609 (1817).
Corythus, Cuv. (*Loxia enucleator*, L.), Règne Anim. i. p. 391 (1817).
Pyrrhula enucleator (L.), Temm. Man. d'Orn. i. p. 333 (1820).
Corythus enucleator (L.), Flem. Brit. Anim. p. 76 (1828).
Loxia psittacea, Pall. Zoogr. Rosso-As. ii. p. 5 (1831).
Corythus angustirostris, C. L. Brehm, Vög. Deutschl. p. 247 (1831).
Pinicola enucleator (L.), Cab. in Ersch. & Grub. Encycl. l. p. 219 (1849).
 "Coccothraustes enucleator auct.," Bp. Consp. Gen. Av. i. p. 528 (1850).
 "Corythus canadensis, Brehm," Bp. tom. cit. p. 528 (1850).
 "Pinicola americana, Cab.," Bp. tom. cit. p. 528 (1850).
Enucleator angustirostris, C. L. Brehm, Vogelfang, p. 89 (1855).
Enucleator minor, C. L. Brehm, tom. cit. p. 89 (1855).
Corythus splendens, C. L. Brehm, tom. cit. p. 89 (1855).
Corythus minor, C. L. Brehm, Naumannia, 1855, p. 276.
Corythus enucleator splendens, A. E. Brehm, Verz. Samml. C. L. Brehm, p. 10 (1866).
Corythus enucleator latirostris, A. E. Brehm, ut suprâ (1866).
Corythus enucleator angustirostris, A. E. Brehm, ut suprâ (1866).
Corythus enucleator macrorhynchos, A. E. Brehm, ut suprâ (1866).
Corythus enucleator microrhynchos, A. E. Brehm, ut suprâ (1866).

Pine-Grosbeak, Pine-Bullfinch, English; *Dur-bec vulgaire*, French; *Fichten-Gimpel, Haken-Gimpel*, German; *Krognæb, Svensk-Papegøie*, Danish; *Tallbit, Nattvaka, Dumsnut*, Swedish; *Konglebid*, Norwegian; *Taviokuurna*, Finnish; *Shur*, Russian; *Leipiainen*, Lapp.

Figuræ notabiles.

Sparrm. *l. c.*; Edw. *l. c.*; D'Aubenton, Pl. Enl. 135. fig. 1; Werner, Atlas, *Granivores*, pl. 31; Kjærbo. Orn. Dan. taf. 28 B; Fritsch, Vög. Eur. taf. 19. fig. 13; Naumann, Vög. Deutschl. taf. 112; Sundevall, Sv. Fogl. pl. 2. figs. 2, 3; Gould, B. of Eur. pl. 204; id.

B. of G. B. iii. pl. xlv.; Bp. & Schl. Mon. Lox. pls. 11, 12; Wils. Am. Orn. pl. 5; Aud. B. of Am. pl. 358; Richards. Faun. Bor.-Am. pl. 53; Vieillot, Galerie, pl. 53.

♂ *ad.* capite, collo, pectore, hypochondriis, dorso et uropygio lætè coccineis: uropygio et capite lætioribus et clarioribus, plumis omnibus ad basin plumbescenti-schistaceis: dorsi plumis versus apicem brunnescenti-schistaceis et coccineo marginatis: remigibus nigricantibus, primariis in pogonio externo pallidè rubro, et secundariis albido marginatis: tectricibus alarum majoribus et medianis valdè albo apicatis: tectricibus alarum minoribus nigricanti-schistaceis cærulescente schistaceo apicatis et coccineo lavatis: caudâ nigro-fuscâ, rectricibus fere omnibus vix sordidè rubrò marginatis: pennis setosis ad basin rostri, loris et regione oculari nigricantibus: abdomine centrali, tectricibus alarum inferioribus et subcaudalibus cærulescenti-schistaceis, his albido apicatis: rostro corneo, ad basin mandibulæ inferioris pallidiore: pedibus nigro-fuscis: iride fuscâ.

♀ *ad.* mari dissimilis: capite, nuchâ, uropygio et pectore aurantiacis vix virescente tinctis nec coccineis: dorsi plumis aurantiaco terminatis: alis, caudâ et corpore imo subtùs ut in mare coloratis sed aurantiaco nec coccineo notatis.

Adult Male (Stockholm, 16th January). Head, neck, breast, back, and rump rich light carmine-red, the feathers being slaty blue on the basal portion, this colour showing through here and there; the head, neck, and rump much the richer-coloured; the dorsal feathers slaty brown towards the tip, and only edged with red, which gives the back the appearance of being marked with semilunar dark patches; quills blackish brown, the primaries edged on the outer web with pale red, and the secondaries margined with white; larger and median wing-coverts broadly tipped with white; smaller wing-coverts and scapulars dark slaty black, edged with slaty blue and slightly washed with red; upper tail-coverts blackish slate, tipped with white, washed with red; tail blackish brown, the major portion of the feathers narrowly edged with dull red; the short stiff feathers on the forehead, at the base of the bill, lores, and space round the eye dull blackish; centre of the abdomen, under wing-coverts, and under tail-coverts slate-blue; the under wing-coverts slightly washed with red; flanks like the breast rich carmine; under tail-coverts tipped with white; bill dull horn, the under mandible light-coloured at the base; legs blackish brown; iris dark brown. Total length about 9 inches, culmen 0·7, wing 4·35, tail 3·7, tarsus 0·9.

Adult Female (Christiania, November). Resembles the male, except that, wherever in the male the plumage is red, it is rich golden yellow with an apple-green tinge in the female; but this colour is but slightly present on the rump or lower flanks.

Young Female (Musquash, New Brunswick, December). Resembles the old female; but the yellow portion of the plumage is duller in colour, is almost confined to the crown, nape, and rump, being but very slightly scattered over the back and the breast, and is just washed with dull apple-green.

Young Male (Nerepis Valley, New Brunswick, December 14). Resembles the young female, but is rather more tinged with yellow on the underparts, and on the crown and rump one or two red feathers are just appearing.

Nestling (*fide* Meves). Resembles the female, but is of a more dirty greenish grey; head and rump washed with greenish yellow; larger wing-coverts and the three innermost secondaries with a narrow whitish border, the median coverts tipped with grey; quills and tail-feathers not fully developed.

THIS, one of the most strikingly beautiful of the Arctic birds, inhabits the high northern portions of both the Old and New World, only migrating southward when driven down by the rigours of

the Arctic winter. It has occurred in Great Britain, but must be looked on as one of the rarest of the stragglers that occasionally visit our shores.

Yarrell (*B. Birds*, i. p. 609) speaks of it as having been obtained in Hulston fir trees, Lancashire; and a female in his own collection was, he says, shot some years previously at Harrow, in Middlesex. Knox records two from Ashdown Forest, and one from Petworth, Sussex; and Stevenson, writing respecting its occurrence in Norfolk, says (*B. of Norf.* i. p. 235) that "the brief records respecting it seem to consist of a statement by Messrs. Paget in their 'Sketch of the Natural History of Yarmouth,' 'that a flight of these birds were observed on Yarmouth Denes in November 1822,' and the fact of a pair having been shot at Raveningham, in the act of building, as noticed by Messrs. Gurney and Fisher in their 'Birds of Norfolk' (*Zoologist*, p. 1313)." It is said to have bred at Bungay (in Suffolk) and at Yarmouth; but these statements are very doubtful. Besides these records of its occurrence, Mr. Harting, in his 'Handbook of British Birds,' gives the following, viz.:—one, Bill Quay, Newcastle; several, Pembrokeshire (Fox, *Syn. Newcast. Mus.* p. 65); one, Worcestershire, prior to 1834 (*Hastings, Nat. Hist. Worc.* p. 65); one or more, Eccles, Berwickshire, prior to 1835 (*Thomps. Stat. Acc. Eccl.*); one or more, Kent (Pemberton Bartlett, *Zool.* 1844, p. 621); one, Rochdale, Lancashire, Feb. 1845 (Clarke, *Zool.* 1845, p. 1025); one, Somersetshire (Baker, *Somerset. Arch. Proc.* 1851, p. 144); and one, Taunton (Prideaux, *Zool.* 1862, p. 3474).

Pennant observed it in Aberdeenshire in 1769; and, according to Mr. Robert Gray (*B. of W. of Scotl.* p. 152), it is included by Dr. Burgess about twenty years afterwards in his list of the birds of the parish of Kirkmichael, in Dumfriesshire; and it is likewise mentioned in the Statistical Account of the parish of Eccles, in Berwickshire, as a rare visitor about thirty-five years ago. It is included in a catalogue of the animals and plants of the Esk valley, in Midlothian, published in 1808; and Don includes it in his fauna of Forfarshire; but Mr. Gray adds that he can find no reliable record of its occurrence in Scotland since 1833; but Macgillivray (*Nat. Hist. Deeside*, p. 403) records one from Braemar, in August 1850; and Mr. Harting refers to one having been seen at Dunkeld, his informant being Colonel Drummond-Hay.

According to Mr. Thompson (*B. of Ireland*, i. p. 276) one was shot on the 20th December, 1819, at the Cave-hill, near Belfast, but it does not appear to have been preserved.

I may remark that many of the above-recorded occurrences are open to great doubt.

In Scandinavia it is common, breeding in the high north, and wandering southward during the winter. In Norway it breeds, Mr. Collett informs me, "in the vicinity of the Arctic Circle, in the Saltdalen, near Bodö, and in autumn and winter visits the southern lowlands, often in large numbers. Along the west coast of Norway it is only seldom met with; but in the interior, in Hamar and Christiania Stifts, it occurs regularly from October to March. It does not appear to have as yet with certainty been known to occur north of the Arctic Circle; but it may possibly breed in South Varanger, as Nordvi obtained its eggs from Enare." On the Swedish side it is found in the summer in Lapland; and, according to Professor Sundevall, it does not at that season come as far south as Dalecarlia or Wermland, but in winter is found as far south as Skåne, though it is only a rare straggler in that part of Sweden. Mr. Collett informs me that "it first appears near Christiania in flocks in the last days of October, when the cold weather sets in; and the last are seen about the end of March. It is almost always common near

Christiania in winter, especially when the mountain-ash berries are plentiful; and large numbers are brought into the markets for sale. It is usually seen in flocks of from 20 to 100 individuals." I frequently saw it in Northern and Central Sweden during the winter, and also met with it on several occasions in Finland, where, as elsewhere, it is sometimes numerous, and at others only a few are seen; but it never breeds in Finland proper. In Northern Russia it is very common, and breeds near Archangel, as I have had its eggs sent to me from there. Messrs. Harvie Brown and Alston (*Ibis*, 1873, p. 64) record it as a very abundant species in some localities in the Archangel Government, but they only obtained it at Sujma. Sabanäeff only speaks of it as seen during the winter migration in the Government of Moscow; but it must be very common in Northern Russia during winter, as I have seen large baskets filled with them in the frozen-market at St. Petersburg, and have frequently found them served up as "ortolans," and eaten them; but I cannot say that they are as good for the table as many of the other small birds. Throughout the whole of North Germany it occurs during the winter, but seldom in large numbers. Mr. H. Goebel says (*J. f. O.* 1873, p. 9) that in severe seasons it is met with in Courland; and Meyer (*Vög. Liv. & Kurl.* p. 74) writes that "it visits Livonia annually, sometimes in very large flocks, as was the case in 1790, 1795, 1798, and 1803. It usually arrives early in the winter, and frequently remains till the spring. In 1790 it arrived in October in vast numbers, and remained until the middle of December; and in the neighbourhood of Riga thousands were caught daily." Herr von Homeyer speaks of it (*J. f. O.* 1872, p. 308) as being an annual but rare winter visitant to East Prussia, and sometimes occurring in large numbers. Borggreve (*Vogelf. Nord-D.* p. 74) speaks of it as occurring in the eastern portion of North Germany at irregular intervals during winter, and says that, according to Boeck, it has often occurred in Prussia; Gloger records it as occurring periodically in Silesia; Tobias and Schwartzner as an irregular visitant to Lausitz and Posen; Ratzeburg states that large numbers were snared at Neustadt-Eberswald in about 1830; and Dr. E. Rey, in his notes on the ornithology of Halle, says that Nitzsch examined two caught near Schlieben in November 1861. In Denmark it only occurs during severe winters; and I do not find it recorded from Holland; but it appears to have occurred in Belgium, as Degland (*Orn. Eur. i.* p. 184) speaks of it as having been killed near Charleville; and Buffon says that it has been seen in Alsatia.

It is, according to Degland and Gerbe, an accidental and rare visitant to France, where, however, it has been killed several times, both in Champagne and Provence; and Roux (*Orn. Prov.* p. 117) says that he has heard from trustworthy sources that it occurred in Provence in the severe winter of 1820. I do not find any record of its having been met with in Spain or Portugal; and it appears doubtful if it has ever really occurred in Italy. Salvadori remarks (*Ucc. d' Ital.* p. 162) that, though Bonelli speaks of it as occurring in Piedmont, he knows of no authentic instance of its capture there, nor is there any Piedmontese-killed specimen in the Turin Museum. It has, however, been met with in Southern Germany; and Dr. A. Fritsch records it (*J. f. O.* 1871, p. 309) as "a rare winter visitant to Bohemia. Koblik obtained three old males on the 8th December, 1845, near Hohenelbe; and in 1846 it was common in the months of September and October. According to Palliardi, numbers were met with at the foot of the Riesengebirge in 1847; and Mr. Lokaj once found a specimen amongst Crossbills exposed

for sale on the Prague market." Professor von Nordmann says that it never straggles as far south as the Black Sea.

To the eastward its range extends right across the continent of Asia, and has been met with as far south as the Amoor country. Von Middendorff obtained it in October at Udskoj-Ostrog; Dr. G. Radde did not meet with it in the Central Amoor, but found it numerous in the wooded portions of the Transbaikal country, in the Baikal districts, and in the Eastern Sajan, more especially near some of the isolated settlements. Dr. von Schrenck only obtained a single specimen in the Amoor district, a female, which was shot on the 6th April, a short distance above the Nikolaieffsk Post; and Dr. Dybowski says (J. f. O. 1873, p. 92) that it is tolerably common at Darasun, in Dauria, during the winter, and breeds in small numbers in the Chamardaban mountains, where he met with it in the summer. In the Himalayas it is replaced by a smaller and slightly differently coloured form, *Pinicola subhemachalana*, Hodgs.

In North America it is, according to Professor Baird (N. Am. Birds, i. p. 454), "a resident of the portions of North America north from the United States. In the northern parts of New York, Vermont, New Hampshire, and Maine, as well as in Western America, it is found throughout the year in the dark evergreen forests. In the winter it is an irregular visitor as far south as Philadelphia, being in some seasons very abundant, and again for several winters quite rare. Mr. Boardman mentions it as abundant in the winter about Calais; and Mr. Verrill gives it as quite common in the vicinity of Norway. It is found every winter, more or less frequently, in Eastern Massachusetts, though Mr. Allen regards it as rare in the vicinity of Springfield. It is not cited by Dr. Cooper as a bird of Washington Territory; but he mentions it as not uncommon near the summits of the Sierra Nevada, in 39° N. lat., in September." To this I may add that I frequently met with it in New Brunswick, and saw several flocks at Musquash in January, February, and March 1860, and shot several, but only once obtained a male in the red plumage; and that was, unfortunately, stolen by a Canada Jay, who picked it up and carried it off from my immediate vicinity, I having laid it down for a moment. I recovered it; but it was torn and half eaten, and quite useless as a specimen. Dr. Elliott Coues met with it along the coast of Labrador, where it is, he says, not at all rare; and it was obtained by Sir John Richardson in the Hudson's Bay Territory, but he did not observe it higher than the 60th parallel, but mentions an instance of its wintering at York Factory, on Hudson's Bay. Captain Blakiston (Ibis, 1862, p. 6) observed and obtained it in the Forks of the Saskatchewan on the 7th of May, 1858; Mr. Dall says that it was "collected at Sitka and Kadiak by Bischoff, and is extremely common near Nulato, and, in fact, wherever there are trees, throughout the Yukon Territory. Frequents groves of willow and poplar near open places, and especially the water-side, in winter. In summer they go into more retired thickets to breed." Mr. R. Brown (Ibis, 1868, p. 423) says that "during the winter of 1866, whilst the snow was on the ground, two pairs were shot at Fort Rupert, Vancouver's Island;" and I subsequently obtained, through Mr. P. N. Compton, of Fort Rupert, one of these two pairs—a fine red male and an old female. The above being the only records of its occurrence on the Pacific coast, it does not appear to range so far south there as it does on the eastern side of the Nearctic continent. Professor Baird speaks of the American bird being richer-coloured than specimens from Europe; but I have found the reverse as far as

the series I have examined is concerned. Probably he had a finer series of American specimens, and I better examples from Europe than from America.

As the breeding haunts of the Pine-Grosbeak are so far removed from any except most sparsely inhabited localities (for it breeds only in the extreme high north), but little is known of its habits during the summer season. I have never found it breeding, and can only speak from personal observation of its habits during the winter season, when it visits the neighbourhood of houses, and is eminently unsuspecting and easy to obtain; but my friend Mr. Robert Collett, of Christiania, writes to me that "no one who has visited their breeding-haunts would ever venture to indorse the usual verdict (based on their habits during winter), that it is a stupid bird. When breeding they are, on the contrary, eminently cautious and wary; and I know from personal experience how difficult it is to find its nest in the vast conifer-forests of the north, where this species and the Waxwing breed. What has been termed stupidity must rather be set down as extreme trustfulness and an utter ignorance of any danger in the vicinity of man. In their forest-homes food is scarce; and in the lonely wilderness they have not learned to suspect danger on the part of men; but on the approach of winter they find, near human habitations, a superfluity of food, and their usual cautiousness is exchanged for a carelessness and a desire to make the best of the feast spread before them, which, however, only lasts a comparatively short time; for they soon learn to know that man is their natural enemy. I may name, as a proof of how little they can measure or judge of danger, a circumstance that happened to myself when catching a pair, which I kept alive for some time, and finally sent them to the Zoological Society's Gardens, Regent's Park, in 1866. I was in a grove near Christiania in November 1864, where a lot of snares were set; and whilst there a flock of Pine-Grosbeaks flew down to the grove, and within the space of a few minutes all were snared but two, which kept hopping about close to their unfortunate companions. I wanted to get them alive, and withdrew a short distance; and the next moment one of them was fast in a snare, whilst the other was fruitlessly endeavouring to get into a snare in which one of his deceased companions was hanging dead. I proceeded to take out the dead bird in order to allow him to follow the bent of his inclinations; and whilst thus employed, he took the opportunity of getting into a spare snare not two paces from me. I took him out and took the two birds home, finding them so tame that as I fed them the same day with rowan berries they sat quietly on my hand and made no attempt to fly away; but after a few days' time they became much more shy."

I have frequently met with the Pine-Grosbeak during the winter, and can fully confirm all that Mr. Collett says respecting their extreme tameness; in fact, they are frequently caught by the boys in Sweden with a noose at the end of a stick, whilst they are busy feeding greedily on the berries of the mountain-ash, of which they are extremely fond. I observed that those I met with in the forests of New Brunswick during the winter were much more shy than those I used to see near habitations, and I frequently found them by no means so easy to shoot. Whilst flying from tree to tree they uttered a low, plaintive, and rather melancholy whistle. Mr. Collett informs me that the song, which is uttered by both sexes, but more frequently by the male, is feeble, but pleasing, somewhat resembling that of the Bullfinch, but sweeter and more varied.

The mode of nidification of this bird was unknown until discovered in 1855 by the late Mr. Wolley; and the particulars were first published by Mr. Hewitson in the following year

(Eggs of Brit. Birds, 2nd ed. i. p. 210*, pl. liii*). Quoting Mr. Wolley, Mr. Hewitson says, "As the days grew longer I eagerly listened to the beautiful clear music of the bird in more than one locality; and one snowy morning I saw a hen watching me so very unconcernedly from a tree, that I climbed up to try to catch her in my hand. It was not until I nearly touched her that she flew off, as though she thought I was carrying the joke too far, but in a way that convinced me she had no nest. I had made arrangements for working another part of the country; but I left a trusty Lap in strict charge to visit a spot in Finland where I had ascertained that in previous years the bird had bred. On my return to that neighbourhood at the end of summer I watched day after day for the arrival of my faithful Lapp. The nights were already becoming dark, when one evening I saw the well-known figure in a boat approaching our strand. I had scarcely shouted welcome before his wallet was in my hand, and my English friends and myself were in triumphal procession to the house. First made its appearance a grim wolf's head; then came forth some reindeer gadflies; next there was extracted an unknown nest, then a skinned Pine-Grosbeak; and at last were carefully unwrapped from a little case the wished-for eggs, and there they lay in all their fresh-discovered beauty before us. At midsummer a nest was found with four fully fledged young about a hundred yards from the spot where the former nest had been. It is now in the British Museum. Externally it is made of remarkably open work of twigs and roots, generally in very long pieces. In the centre of the platform there is an inner bedding of barkless fibrous roots, with a little of the hair-like lichen which grows so abundantly on the trees in Lapland forests."

I am indebted to Professor Newton for the loan of a copy of the late Mr. Wolley's notes on the breeding of this species, from which I extract the following description of the first nest obtained by him:—"The nest was found by Piety, the trustworthy Lapp, in company with Mikel Sadio. It was in the evening of the Second *Heluntai* (*i. e.* 27th May) that they went to Kotta Mello, a little above Yli-Kyrö, on the same side of the river. The place was a little kind of dell where there were groups of small spruces. Piety first saw the bird fly up from the ground with some sticks or nest-lining in its mouth. It remained quite quiet and still; and they were some time before they found the nest, apparently completed, but still without eggs, and placed about two fathoms from the ground in a young spruce three fathoms high. The branches near the nest, which was not quite touching the bole, were thin, short, and open. Several days afterwards the nest contained one egg; at the next visit there were two; and several days later there were four. The nest and eggs were now taken, and it was found that the eggs were slightly sat upon. But first the old bird was snared, horsehair nooses being fixed into the bole of the tree so as to stand out over the nest. The skin, now before me, has been examined by my companions (Messrs. W. H. Simpson and A. Newton); and we are without doubt as to its being that of a Pine-Grosbeak. The Sadio lad says that he saw at least ten old nests thereabouts; and Piety says that he has also seen nests in similar situations, but never anywhere else; *i. e.* there is always some favourite corner where they are placed year after year. At midsummer the lad found another nest, about a hundred yards off, containing four young birds scarcely ready to fly. He took it; and it is now in my possession. The nest which contained the eggs was pulled to pieces by the children in his house at Sadio. The one before me is made externally of an extremely light network of thin trailing twigs laced into each other; one of

these twigs completely encircles the nest and goes halfway round it again, appearing to be about twenty-eight inches in length. This network of twigs is suddenly changed into a compact bedding of fine bare roots mixed with a few sprigs of hair-lichen, which form together almost a separate nest inside the outer network."

Several other nests are described in Mr. Wolley's notes, one of which is said to have been lined with fine grass and hair-lichen; and another was entirely made of fine trailing branches or runners, principally of *Linnaea borealis*, and lined with tree-hair. Nearly all the nests appear to have been in spruce trees, about twelve feet from the ground. The number of eggs deposited appears to be generally four.

I have in my collection several clutches of eggs of this bird, all from Muonioniska, which are pale blue, with the faintest greenish tinge, rather darker in shade than those of the common Bullfinch, and are spotted and blotched with faint purplish underlying shell-markings and dark brown surface-spots. In size they average about $1\frac{2}{40}$ by $\frac{29}{40}$ inch. I have eggs, said to be of this species, taken by my brother Arthur in New Brunswick, which resemble those from Lapland, but are less marked, the spots being rather duller, and are smaller in size, measuring only $\frac{36}{40}$ by $\frac{27}{40}$ inch. My brother (who, though a capital backwoodsman, and able to skin and preserve birds as well as to snare or shoot them, has but little technical knowledge as an ornithologist, and had, moreover, never seen the bird previously to having found the nest in question) wrote to me that he "took the nest at Musquash, New Brunswick, on the 6th July, 1863, and saw both the old birds; the female was coloured like a female Crossbill; and the male was red, like a male Crossbill; but both had bills like a Parrot, and were as large as a Thrush. The nest was placed in a tree, and contained six eggs." The nest he did not send; but I have the eggs yet in my American collection.

The specimens figured are an adult male, obtained at Stockholm, and a female from Calmar Län, in Sweden, these being also the specimens described; and the young birds described were shot by myself in New Brunswick, all being in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀. Christiania, November 1868 (*R. Collett*). *b*, ♂. Stockholm, January 1862 (*Meves*). *c*, ♂, *d*, ♂. Stockholm, December 1871 (*Meves*). *e*, ♂. Stockholm, December 1867 (*Meves*). *f*, ♂. Quickjock, Sweden, April 17th. *g*, ♀. Calmar Län, Sweden, November 9th (*Wetterberg*). *h*, ♂. St. Petersburg, November 12th, 1867 (*H. E. Dresser*). *i*. Moscow (*C. Sachse*). *k*, ♂, *l*, ♂, *m*, ♂. Mezen, Russia (*J. Piottuch*). *n*, ♂. St.-John River, North America, December 14th, 1861 (*H. E. D.*). *o*. Musquash, New Brunswick (*H. E. D.*). *p*, ♀, *q*, ♂. Fort Rupert, Vancouver's Island (*P. N. Compton*).

E Mus. H. B. Tristram.

a. Sweden. *b*, ♀, *c*, ♂. Carlstad, Sweden (*H. Wheelwright*). *d*, ♀. North America (*Buckley*). *e*, ♂. Niagara (*Buckley*). *f*. Nova Scotia (*Wedderburn*).

E Mus. E. Hargitt.

a, ♂, *b*, ♀. Stockholm, December 12th and 16th, 1871. *c*, ♀. Carlstadt, Sweden (*Wheelwright*). *d*, ♂. Carlstadt, December 1864 (*Wheelwright*). *e*, *f*, *g*. Red-River Territory, N. America (*Dallas*).

Genus LOXIA.

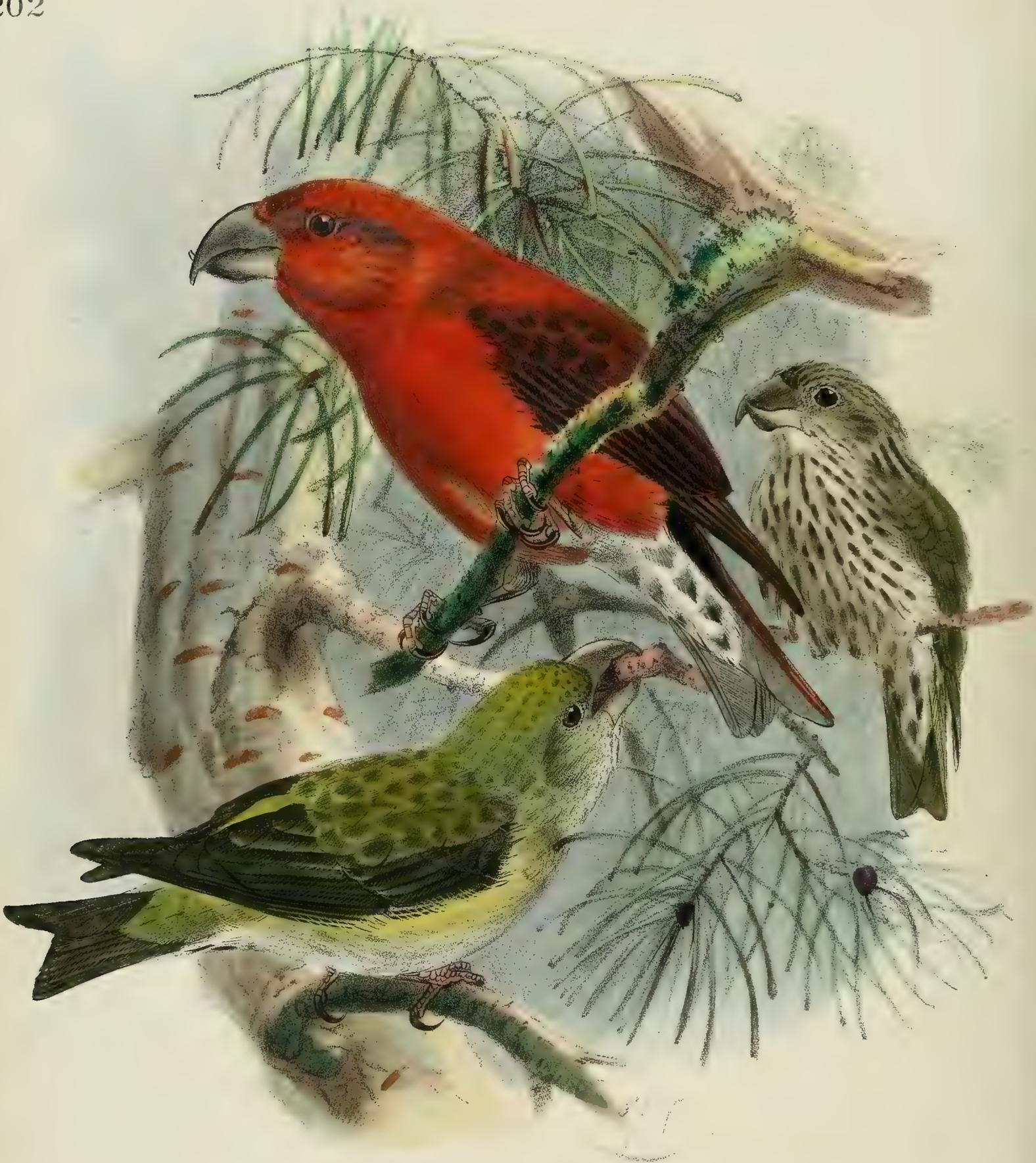
Loxia, Linnæus, Syst. Nat. i. p. 299 (1766).

Crucirostra apud Leach, Cat. Mamm. & B. Brit. Mus. p. 12 (1816).

Curvirostra apud C. L. Brehm, Ornith., iii. p. 85 (1827).

THIS genus, though allied to *Pinicola* and *Carpodacus* in habits and plumage, differs from all allied genera in having the bill peculiarly formed, the upper and lower mandibles being crossed towards the tip. The Crossbills inhabit the Palæarctic and Nearctic Regions, ranging south into the northern portions of the Ethiopian and Neotropical Regions, being almost everywhere sporadic wanderers rather than regular migrants. Four species inhabit the Western Palæarctic Region, one of which, however, is only a straggler from North America. They are inhabitants of groves, forests, and gardens, being most frequently met with in conifer-woods, where they find their favourite food, the seeds of the pine and fir. They are habitually tame and confiding, and, as a rule, unsuspecting to a degree—unless subjected to persecution, when they become more wary. They frequent the tops of trees, and, except in the spring of the year, when they utter a warbling note, are comparatively silent, merely uttering a low call-note to each other now and again. They are usually seen in flocks or in family parties, and not unfrequently in very large companies. They are active and restless, climbing about amongst the branches like parrots, and have a strong flight. They breed very early in the season, placing their nest, which is cup-shaped, built of twigs and moss lined with roots, moss, and wool, on a conifer tree, and deposit eggs closely resembling those of the Greenfinch, but rather larger. Their song consists of a pleasant warble; and *Loxia bifasciata* is said to have a sweet and varied song. They feed chiefly on seeds, fruits, and berries, but also, to some extent, on insects.

Loxia curvirostra, the type of the genus, has the bill hard, strong, rather higher than long at the base, compressed towards the end, with the tip laterally deflected and curved in opposite directions, the lower mandible crossing the upper one; nostrils round, basal, concealed by recurved bristly feathers; wings rather long, pointed, the first quill attenuate, obscure, the next three nearly equal, the second being the longest; tail short, forked; legs strong and stout, the tarsus covered in front with four larger and three inferior scutellæ; claws stout, arched laterally, grooved, acute.



PARROT CROSSBILL.
LOXIA PYTIOPSITTACA

LOXIA PITYOPSITTACUS.

(PARROT CROSSBILL.)

- Loxia curvirostra*, var. *j*, Gm. Syst. Nat. i. p. 843 (1788).
Loxia pityopsittacus, Bechst. Orn. Taschenb. p. 106 (1802).
Crucirostra pinetorum, Meyer, Vög. Liv- und Esthl. p. 71 (1815).
Crucirostra pityopsittacus, Brehm, Vög. Eur. p. 241 (1831).
Crucirostra subpityopsittacus, id. op. cit. p. 242 (1831).
Crucirostra brachyrhynchos, Brehm, Naumannia, 1853, p. 185.
Crucirostra pseudopityopsittacus, id. tom. cit. p. 185.
Crucirostra intercedens, id. tom. cit. p. 187.
Crucirostra major, id. tom. cit. 1855, p. 275.

Bec-croisé Perroquet, French; *Kiefern-Kreuzschnabel*, German; *Stor Korsnæb*, Danish; *Furukorsnæb*, Norwegian; *Större Korsnäbb*, Swedish; *Iso Käpylintu*, Finnish; *Klest sosnowik*, Russian; *Krzyzodziób-sosnowy*, Polish.

Figuræ notabiles.

Werner, Atlas, *Granivores*, pl. 31; Naum. Vög. Deutschl. taf. 109. figs. 1–3; Gould, B. of Eur. iii. pl. 201; Yarr. Brit. B. ii. p. 34; Kjærb. Orn. Dan. afb. xxiii. b. fig. 3, Suppl. pl. 11. figs. 6, 7; Schl. Vog. Nederl. pl. 75; Bonap. & Schl. Monog. Lox. pl. 1; Gould, B. Gt. Br. part 5; Sundev. Sv. Fogl. pl. 1. figs. 1, 2.

♂ *miniato-ruber*, uropygio lætiore et clariore: loris et regione supraparoticâ fusciscenti-brunneis: tectricibus alarum cinerascanti-brunneis, sordidè rubro angustè limbatis: remigibus saturatè brunneis, eodem modo rubro limbatis, secundariis exterioribus vix albido angustè terminatis: rectricibus saturatè brunneis, sub certâ luce obsolètè transfasciatis, extùs rubro limbatis: subtùs lætiùs miniatus, abdomine medio vix aurantiaco tincto, pectore summo lateraliter cineraceo lavato: subcaudalibus cinerascanti-brunneis, latè albido terminatis: subalaribus dilutè cinerascantibus, albido lavatis.

♀ *mari dissimilis*: cinerascens, pileo et uropygio flavicante lavatis, hóc multò lætiore: loris et regione supraparoticâ cinerascanti-brunneis: remigibus et rectricibus ut in mari coloratis, sed flavido nec rubro angustè limbatis: subtùs cinerascens, pectore olivascenti-flavido lavato.

Juv. brunneus, pilei, nuchæ, uropygiique plumis fulvescenti-albo utrinque marginatis, quasi striolatis: tectricibus alarum saturatè brunneis, pallidiore brunneo limbatis: remigibus et rectricibus brunneis, extùs albido angustè limbatis: subtùs albidus, plumis latè medialiter brunneis, distinctè striolatis.

Pull. suprâ ochrascenti-brunneus, plumis medialiter nigricantibus, quasi striolatis: pileo summo et collo postico albicantibus: facie laterali fulvescente, brunneo minutissimè lineatâ, regione paroticâ cinerascante: subtùs albicans, ochrascente lavatus, plumis medialiter brunneo striolatis versùs apicem dilatatis.

Adult Male (Wermland, March 1868). Above dark vermilion-red, brighter on the head and on the rump, the colour in the latter part tinged with carmine; scapulars tinged with dull brick-red; quills dark brown, narrowly edged on the outer web with reddish; the inner secondaries and wing-coverts slightly washed with red; tail dark brown, the outer web of each feather slightly edged with red; loreal space and auriculars marked with brown; throat, sides of head, and entire underparts bright-, almost blood-, red, inclining in some parts to pale vermilion; lower part of the abdomen in the centre ashy white; under tail-coverts also ashy white, the centre of each feather being dull brown; under wing-coverts dirty white; beak, with the mandibles scarcely so much crossed as in *L. curvirostra*, dark horn-brown, lighter on the edges; legs brown; iris chestnut-brown. Total length 7 inches, wing 4.2, tail 2.8, tarsus 0.75, culmen 1.0, height of bill at base 0.6, width of lower mandible at base 0.5.

Adult Female (Wermland, 10th of March, 1870, from the nest). Head dark grey, washed with greenish yellow, many of the feathers with dark centres; nape, back, and scapulars dark ashy grey, the margins of the feathers tinged with pale yellow; feathers on the rump grey, broadly margined with pale greenish yellow; upper tail-coverts dark grey, margined with ashy grey; tail dark brown, each feather narrowly edged on the outer web with yellowish grey; quills similar in colour to the tail, the innermost secondaries being more broadly edged with yellowish grey; wing-coverts somewhat lighter in colour, and washed with yellowish grey; sides of head, throat, and entire underparts ashy grey, on the breast and abdomen tinged with pale greenish yellow; under tail-coverts greyish white, each feather with a brown centre; under wing-coverts pale grey; beak, legs, and iris as in the adult male.

Young (Wyburg, June 1856). Head, neck, and back dark brown, each feather being edged with grey, giving the appearance of stripes, the head being darkest and the rump lightest, the feathers having broad grey margins; wings and tail dark brown, the outer web of the feathers edged with light greyish brown; throat dirty white, marked with dark brown, the centres of the feathers being narrowly marked with that colour; entire underparts otherwise dark brown, each feather broadly margined with dirty greyish white; under wing-coverts dirty greyish white; beak blackish brown, the under mandible much lighter; legs greyish brown; iris brown; mandibles less crossed than in the adult bird.

Nestling (Wermland, 12th of April, 1871). Head and nape dark brown, each feather edged with greyish white, washed with pale yellowish buff; back and scapulars dark brown, broadly edged and tipped with dull rufous; rump yellowish buff, each feather with a central line of dark brown; upper tail-coverts dull brown, broadly edged and tipped with rufous-buff; tail very short, dark brown, narrowly edged with light brown; quills dark brown, margined with light rufous: inner secondaries and wing-coverts broadly margined with reddish buff; entire underparts white, each feather with a central line of dark brown, excepting on the throat; lower part of the breast and abdomen washed with yellowish buff; beak thick and stout, the mandibles not crossed; upper mandible dark brown, lighter along the edge; under mandible light brown, dark along the edge; legs flesh-grey; iris brown.

THE range of the present species is much more restricted than that of the Common Crossbill, being confined to Europe, north of the Mediterranean, and west of the Ural Mountains, nor does it wander so far north as *L. curvirostra*. In Great Britain it is a rare bird. Harting, in his list of British Birds, records over twenty instances of the occurrence of this Crossbill in the United Kingdom, amongst which are some from Shropshire, Notts, Middlesex, Norfolk, Suffolk, Hants, Sussex, Essex, Gloucestershire, and Yorkshire. Some of these occurrences will, however, we think, prove to refer to large examples of the Common Crossbill. In this, Mr. J. H. Gurney,

jun., agrees with us, and writes that he himself has no doubt that several of the recorded British specimens have been only large varieties of the Common Crossbill.

Our friend, the well-known British ornithologist, Mr. F. Bond informs us that he possesses three British-killed examples of this species: the first, an old female, was one of five shot in March 1842, by a policeman, out of a flock of eleven, in a fir plantation near Lymington, Hants; and the other two were procured near Christchurch in March 1862. He also had a fine male killed at Southgate in 1862, which is now in the possession of Mr. J. H. Gurney, jun. Mr. R. Gray gives four instances of its having been met with in Scotland—at Wemyss Bay, in Ross-shire, near Lyth, in Caithness, and near Lochend, Inverness; and Mr. J. A. Harvie Brown writes to us that “two specimens were procured from Ross-shire by Sir W. Jardine in 1833: ‘one was obtained by Mr. G. Auld from some fishermen, in whose boat it alighted whilst at sea, and was kept in confinement for a considerable time’ (P. R. S. Edin. vol. ii. p. 336); and another was found dead near Lyth, in the same county (Caithness) (ibid. p. 342).”

In Scandinavia it is numerous, though not so frequently met with or in such large numbers as the Common Crossbill. With regard to its range in Norway, Mr. R. Collett writes as follows:—“It is distributed over the southern portion of our country up to Trondhjemsfiord in general, but sparingly; still it periodically appears in large numbers everywhere, or in certain districts, as for instance near Christiania in 1837 (teste *Rasch*), near Porsgrund in 1840 (*Sch.*), and at Land in 1862 (*Printz*). It is found here and there along the west coast, at Bergen (*Koren*), Molde (*Rasch*), and out at Grip in the summer of 1843 (*Rasch*). Conservator Siebke observed it on the fell-sides of the Dovre in the summer of 1861 above the limits of conifer growth. In July 1870 Mr. Friele observed it on Stordö, outside Hardanger, where it is supposed to have bred. Near Christiania it is, on the whole, rare; but in certain seasons it occurs even more numerous than the Common Crossbill. It generally frequents the woods where conifers and non-evergreen trees are intermixed. It generally appears at intervals of some years at each place, and but rarely remains several successive years in one locality. Of latter years there has not been such an influx all over the country as in 1830; and I may state that scarcely a single individual has been procured during the last ten years, excepting a couple of individuals, obtained in July 1870, on Stordöen, outside Stavanger; at least there have been none recorded in any collection in Norway, though small flocks may have occurred. As a proof of its gipsy-like habits, I may mention that Professor Rasch met with a flock in 1843 on the small fishing-station of Grip, several miles out at sea, off the coast of Romsdal, a place which is free from trees; indeed scarcely a bush grows there.” It inhabits Northern and Central Sweden, where, according to Nilsson, it is sometimes as numerous as the Common Crossbill. In families or in large flocks it ranges through the pine-woods of northern Skåne, Blekinge, Småland, Upland, &c. In the pine-woods of Central and Northern Sweden it is found at all seasons of the year, and occurs in large flocks as early as July or August. When large flocks visit Södermanland they invariably arrive in October or November. In March or April the larger portion leave, probably for the north, to breed. M. von Wright says that in Finland “it is common throughout the country in the conifer woods. Their call-note is similar to that of the Common Crossbill, but is louder; and the song also resembles that of that species, except that it is richer.” Dresser also met with it in several parts of Finland, especially in the neighbourhood of Wyburg, where he often saw small flocks of them. It

probably breeds not far from there, as he shot some very young birds on the borders of the Saima canal in the early summer.

It is found in Northern and Central Russia; but Mr. Sabanäeff writes that he is not aware if it breeds in the interior of that country. He met with it in the Vologda Government, but does not record it as observed as far east as the Ural; and its range probably does not extend so far as that mountain-range. Professor Kessler records it as rare near Kieff, though occurring almost every year at various seasons, generally in the spring; but Professor Bogdanoff does not include it in his list of the birds of Kazan. Regarding its occurrence in Poland, Dr. L. Taczanowski writes us from Warsaw as follows:—"This Crossbill comes to Poland for the winter, but not every year. It arrives in September, and remains until February. In its habits it exactly resembles the Common Crossbill, and differs chiefly in always frequenting pine (*Pinus sylvestris*) forests, and feeding almost exclusively on the seeds of this conifer, whereas the other species frequents spruce and larch woods. It is more phlegmatic and less wary than the Common Crossbill; and when a flock are busy searching for food on a pine tree, one can easily shoot down several in succession, and the rest remain quietly, taking no notice of the reports of the gun."

It is common in Esthonia and Livonia in the large pine-forests; but throughout the North-German Empire it is, according to Borggreve, very unequally distributed, and but seldom appears in the western portion, except in the breeding-season. It has been found breeding in Thuringia, whence Dr. Rey has procured eggs; and that gentleman informs us that large flocks are annually met with near Halle A. S., in October, frequenting the pine-woods.

It is found in Denmark, and, according to Kjærbölling, it is often taken by the bird-catcher near Copenhagen. In the spring of 1849 he shot twelve at Thyrsbæk. Boje says that it occurs regularly in Zeeland in August.

De la Fontaine records it as accidental in Luxemburg, Professor Schlegel as very rare in Holland; and Mr. Labouchere writes to us that he can find but very few instances of its having been seen in that country. Baron de Selys-Longchamps has not observed it in Belgium; but Degland and Gerbe record the occurrence of an adult male in the forest of Bersée, about twenty-three kilometres from Lille, this bird having been killed out of a flock of five or six individuals. These gentlemen further state that it occurs but accidentally in France, though found more or less regularly in Italy during the autumn. Savi records it from Padovano; but otherwise we have but meagre details respecting its occurrence in Italy. Neither Lindermayer nor Von der Mühle records it from Greece, though Erhard speaks of it as found on the Cyclades in winter; he may, however, have mistaken large specimens of *L. curvirostra* for this species, as we have obtained very large examples of the Common Crossbill from Greece through Dr. Krüper. In Southern Germany the Parrot Crossbill is occasionally found; and Count Casimir Wodzicki met with it in the Carpathians. Professor von Nordmann states that it breeds numerously in the mountains of Ghouriel, in Southern Russia; but we have been unable to examine specimens obtained so far to the south-east. So far as we know, it has never been obtained in Asia Minor or south of the Mediterranean.

Like the Common Crossbill this bird is both resident and migratory, its absence or presence depending on the scarcity or abundance of its chief food. It is a much heavier and slower bird than the Common Crossbill, which it closely resembles in its habits, climbing about the pine

trees parrot-like, often with the head downwards, using its crooked bill both to assist it in climbing and to extract the seeds out of the cones. They are by no means shy, and exhibit at times a fearlessness which proves fatal to them, as several may often be shot down before the survivors seek safety in flight. Dresser, who met with them in Finland, found them generally frequenting the tops of the large pine and spruce trees, feeding very silently, their presence being only observable by the cones which from time to time they detached and allowed to fall on the ground. Sometimes a low note might be heard, but only when close to the tree on which the birds were sitting.

Their note is similar to that of the Common Crossbill, but is deeper and louder. It feeds almost exclusively on the seeds of the pine, spruce, and larch, the former of which it appears to prefer when they are to be had. If it feeds on other seeds in a wild state we cannot say, but doubtless it does so when the seeds of the conifers are scarce. Mr. C. W. von Negelin met with it near Oldenburg in July, feeding on the leaf-lice which infest the poplars.

In its mode of nidification this species does not differ from *L. curvirostra*; in Dresser's collection are a nest and four eggs of this species, which were sent to him by Mr. W. Meves, together with the two old birds, which latter are also in his collection. This nest was taken in Wermland, Sweden, on the 10th of March, 1870, and was placed in a fir tree, about twenty-two feet above the ground. In general structure it much resembles the nest of the Common Crossbill; but, compared with the nest of the latter taken in Scotland, and sent to Dresser by our friend Mr. Harvie Brown, it is much larger and heavier, measuring inside fully three quarters of an inch more in diameter. The eggs are in colour and shape exactly like those of the Common Crossbill, but are larger in size, measuring $\frac{3.7}{4.0}$ by $\frac{2.7}{4.0}$, $\frac{3.5}{4.0}$ by $\frac{2.7}{4.0}$, $\frac{3.8}{4.0}$ by $\frac{2.7}{4.0}$, and $\frac{3.7}{4.0}$ by $\frac{2.6}{4.0}$ of an inch respectively. Two other nests, one containing three and the other four eggs, were also sent, which we do not describe, as they closely resemble the one above referred to, except that the eggs in the one are rather elongated in form, and marked peculiarly with irregular lines and spots. Dr. E. Rey informs us that he possesses an egg, procured in Thuringia, which measures 23.25 by 16.50 millimetres.

The specimens figured and described are in Dresser's collection; and full particulars as to locality are given above.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Wermland, March 1868. *b*, ♀. Wermland, March 10th, 1870. *c*, *juv.* Wyburg, Finland, June 1856 (*H. E. D.*). *d*, *pullus*. Wermland, April 12th, 1871. *e*, *f*, *g*, *h*, *i*, ♂. Wermland. *j*, *k*, *l*, ♂. Stockholm. *m*, *n*, ♂. Gottland. *o*, *p*, ♀. Darmstadt (*Möschler*). *q*, *r*, ♀. Wermland. *s*, ♀. Stockholm. *t*, *u*, *juv.* Wermland.

E Mus. Lord Walden.

a, *b*. Sweden (*Wheelwright*).

E Mus. Salvin and Godman.

a, *b*, *c*. Sarpsborg, Norway (*P. Godman*).

E Mus. C. R. Bree.

a, b, c, ♂, ♀, ♀. Near Colchester, February 21st, 1862. *d, ♂.* Wermland, April 8th, 1860 (*Wheelwright*).
e, f, juv. Wermland, Sweden. *g, pullus.* Wermland (*Wheelwright*).

E Mus. Howard Saunders.

a. Darmstadt. *b.* Wermland (*Wheelwright*). *c.* Silesia (*Schlüter*).

E Mus. H. J. Elwes.

a, b. Sweden (*Wheelwright*).

E Mus. E. Hargitt.

a, b, c. Sweden (*Möschler*).

E Mus. J. H. Gurney, jun.

a, ♀. Darmstadt (*Schlüter*).

E Mus. T. E. Buckley.

a, ♂. Sweden, September 16th, 1868.



COMMON CROSSBILL.

LOXIA CURVIROSTRA.
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LOXIA CURVIROSTRA.

(COMMON CROSSBILL.)

- Loxia curvirostra*, Linn. Syst. Nat. i. p. 299 (1766).
Crucirostra europæa, Leach, Cat. Mamm &c. Brit. Mus. p. 12 (1816).
Crucirostra abietina, Meyer, Vög. Liev- und Ehstl. p. 72 (1815).
Crucirostra media, Brehm, Vög. Deutschl. p. 242 (1831).
Crucirostra montana, id. op. cit. p. 243 (1831).
Crucirostra pinetorum, id. op. cit. p. 244 (1831).
Loxia europæa, Macgill. Hist. Brit. B. i. p. 417 (1837).
Crucirostra paradoxa, Brehm, Naumannia, 1853, p. 190.
Curvirostra macrorhynchos, id. tom. cit. p. 192.
Crucirostra longirostris, id. tom. cit. 1855, p. 275.
Crucirostra curvirostra, var. *balearica*, Von Homeyer, J. f. O. 1862, p. 257.
Crucirostra balearica, Von Homeyer, J. f. O. 1864, p. 224.
Loxia balearica, Newton, Zool. Record, 1864, p. 84.
Loxia albiventris, Swinhoe, P. Z. S. 1870, p. 437.

Bec-croisé, French; *gemeiner Kreuzschnabel*, German; *Pico-tuerto*, Spanish (in Majorca *Trenca-piñons*); *Trinca nozes*, *Cruza-bico*, Portuguese; *Crociere*, *Crocione*, Italian; *mindre Korsnäbb*, Swedish; *mindre Korsnæb*, Danish; *Grankorsnæb*, Norwegian; *Klest Yelovik*, Russian.

Figuræ notabiles.

Montb. Pl. Enl. iv. pl. 218; Werner, Atlas, *Granivores*, pl. 32; Naum. Vög. Deutschl. taf. 110. figs. 1-4; Gould, B. of Eur. iii. pl. 202; Yarr. Brit. B. ii. p. 14; Kjærø. Orn. Dan. Afb. xxiii. b. fig. 4, Suppl. pl. 11. figs. 7, 8; Schl. Vog. Nederl. pl. 76; Bonap. & Schl. Monogr. Lox. pls. 23, 24; Gould, B. Gt. Br. part 5; Sundev. Sv. Fogl. pl. 1. figs. 3, 4.

♂ *ad.* suprâ latè miniato-ruber, dorso vix cinerascente lavato, uropygio unicolori lætiore: tectricibus alarum brunneis sordidè coccineo lavatis, majoribus et remigibus brunneis extùs angustè rubro limbatis, secundariis exterioribus fulvescente marginatis: tectricibus alarum saturatè brunneis, coccineo lavatis: caudâ brunneâ, rectricibus extùs angustè miniato limbatis: facie laterali miniatâ, regione paroticâ superiore cinerascenti-brunneâ: subtùs miniatus, abdomine imo albo: subcaudalibus albis, medialiter maculis sagittiformibus cinerascenti-brunneis notatis: subalaribus brunneis, miniato paullò lavatis: rostro sordidè brunneo: pedibus saturatè brunneis: iride saturatè brunneâ.

♀ *ad.* suprâ olivascenti-flavicans, plumis celatè medialiter brunneis, collo postico et interscapulio cinerascente lavatis, uropygio clariùs flavo, unicolori: tectricibus alarum brunneis, olivaceo lavatis, majoribus et rectricibus extùs angustè olivaceo limbatis: supracaudalibus sordidè olivascenti-flavis: rectricibus brunneis, extùs angustè olivascenti-flavo limbatis: subtùs flavicans, gulâ, pectore medio et abdomine cinerascens: subcaudalibus pallidè cinerascens, medialiter brunneo notatis.

Juv. suprà cinerascenti-brunneus, plumis medialiter nigricantibus, pileo et collo postico albicante vario: uropygio et supracaudalibus ochrascenti-brunneis, medialiter saturatiùs brunneis: remigibus et rec-tricibus brunneis, extùs pallidè ochrascenti-brunneo limbatis: subtùs albicans, cinerascente lavatus, plumis medialiter brunneo lineatis.

Adult Male. Head, back, and rump bright tile-red, the back and nape being tinged with brown, and the rump much brighter than the other parts, and washed with carmine-red; quills dark brown, wing-coverts brown, tinged with dull red; tail slightly forked, dark brown, imperceptibly edged with dull reddish brown; auriculars the same colour as the head, but washed with brown; entire underparts rich tile-red; abdomen paler, the centre being greyish white, with a reddish tinge; under wing-coverts grey, washed with pale red; under tail-coverts white, with central brown markings to the feathers; bill strongly curved, the mandibles crossing each other, dull brown, darkest towards the tip of the upper mandible; legs dark brown; irides dark hazel-brown. Total length 5.5 inches, culmen 0.75, breadth of lower mandible at base 0.4, wing 3.9, tail 2.6, tarsus 0.65.

Adult Female. Differs from the male in having no trace of red in the plumage, the prevailing colour being greyish brown, washed with light greenish yellow, this latter colour being most vivid on the rump, which in some examples is almost wax-yellow, with a greenish tinge; the head and underparts are also washed with greenish yellow.

Young. Upper parts dull greyish white, streaked longitudinally with dark brown; scapulars, back, and rump washed with pale green, which on the rump becomes almost yellow; tail, wings, and wing-coverts dark brown, edged with dull greenish; entire underparts dull greyish-white, with longitudinal streaks of dark brown, and washed with pale green; on the lower part of the throat a few yellowish feathers are just appearing; mandibles crossed, as in the adult.

Nestling. Similar to the above, but much paler, and not having the mandibles crossed, the beak being short, stout, and blunt.

Our friend Mr. Meves has kindly given to us the specimens examined by him in his paper on the ornithology of Jemtland (Efv. Kongl. Vet. Ak. Förh. 1860, p. 212), in which he treats of the changes of plumage which this species undergoes; and from these we observe, in confirmation of his views, that the male, after the brown-striped nestling-plumage, sometimes assumes a red dress, and sometimes one of a yellowish colour, more or less tinged with red. The young male we describe above has a few yellow feathers appearing on the underparts, and is just commencing to assume the yellow plumage; and another, obtained near Stockholm on the 2nd of November, has nearly cast off the nestling-plumage, but has still remains of it on the breast and back; the rump is bright red, and on the head, neck, and breast are scattered red feathers, showing that it is assuming the red plumage directly after the brown nestling-dress. This bird has no appearance of any yellow feathers showing themselves. A third young male, in the plumage after the first moult, resembles the female, but is strongly marked with rich golden yellow on the head and rump, this colour pervading the entire underparts; another young male has remains of the nestling-plumage all over the breast, throat, and head, but is otherwise like the last-named specimens.

Specimens we have now before us from various parts of Europe vary but little, those from Scotland being, as a rule, larger and possessing stouter bills, approaching very closely to *Loxia pityopsittaca*. We do not possess one of Mr. von Homeyer's specimens from which he described his *Crucirostra balearica*; but Mr. Howard Saunders has kindly placed two examples from Mallorca at our disposal, which differ in no way from Swedish specimens. Nor does the bird which occurs in Asia Minor, of which we have two specimens now before us, differ in any respect from the northern bird. From Algeria we have two skins of this species

collected by Canon Tristram, and two from Tunis, all of which, on comparison, agree precisely with specimens obtained in Sweden by the late Mr. Wheelwright. One of these, from Algeria, is quite a young bird, scarcely out of the nestling plumage, and having the mandibles but very slightly curved at the tip.

From Asia we have seen examples obtained in Siberia, China, and Japan. One of these, a male, obtained on the Amoor by Dr. von Schrenck, and labelled by Mr. Swinhoe *Loxia albiventris*, has the bill quite as small as that of *L. americana*; but a female obtained from the same locality is similar to ordinary specimens of *L. curvirostra*. The measurements of these specimens are:—Male: total length 5·8 inches, wing 3·5, tail 2·3, tarsus 0·60, culmen 0·55, height of beak at base 0·4, width of lower mandible at base 0·3. Female: total length 6·5 inches, wing 3·55, tail 2·4, tarsus 0·65, culmen 0·7 height of beak at base 0·48, width of mandible at base 0·42. A male obtained at Darasun, in Dauria, by Dr. Dybowski is larger than either of the former; and its wing measures 3·85, the lower mandible of the bill 0·45 at the base.

From China we have before us five specimens, types of Mr. Swinhoe's *Loxia albiventris*; and we are indebted to that gentleman for the use of these birds in working out the present article. We have carefully compared these Chinese birds with typical examples from Sweden, and fail to detect any difference; indeed we have some Swedish specimens with quite as much, if not more, white on the abdomen. From Japan we have a male collected by Mr. Whitely which most nearly resembles the specimen from Dauria above referred to. Its measurements are:—Total length 5·65 inches, wing 3·75, tail 2·5, tarsus 0·65, culmen 0·75, width of mandible at base 0·4.

Thinking that it may be useful to our readers if we point out the most salient distinctions between the different species, we give the characteristics of the various known species of Crossbills with plain wings as follows, and shall do the same as regards those with banded wings later on, when we write the history of *Loxia bifasciata*.

Loxia pityopsittaca is the largest of the Crossbills; but occasionally specimens of the next species approach rather closely to it. It may generally be distinguished by its larger and stouter bill, and greater length of wing; besides, the red in the male approaches rather to vermilion, occasionally washed with pale carmine. The measurements are as follows:—Total length 6·3–7 inches, wing 4–4·3, tail 2·7–2·8, tarsus 0·75, culmen 0·9, height of bill at base 0·6, width of lower mandible at base 0·5.

Loxia curvirostra may generally be distinguished from the preceding species by its smaller size, shorter wing, and smaller beak, as also by the red in the adult male being darker, in fully adult specimens dark tile- or brick-red. The measurements of a large series of adult males are as follows:—Total length 5·7–6 inches, wing 3·7–3·9, tail 3·5–2·7, tarsus 0·6–0·65, culmen 0·75–0·85, height of bill at base 0·5, width of lower mandible at base 0·37 to 0·4.

Loxia rubrifasciata is merely an accidental variety of this species, or, it may be, of *L. bifasciata*. We have not had an opportunity of examining a specimen; but Mr. Meves writes that one was caught at Stockholm in November 1858, which he describes as rich cinnabar-red in colour, with two tolerably broad reddish bands on the blackish brown wings. Total length 176 millims., extent 295 millims.

Loxia mexicana. This is a very distinct species, and bears somewhat the same relation to *L. americana*, as *L. pityopsittaca* does to *L. curvirostra*. We have before us a male and female, locality not given, and two males obtained by Mr. John Keast Lord on the western side of the rocky mountains, all belonging to the British-Museum collection. Compared with males of *L. americana*, these birds are much richer in colour, the red being almost blood-red. This species is characterized by the large and powerful bill, the mandible almost equalling the maxilla, and by having the wing longer than in *L. americana*. The measurements of the specimens we have examined are as follows:—Total length 5·4–5·7 inches, wing 3·65–4·1, tail 2·5–2·9, tarsus 0·58–0·6, culmen 0·75–0·8, height of bill at base 0·4–0·5, width of lower mandible at base 0·35–0·4.

Loxia americana. This species is in size and general characters intermediate between *L. curvirostra* and *L. himalayana*. In colour the adult male is generally duller than *L. curvirostra*, the red approaching to dirty orange. We have had the opportunity of examining a series in the British Museum, collected on the western

side of the Rocky Mountains and in Vancouver's Island by Mr. J. K. Lord; and we have also before us a series from the collections of Canon Tristram, Mr. R. Swinhoe, and Dresser. The measurements of these are as follows:—Total length 5·5–5·75 inches, wing 3·3–3·5, tail 2·25, tarsus 0·5, culmen 0·6, height of bill at base 0·35, width of lower mandible at base 0·3.

Loxia himalayana is the smallest of the Crossbills. In colour it approaches nearer to the *L. americana* than to *L. curvirostra*. In the British Museum there are three females, one adult male, and a young bird, all collected in Nepâl by Mr. B. H. Hodgson, which we have had an opportunity of examining and measuring. The measurements of the adult male are as follows:—Total length 5 inches, wing 3·1, tail 2, tarsus 0·5, culmen 0·52, height of bill at base 0·37, width of lower mandible at base 0·3.

THE range of this species extends over the whole of the Palæarctic Region, being replaced in the Nearctic Region by a closely allied species, *Loxia americana*. To Great Britain it comes periodically, in some seasons in large flocks; but in Scotland it is a resident in several counties. Yarrell refers to some curious records of the appearance of large flocks in 1254 and in 1593, and copies some interesting details from an old MS. respecting the latter occurrence. There are few, if any, counties in England whence the Crossbill has not been recorded; and, as stated by Mr. More, its nest has been found in Devonshire, Somerset, Hants, Sussex, Kent, Surrey, Essex, Herts, Norfolk, Gloucester, East York, West York, Durham, Northumberland, and Cumberland. Mr. Gurney informs us that “Mr. Gunn, of Norwich, has a male which was shot at Westwick on the 28th of September, 1871, having dull white tips to the feathers of both sets of wing-coverts, like Mr. Doubleday's varieties described in Yarrell (B. B. ii. 25). It was at first supposed to have been a White-winged Crossbill; and Mr. Stevenson mentions a specimen in which the upper mandible, instead of merely crossing the lower, grew straight downwards to more than half its natural length. I saw a very similar one at M. Buchillot's, at Metz.” In Ireland, according to Thompson, it is an occasional visitant; and he refers to a supposed instance of its having bred near Cahir in 1838. Mr. A. B. Brooke informs us that they appeared at Colebrooke, co. Fermanagh, in considerable numbers during the winter of 1867, and a few pair remained to breed; but unfortunately, in spite of a close watch, no nest was found, though a young bird was shot early in the summer of 1868. With regard to its range and nidification in Scotland we are indebted to Mr. J. A. Harvie Brown for the following notes:—“Mr. A. G. More writes, ‘The Crossbill appears to be an increasing species in Scotland;’ and Mr. Robert Gray says, ‘Throughout Scotland generally the Crossbill is widely distributed, having been taken in every county, though not, as far as I am aware, in any of the outer islands.’ In Caithness, though the bird has been procured, we are not aware that it has been found nesting. In Sutherland, since the extensive fir plantations have grown up, they have increased in numbers, and breed rather plentifully in the east of the county; and this was predicted by the late Mr. St. John as long ago as 1849 (Tour in Sutherland, i.). We have also reliable information that the nest has been once at least procured in the north of the county. In East Ross it nests annually. In Inverness the Crossbill breeds in the forest of Rothiemurchus and on the banks of the river Spey. It was here that Mr. Hancock saw a nest ‘at so great a height that it could not be procured.’” There is evidence also of its nesting in Nairn and Moray; and Mr. A. G. More includes it also as breeding in Banff. In Aberdeen it breeds on the banks of the Dee, as also in other parts of the county. Southwards it is found in Perthshire and Forfarshire; and in Stirlingshire it has bred in the east of the

county. Mr. R. Gray informs us that the young have been observed near the south end of Loch Lomond. He also makes mention of it as breeding plentifully in Lanarkshire, Dumfriesshire, and of late years in Ayrshire; and mention is made in the 'Birds of Ayrshire and Wigtonshire' that a record dated as far back as 1792 states that it was then known to breed in Kirkcudbright. Besides the above-named counties, we have evidence of its having bred in Linlithgow from Macgillivray; and Mr. A. G. More mentions it as nesting in Selkirk.

It has been obtained as far north as Bear Island, Spitsbergen, by Dr. Malmgren, and throughout Scandinavia is a common bird, Mr. R. Collett recording it as "breeding tolerably abundantly in the conifer-woods of Norway, about as high as the polar circle—less numerously, though by no means rare, in Bergen. In June 1859 Sommerfeldt observed two individuals in East Finmark. In certain localities it appears periodically in vast numbers, and breeds abundantly as at Christiania in 1863, but disappears again, and the next year shows itself in equal numbers at another place. In 1866 it was found as high as Ærkedal (*Lundgren*). It seldom goes above the range of conifer growth, and is found on the fells as high as the spruce trees grow. In July 1870 it was seen in the most elevated spruce-wood at Æilo, in Valdres." He further states that near Christiania they are common, but their numbers depend on the abundance of the fir seeds, on which this bird chiefly feeds. Many breed in that locality; but, owing to the nest being placed far in the woods, and their time for breeding differing from that of other birds, it is but seldom found. During the whole summer these birds range through the forests in flocks, and in the autumn and winter approach inhabited places.

Nilsson records it as common throughout Sweden; and Wheelwright found it numerous both in Wermland and in Lapland. Dresser when travelling through Sweden in the depth of the winter observed it almost daily along the road-sides frequenting the firs and larches, and found it equally common in Finland. Meves met with it here and there in the Archangel Government, at Kargopol, Cholmogory, and other places. Sabanäeff speaks of it as observed in the Governments of Jaroslaf and Moscow, and states that its range in Russia is the same as that of the common Bullfinch. He met with it in the conifer-woods on the Kaslinsky and Kesh-temsky Ural, and, during migration, on the western slope and in the districts to the north of Ekaterinburg. It is seen annually in all suitable localities in the countries bordering the Baltic, but is everywhere a wanderer, appearing at uncertain intervals. It has been met with breeding in the mountains in Northern Germany; and Borggreve mentions the Harz, the mountains of Thuringia, and Silesia amongst other localities; but almost every part of Germany where there is conifer growth is at times visited by this bird. Mr. Carl Sachse shot several in July, near Coblenz, and informs us that he often sees them in the autumn in the mountain-ash trees on the banks of the Rhine. Mr. Benzon writes that "it occurs in Denmark in flocks during severe winters, but at irregular periods. Now and then flocks are seen in the summer months; but it has not been known to breed there. Mr. Benzon possesses examples from the Færoes, where it occasionally occurs; and where, according to Mr. H. C. Muller, several were seen in September 1861." In Belgium, according to Baron De Selys-Longchamps, it "occurs annually; but irregularly, and not at any fixed season. I have seen flocks of about fourteen individuals in the middle of the summer, which remained till the winter in the gardens where conifers grew; and at other times they only pass through, sometimes appearing in large numbers during the first

frosts, and repassing in March; and I may further state that the only months when I have not observed them are May and June." To Holland it also comes at irregular periods, sometimes appearing in the winter, and at others in the summer season; and in France it appears in the same manner, usually in large flocks, in the northern and central departments; but, according to Degland and Gerbe, it breeds in the High Pyrenees and in the French Alps, and is sedentary in those localities. Lord Lilford, Mr. Howard Saunders, and Major Irby all record this species from Spain; the last-named gentleman never personally observed it, but states that it has been once procured near Seville; and Lord Lilford writes as follows:—"I was shown a Crossbill (*Loxia curvirostra*) alive in a cage in the village—the story about this species here being that Carlos III. kept a great many of these birds in an aviary at Rio Frio, a shooting-lodge at a few miles' distance, of which several pairs escaped, and established themselves in the *pinar*, where they are now common." Mr. Saunders further writes that "on the mainland the Crossbill seems principally confined to the forests of Segura, but in Majorca it is tolerably abundant. I have carefully compared specimens from that island with a large series from all parts of Europe, and cannot find any difference either in shape of bill or length of wing to justify Von Homeyer in considering the Balearic bird a permanent variety; on the contrary, the bill is not larger than that of average specimens, nor is the grey colour, upon which he lays stress, a constant characteristic." We have examined Mr. Saunders's birds, and fully agree with his views as to the species found on the Balearic Isles being the true *L. curvirostra*. In Portugal the common Crossbill was found numerous by the Rev. A. C. Smith; and passing eastward again through Spain and Southern France (in which latter country we may mention that, though generally only an occasional visitant, it appeared in large flocks in 1837, 1838, and 1855) into Switzerland we find that, according to Bailly, it is in that country and Savoy common in some localities during the breeding-season. Sometimes during the migrations, particularly from the middle of the summer to the autumn, it is extraordinarily numerous. Many passed in 1836 and 1837; the oldest bird-catchers assured him that never were such remarkable migrations as in July, August, and September 1822, 1825, and 1826. On consulting the works of contemporary ornithologists it appears that these migrations extended from the centre to the south of Europe. They are owing to accidental causes; and it is certain that a scarcity of seeds and berries on which this bird feeds causes it to leave its favourite localities, and search for food in other localities. It nests in preference in the conifer-forests in our mountains, rarely in those that grow on the hillocks. It breeds at Nivolet, Margériaz, Montmayeur, and Saint Hugon, Chamounix, and Tarantaise, particularly at Allues, Fesson-sur-Salins, Hautecourt, and Notre Dame-du-Pré—also in the Haute Savoie, Maurienne, and on the southern slope of the Mont Cenis, especially in the vicinity of La Ferrière, Bard, and Mollaret. Salvadori says that this species visits Italy, Sicily, and Sardinia in the same irregular manner as it does most southern countries, although there is even some suspicion of its having bred in Modena; naturally its visits become rarer in the south. Mr. A. B. Brooke saw a pair in the Museum at Cagliari, said to have been killed in Sardinia; and Malherbe states that it has occurred several times near Palermo; and after a heavy storm in July 1838 large numbers appeared on the shore of Messina, and allowed themselves to be taken without trying to escape. To Malta, Mr. Wright says it is "only an accidental visitor. It has generally been seen in September or October. I have a male which

was shot with another (supposed to be a female) in October 1861, and another obtained in October of this year (1863)."

Lord Lilford observed one in a cage at Corfu, and was assured that it came from the pine-forests of the Black Mountains, in Cephalonia; and Dr. Krüper informs us that during the winter months it is common on all the mountains of Greece; he also found a nest on Mount Parnassus. Neither Lindermayer nor Count von der Mühle observed it in the Peloponnesus or the southern provinces of Roumelia; but, on the other hand, Erhard records it as a winter visitant to the Cyclades. It appears in Southern Germany and Austria in flocks in the autumn and winter, and, according to Seidensacher, is annually seen in Styria. Count Casimir Wodzicki found it on the Carpathians as high up as the forest extended; and it is probably to be found throughout the Balkan range. During migration it is tolerably numerous near Constantinople; while Mr. Robson informs us it frequents the cypress trees in the Turkish graveyards. A few are also occasionally seen in the summer season. Mr. Robson writes that in the autumn the Turkish bird-catchers take them by flying small Hawks at them as they are feeding in the cypress trees. In the gardens of Odessa so soon as the fir-cones are ripe the Crossbills appear, but are not found anywhere else on the steppe. In the Caucasus it has not been recorded by Ménétries; but it is found in Asia Minor, as we have specimens obtained there, and Dr. Krüper procured it near Smyrna in July. It has not been noticed in N.-E. Africa, probably owing to the absence of conifers; but in Algeria the Crossbill not only occurs, but is sedentary. Loche states that it seldom visits that country, though it has occurred on several occasions in large numbers; but Mr. Salvin met with two old birds on the 26th of March on a ridge near Kef, which were feeding their young. We have also examined a very young bird procured in Algeria, and now in Canon Tristram's collection. Favier includes it in his MS. list of the birds of Tangiers, one having been picked up in a dying state near Cape Spartel in 1855.

As regards its eastern range, it is found throughout the whole of Asia as far south as the Palæarctic range extends. Middendorff observed it along the Jenesei to above 62° N. lat. Dr. Gustaf Radde writes that, "as a true inhabitant of the conifer-woods, I found this species in the Bureja mountains, but did not observe it when we left this growth, and in the mixed woods of the mountains or the banks it is, I suppose, only a rare visitor. Early in October we found it in flocks near Irkutsk. On the 20th of July, 1859, I found wandering flocks in the dense fir-woods on the upper Irkut. Except that the beaks of my specimens are somewhat longer, they do not differ from the European birds with which I have compared them." Messrs. Dybowski and Parvex have sent numerous specimens from Dauria; and Dr. von Schrenck states that it is "common in the Amoor wherever conifer-growth is found. Near the Nikolajevsk Post I obtained it nearly every month during my stay from August to April; and on my winter journeys I observed it southwards to Garin. In the autumn of 1854 they appeared singly or in small flocks in the pine-woods near Nikolajevsk. Early in March 1855, I saw them near the village of Ssamahagdu, near the mouth of the Chelasso, in large mixed flocks of females and males, which for two days consecutively visited the larch trees in front of the houses, and even perched on the roofs." Dr. von Schrenck thinks that they breed in Siberia late in February, old style.

Professor Siebold records it as tolerably common in Japan; and we have examined a specimen from there collected by Mr. Whitely. Mr. Swinhoe observed it on the island of

Formosa, and also in Northern China, between Takoo and Peking, where it was kept as a cage-bird. In the Himalayas this bird is replaced by a closely allied species (*L. himalayana*); but the true *L. curvirostra* occurs, according to Hutton, in Afghanistan.

The Crossbill is a true gipsy amongst birds, roving about and settling for a season just where there is the best supply of suitable food, and disappearing again as suddenly as it arrived. In their habits they are very parrot-like, especially to the non-scientific observer; they are very tame and unsuspecting, and when busy, employed in extracting the seeds from the fir-cones, can be easily approached; and often several of a flock can be shot down before the rest fly off. It breeds in the very first days of spring, pairing as early as January; and eggs are to be found early in March, or even before that. We are indebted to Mr. J. A. Harvie Brown for the following notes respecting the breeding of the Crossbill in Scotland:—

“The Crossbill is found breeding in East Ross-shire, perhaps more plentifully than in any other locality in Scotland, but in some seasons more abundantly than in others. Hard winters, according to our correspondent, who has procured us the nests and eggs from there, do not seem to affect the birds much, though in 1871 he considered that they laid somewhat earlier than usual. He obtained nests and eggs, considerably incubated, on the 14th, 15th, 21st, 23rd, and 24th of March. The following is a description of a nest in our possession, received in 1870, which, in the main, will answer for all other nests received from that locality. It is copied, nearly verbatim, from our ‘Egg-Book.’

“Nest 100 *d* is a very perfect specimen. The outside, or framework, is composed of twigs of Scotch fir, which seem to have been used when fresh, as they still retain a good deal of their original elasticity. These twigs are loosely put together, forming the groundwork whereon the nest proper is built. The latter is composed of a quantity of fine moss and lichens, bound with long flat-leaved grass, which last encircles the whole of the fabric. A great quantity of a small black or dark olive-green lichen is conspicuous amongst the materials, also fronds of a coarser kind of moss; and inside is a considerable quantity of fine wool. The measurements of this nest are:—outside (including the loose framework) 8 inches from side to side, inside 3 inches, and inside depth $1\frac{1}{2}$ inch. Other nests, though invariably smaller, have a greater depth; but this may be perhaps partially accounted for by the fact that the bird of this nest had been incubating for some days previous to the date on which it was taken, and its weight had pressed down the edges of the nest. The average size of Crossbill’s nests, as far as we can judge from specimens in our possession, is quite two inches less than the one we have just described. The eggs of this nest also are quite $\frac{1}{8}$ inch larger each way than the average size of sixteen other eggs measured by us. The average of these sixteen is $\frac{7}{8}$ inch by $\frac{5}{8}$ inch, whilst that of this particular nest is 1 inch by $\frac{6}{8}$ inch.

“The nests, our correspondent informs us, are generally placed in the cups formed by the forking of the branches at or near the tops of Scotch firs, but sometimes are built out upon the horizontal branches, 8 or 10 feet from the trunk. These last, I have observed, are usually more perfect, and have a larger platform of twigs than those which are naturally supported by the forking branches.

“When fresh and unblown, the eggs of the Common Crossbill often exhibit a lovely salmon-pink tinge; and some, even after being emptied of their contents, retain this colour;

in most, however, it fades away to a delicate pale green. Considerable variety is apparent as regards the size and distribution of the markings, which are sometimes large and comet-shaped, like those often observed in eggs of the Chaffinch, and in those of some of the Buntings. The markings are generally lilac and dark brown, but in one lovely laying in our possession they are rich reddish-brown.

“Our correspondent writes to us that he usually found the nests in the early morning—that the female, whilst incubation is proceeding, is always on the nest, and is fed constantly by the male—that after once commencing to build, the birds get on rapidly—and that young birds are found sometimes as early as the 10th of March.”

In Dresser's collection are eggs of this bird from Switzerland and Scotland, the latter a sitting of four lovely eggs, with a nest which we should have been glad to figure, had we room on our Plate. These latter eggs were procured from Mr. Harvie Brown, who kindly sent full particulars as to the exact locality where they were taken; but for obvious reasons we refrain from publishing this information. These eggs much resemble those of the Common Greenfinch, being pale bluish-white, spotted with small red and purple spots and dashes, chiefly at the larger end. In size the Scotch eggs measure $\frac{2.6}{4.0}$ by $\frac{3.4}{4.0}$, and those from Switzerland from $\frac{2.5}{4.0}$ by $\frac{3.3}{4.0}$ to $\frac{2.4}{4.0}$ by $\frac{3.2}{4.0}$ inch respectively.

The call-note of the Crossbill is a low, not unmelodious whistle, which, during the breeding-season, is said to be modulated into a sort of song, which Wheelwright states is musical and pretty. Their food consists usually of the seeds of *Abies excelsa*, *Pinus sylvestris*, and of the larch (*Larix*); but it also occasionally feeds on insects. Mr. Meves writes that he met with large flocks at Stehag, in Southern Sweden, which were busy feeding on the pupæ and larvæ of *Tortrix viridana*, and again at Horn Borgholm and Ottenby, also engaged in destroying these noxious insects. Ten to a dozen birds he shot had their stomachs filled with the larvæ and pupæ of this insect.

The mandibles of the Crossbill are not always crossed in a similar manner; for out of the same flock specimens have been obtained with the mandibles crossed on the one side, and others crossed in the contrary direction. The beak also differs greatly in size; and we have seen some birds from Scotland which have almost as stout a beak as some specimens of *L. pityopsittaca*, and again others in which the beak is nearly as slender as that of *L. americana*.

The specimens figured and described are in Dresser's collection—the adult male and immature birds being from Sweden, and the female from Denmark.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, c, ♂. Wermland. *d, ♀*. Borgholm. *e, f, g, h, i, ♂ juv.* Stockholm. *j, k, ♂, ♀*. Margaard, Denmark, October 23rd, 1871 (*Benzon*). *l, m, n, o*. Wareme, Belgium (*Baron De Selys-Longchamps*). *p, q, r*. Macedonia (*Krüper*). *s, ♂*. Bergamasca (*Count Salvadori*). *t, ♂*. Darasun, Dauria, October 25th, 1869 (*Dybowski*). *u, juv.* Sweden.

E Mus. Lord Walden.

a, b, c. Sweden (*Wheelwright*). *d, e*. Highgate (*Davy*). *f*. Asia Minor (*Robson*). *g*. Hakodadi (*Whitely*).

E Mus. R. Swinhoe.

a, b, c, d, e. Pekin (*R. S.*). *f, g.* Amoor (*Von Schrenk*). *h, i.* Plumstead (*Whitely*).

E Mus. H. B. Tristram.

a, b. Wolsingham. *c.* Aberdeen. *d, e.* Boghar, Algeria (*H. B. T.*). *f, g.* Forest of Waregra, Tunis (*H. B. T.*).
h. Asia Minor (*Robson*). *i.* Pekin (*Swinhoe*).

E Mus. Howard Saunders.

a, b. Macedonia (*Krüper*). *c, d.* Usern. *e, f.* Mallorca (*H. S.*).

E Mus. W. Schlüter.

a-k. Mähren. *l.* Halle (*W. S.*). *m.* Macedonia (*Krüper*).

E Mus. E. Hargitt.

a, b, c, d, ♂, e, f, g. Drumnadrochit, Scotland (*E. H.*). *h.* Lochend. *i, j.* Highgate (*Davy*).

E Mus. Feilden and Harvie Brown.

a, b, ♂, c, d, e, ♀. East Ross-shire (*A. Macdonald*).

E Mus. Salvin and Godman.

a, b. Norwich. *c, d, e, f.* Norway (*P. Godman*).

E Mus. H. J. Elwes.

a, b. Sweden (*Wheelwright*). *c.* Colesborne (*H. J. E.*).

E Mus. A. B. Brooke.

a, ♂, b, ♀. Riviera (*A. B. B.*).

E Mus. J. H. Gurney, jun.

a, b. Faversham, Kent. *c, d.* St. Johns. *e.* Wolsingham, Norfolk (*Backhouse*). *f.* Great Coates, Yorkshire (*Cordeaux*). *g.* Northrepps, Norfolk (*J. H. G.*).

E Mus. Lord Lilford.

a, b. Sweden (*Wheelwright*).



2

J. Keulemans del.

Hanhart imp.

1. TWO-BARRED CROSSBILL.
LOXIA BIFASCIATA.
2. WHITE-WINGED CROSSBILL.
LOXIA LEUCOPTERA.

LOXIA LEUCOPTERA.

(WHITE-WINGED CROSSBILL.)

White-winged Crossbill, Lath. Syn. ii. pt. i. p. 108 (1783).*Loxia leucoptera*, Gmel. Syst. Nat. i. p. 845 (1788, ex Lath.).*Loxia falcistrostra*, Lath. Ind. Orn. i. p. 371 (1790).*Curvirostra leucoptera* (Gm.), Wils. Am. Orn. iv. p. 48, pl. 31. fig. 3 (1811).*Crucirostra leucoptera* (Gm.), C. L. Brehm, Isis, 1837, p. 720.*Figuræ notabiles.*

Wils. Am. Orn. pl. 31. fig. 3; Audubon, B. Am. pl. 201; Bp. & Schl. Mon. Lox. pl. 9;
 Gould, B. of G. Brit. iii. pl. 48.

♂ *ad.* *Loxia bifasciatæ* similis sed magis punicè rufus, dorsi plumis et tectricibus alarum superioribus nigris vix rufescenti marginatis: alis et caudâ sicut in *Loxia bifasciatâ* picturatis sed hâc indistinctè marginatâ, rostro graciliore.

♀ *ad.* *Loxia bifasciatæ* similis sed rostro graciliore.

Adult Male (Wisconsin). Resembles the male of *Loxia bifasciata*; but the red coloration is more of a pomegranite-red, the dorsal feathers and the lesser wing-coverts are black with but slight reddish edgings, tail a trifle less forked; wings and tail coloured as in *Loxia bifasciata*, but the latter has scarcely any light margins; bill much slighter. Total length about 6 inches, culmen 0·8, height of bill at base 0·3, wing 3·4, tail 2·55, tarsus 0·6, hind toe with claw 0·58.

Adult Female. Resembles the female of *L. bifasciata* in coloration.

Obs. As the changes of plumage are similar in the present species to what they are in *L. bifasciata*, I have not deemed it necessary to describe them. The female and young of the two species are only to be recognized by difference in measurements.

THIS form of White-winged Crossbill, which has been so frequently confused with *Loxia bifasciata*, inhabits North America, and is only known as a rare straggler to Great Britain, never having, so far as I can ascertain, been known to occur elsewhere in Europe, except perhaps in Heligoland.

The earliest recorded instance of its capture in Great Britain is that recorded by Strickland of a female which was killed near Worcester in 1838, and is still in the Strickland collection in Cambridge. The second occurrence was that of a male in red plumage exhibited at a meeting of the Zoological Society on the 23rd September, 1845, by Mr. E. B. Fitton, who said he had found it dead and partly covered with wet sand in a crevice of some loose rocks on the shore at Exmouth on the 17th September, the wind being at the time south-west, and westerly gales having prevailed for some days. Professor Newton mentions that he examined this bird in the flesh. A third was bought alive in October 1872 by Mr. J. H. Gurney of a man at Great

Yarmouth, who said that it had been caught on the rigging of a vessel which arrived at that port in October 1870. This bird, a female, was kept alive by Mr. H. Stevenson until December 1874, and was more than once seen by Professor Newton. Mr. Robert Gray writes (B. of W. of Scotl. pp. 155, 156) that "in February 1841 a specimen of this straggling visitant to Britain was shot near Jedburgh, and came under the notice of Mr. Jerdon, whose name appears in connexion with the preceding species; and Mr. Thomas Edward, of Banff, has recorded that a large flock appeared near that town in 1859. The birds, in this case, seemed to be in a state of great exhaustion, many of them being even unable to cling to the trees on which they perched. About twelve or fifteen years ago my friend Dr. Dewar, when sailing from America to this country, observed great numbers of this species crossing the Atlantic before a stiff westerly breeze. Many of the flocks alighted on the rigging and deck of the steamer, which, at the time, was about six hundred miles east of the Newfoundland coast. He secured ten or twelve specimens of the bird, and put them in confinement: one or two escaped as the ship approached the Irish coast, and made direct for land; two others flew out of their cage when being conveyed in a cab through the streets of Liverpool; and five birds were sent to myself." I do not find any other instance of its occurrence in Great Britain, except that Dr. Saxby says (B. of Shetl. Isl. p. 115) that he shot two at Halligarth on the 4th of September 1859, and adds that he is sure that they are the American species. Professor Newton says that an adult specimen was procured about 1831 from the east coast of Greenland by an Esquimaux, and that subsequently another adult and three young were obtained in South Greenland. According to Mr. Reeks this Crossbill is common throughout the year in Newfoundland, being most abundant in winter, when it collects in flocks of from five to twenty individuals, and feeds chiefly on the seeds of *Abies alba*; and it is found right across the American continent from Labrador to Alaska. Dr. Elliott Coues gives its range (B. of N.W. p. 110) as "Northern North America, from ocean to ocean; south in winter into the United States, as far west as the Rocky Mountains (no United-States Pacific-coast record); resident in Northern New England, breeding in winter, and, according to Audubon, breeding in Pennsylvania and New Jersey; Wyoming in summer; south ordinarily to Philadelphia." When off the coast of Labrador many years ago in June several specimens flew on board the steamer, two of which I caught and preserved; and it is stated by Mr. Weiz to breed there at Okkak. Richardson met with it in 62° N. lat., and believes that it ranges as far north as the dense spruce-forests extend. Mr. Murray records it from Hudson's Bay; and Mr. Ross states that it winters in the pine-woods of the Mackenzie, but is scarce on the Upper Saskatchewan. I found it extremely numerous in New Brunswick during the two years I lived there; and it certainly breeds in that province. I tried hard to find its nest, but without success, but have seen fragments of its eggs. During the time it was breeding large numbers visited one of our lumber-camps; but the men failed to find its nest. At last the camp-cook hit on an expedient to obtain eggs. He caught several females and kept them alive; and in the course of a few days they deposited three eggs in the cage. These he sent to me unblown and badly packed; and consequently they arrived so broken that I could not preserve one, and threw all away. Mr. Boardman says that it is as common in Maine as in New Brunswick; and Messrs. Baird, Brewer, and Ridgway say that "its appearance in Eastern Massachusetts is much more irregular both as to numbers and time than that of *L. americana*. In the fall and

winter of 1868 and 1869 they were uncommonly abundant, appearing early in the fall, and remaining until quite late in the spring. In Pennsylvania it is much more rare than *L. americana*, and Wilson only met with a few specimens. Since his day it has been found more abundantly, occasionally in the neighbourhood of Philadelphia."

Mr. Ridgway says that he saw this Crossbill more frequently than any other species among the East Humboldt Mountains, and in June 1860 met with it on the Wind-River Mountains. It is found also in North-west America. Mr. Dall says that it was not uncommon in winter near Nulato, and several were obtained on the 8th of February and 8th and 9th of April 1867; but on the west side of the Rocky Mountains it has not been known to occur south of British Columbia.

When in the lumber-woods of New Brunswick I used to see this Crossbill almost daily throughout the winter until May, when we left the forests and returned to the settlements. In general habits it does not differ from its allies, but appears to be much tamer than *Loxia curvirostra* and *Loxia americana*. Almost all the larger camps used to be frequented by flocks of the present species, which was called by the lumbermen the "camp bird;" and where not molested they were very tame. They were certainly breeding there; for, as above stated, its eggs were procured; but I never heard the males utter any song like that said to be uttered during the pairing-season by its European congeners, and the only note I ever heard them use was a low one not unlike that of *Loxia americana*. But it seems that the present species does sing; for Dr. Brewer, writing respecting its habits in confinement, says (N. Am. Birds, i. p. 490):—"In the spring of 1869 Mr. Jillson, of Hudson, Mass., sent me a pair of these birds, which he had captured the preceding autumn. They were very tame, and were exceedingly interesting little pets. Their movements in the cage were like those of caged Parrots in every respect, except that they were far more easy and rapid. They clung to the sides and upper wires of the cage with their feet, hung down from them, and seemed to enjoy the practice of walking with their heads downward. They were in full song; and both the male and the female were quite good singers. Their songs were irregular and varied, but sweet and musical. They ate almost every kind of food, but were especially eager for slices of raw apples. An occasional larch-cone was also a great treat to them. Although while they lived they were continually bickering over their food, yet when the female was accidentally choked by a bit of egg-shell her mate was inconsolable, ceased to sing, refused his food, and died of grief in a very few days."

According to Messrs. Baird, Brewer, and Ridgway, Dr. A. Adams obtained a nest and egg in 1868 at Fredericton, in New Brunswick, the latter of which they describe as being "pale blue, the large end rather thickly spotted with fine dots of black and ashy lilac," which description agrees with the fragments of eggs I obtained; and the nest they describe as being "deeply saucer-shaped, and composed of a rather thin wall of fibrous pale-green lichens, encased on the outside with spruce-twigs, and thinly lined with coarse hairs and fine shreds of inner bark. Its external diameter is a little less than four inches, the rim being almost perfectly circular; the cavity is an inch and a half deep by two and a half broad."

The specimen figured, on the same Plate with the male of *Loxia bifasciata*, is an adult male from North America, and is the bird above described. Both these males are selected as being

the most different in coloration of any I have seen. As the female and young agree closely in plumage with *Loxia bifasciata*, and differ merely in measurements, I have not deemed it necessary to figure them.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

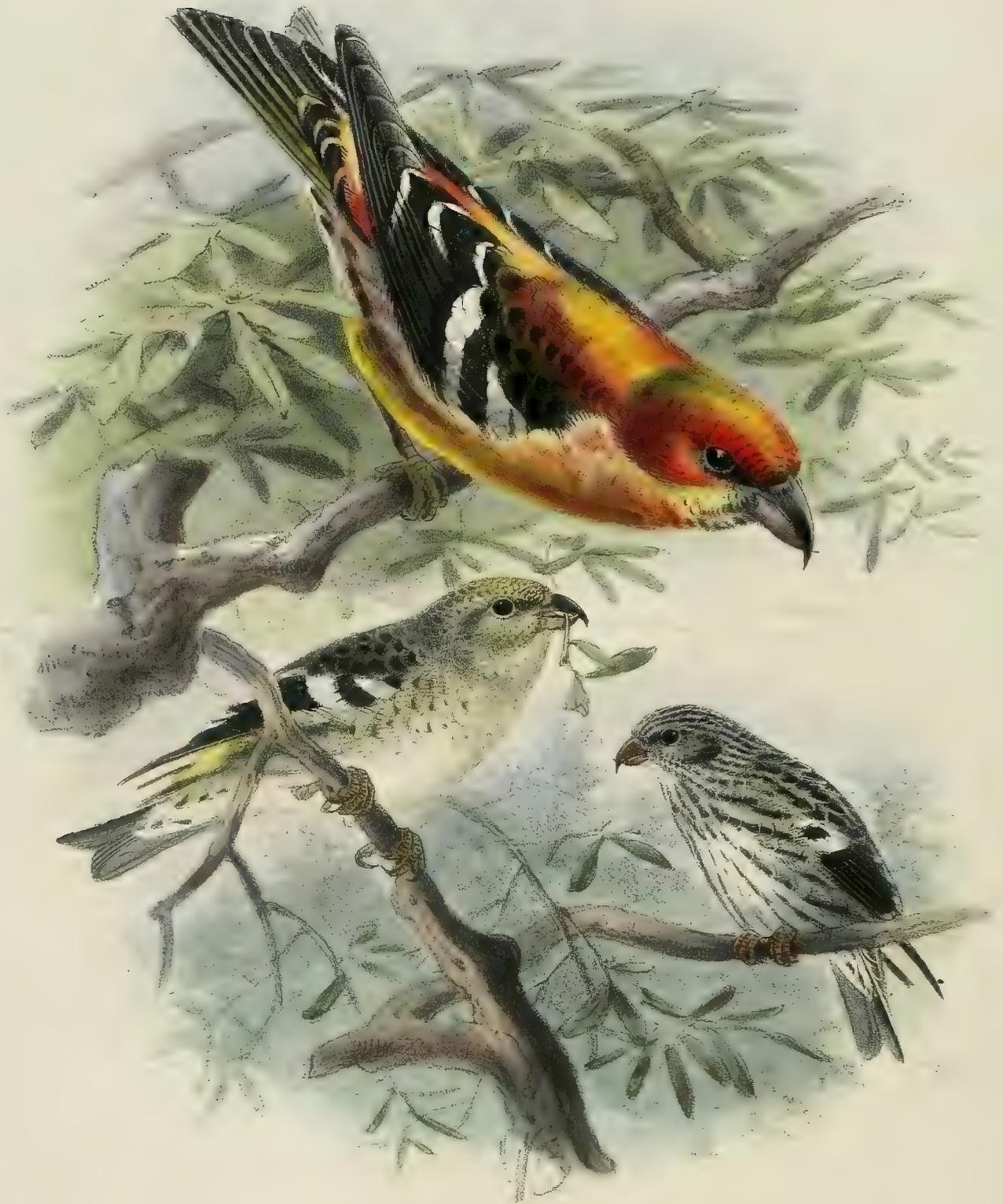
a, ♂ *ad.* Off the coast of Labrador, June 1859 (*H. E. D.*). *b*, ♂ *ad.* Musquash, New Brunswick (*H. E. D.*).
c, ♀. Musquash, March 9th, 1865. *d*, ♂. Musquash, March 31st, 1865 (*A. Dunn*). *e*, ♂, *f*, ♀. Massachusetts, U. S. (*Dr. Brewer*). *g*, ♂. Wisconsin, November 12th, 1868 (*Dr. Brewer*).

E Mus. Salvin and Godman.

a, ♂, *b*, ♀. Musquash, New Brunswick, March 1865 (*A. Dunn*). *c*, ♀. Near Philadelphia, U. S. (*J. Krider*).

E Mus. H. B. Tristram.

a, ♀. Niagara, 1849 (*H. B. T.*). *b*, ♂. Maine, U. S. (*H. E. D.*). *c*, ♂. New Brunswick. *d*, *e*, ♂. North America. *f*, ♂. Bermuda, 1849 (*Wedderburn*).



J.C. Keulemans lith.

Hanhart imp

TWO-BARRED CROSSBILL.
LOXIA BIFASCIATA.

LOXIA BIFASCIATA.

(TWO-BARRED CROSSBILL.)

- Curvirostra bifasciata*, C. L. Brehm, Ornis, iii. p. 85 (1827).
Loxia taenioptera, Gloger, Isis, 1827, p. 411.
Crucirostra bifasciata, C. L. Brehm, Isis, 1827, p. 714.
Crucirostra taenioptera (Glog.), C. L. Brehm, Isis, 1827, p. 717.
Loxia bifasciata (Br.), De Selys, Faun. Belge, p. 76 (1842).
Crucirostra rubrifasciata, L. Brehm, Naumannia, 1853, p. 194.
Crucirostra erythroptera, L. Brehm, tom. cit. p. 199.
Crucirostra trifasciata, L. Brehm, tom. cit. p. 241.
Crucirostra bifasciata, L. Brehm, tom. cit. p. 245.
Crucirostra orientalis, L. Brehm, tom. cit. p. 251.
Crucirostra assimilis, L. Brehm, tom. cit. p. 253.

Bec-croisé bifascié, French; *weissbindiger Kreuzschnabel*, German; *witbandige Kruisbek*, Dutch; *Hvidvinget Korsnæb*, Danish; *Hvidvinget Korsnæb*, Norwegian; *Bändel Korsnäbb*, Swedish; *Kirjasipi-kieronokka*, Finnish; *Klest-balokruilowi*, Russian.

Figuræ notabiles.

Kjærbo. Orn. Dan. taf. 28 B; Fritsch, Vög. Eur. taf. 19. fig. 11, taf. 22. fig. 7; Naumann, Vög. Deutschl. taf. 385. figs. 1, 3; Sundevall, Svensk. Fogl. pl. 1. fig. 5, pl. 2. fig. 1; Gould, B. of Eur. pl. 203; id. B. of G. Brit. iii. pl. 47; Schlegel, Vog. Nederl. pl. 178; Bonap. & Schl. Mon. Lox. pl. 8.

♂ *ad.* capite, collo, dorso et corpore subtus miniatis inconspicue fusco notatis: uropygio lætiore et clariore: supracaudalibus nigricantibus miniato-albo marginatis et vix sulfureo tinctis: alis nigricantibus, remigibus pallidiore marginatis, secundariis intimis albo apicatis: tectricibus alarum majoribus et medianis conspicue albo terminatis, tectricibus minoribus miniato tinctis: caudâ nigrâ, rectricibus vix miniato-albo marginatis: abdomine centraliter et subcaudalibus cinereo-albis miniato tinctis: rostro robusto, corneo, versus apicem nigro-corneo: pedibus fuscis: iride fuscâ.

♀ *ad.* mare dissimilis: capite, collo, dorso et tectricibus alarum minoribus cinerascentibus, plumis ad basin nigro-fuscis: pileo et dorso viridi-flavo tinctis: uropygio pallidè flavo: alis et caudâ sicut in mare picturatis, sed flavo nec miniato tinctis: corpore subtus pallidè cinereo, abdomine centraliter albo: pectore et hypochondriis pallidè viridi-flavo lavatis, his fusco-cinereo striatis: subcaudalibus nigricantibus cinereis, conspicue albo marginatis.

Juv. sordidè albus, nigro-fusco striatus: dorso, uropygio, pectore et hypochondriis flavido-cervino lavatis: alis et caudâ sicut in feminâ picturatis, sed magis conspicue marginatis.

Adult Male (near Archangel, 8th May). Head, neck, and back carmine-red with a vermilion tinge, the dark bases of the feathers showing through here and there; rump clear light carmine, upper tail-coverts black, broadly margined with reddish white and slightly tinged with sulphur-yellow; wings black, the quills with narrow light edgings, the inner secondaries broadly tipped with white; larger and median wing-coverts with broad white tips, forming two conspicuous alar bars; lesser wing-coverts tinged with red; tail black, the feathers narrowly edged with reddish white; underparts carmine-red, on the centre of the abdomen and under tail-coverts fading into greyish white with a reddish tinge; bill stout, light horn-colour, darker at the tip; legs brownish; iris dark brown. Total length about 6.25 inches, culmen 0.85, height of bill at the base 0.43, wing 3.8, tail 2.75, tarsus 0.62, hind toe with claw 0.6.

Adult Female (Siberia). Head, neck, back, and lesser wing-coverts blackish brown, the feathers margined with grey, and crown and back tinged with apple-yellow; rump light yellow; wings and tail as in the male, but the reddish tinge is replaced by yellow; chin, throat, and breast greyish white, the darker bases of the feathers showing through; flanks dark grey striped with brownish grey, these and the breast washed with apple-yellow; centre of the abdomen white; under tail-coverts blackish grey broadly margined with white.

Young (Archangel, June). General plumage, except the wings and tail, dull white broadly striped with blackish brown, the underparts much more narrowly striped than the upper parts; back, rump, breast, and flanks washed with buffy yellow; wings and tail as in the adult, but with broader margins.

FOR long the present species and *Loxia leucoptera* were considered to be specifically identical; and some doubt exists as to who first discovered and recorded the differences between them. So far as Professor Newton and myself can ascertain, after a careful examination of the literature of the subject, it appears that both C. L. Brehm and Gloger published a description of it almost simultaneously in 1827; but we have failed to ascertain which of these descriptions was first published. Under these circumstances I have deemed it advisable to choose Brehm's name, as being the one by which the bird is most generally known.

The Two-barred Crossbill inhabits North-eastern Europe and Northern Asia, whence it straggles into Central and Western Europe, and has been obtained also in Great Britain; but as both this and the American species have on several occasions been met with in our isles, without a careful examination having been made to ascertain to which species they belong, it is most difficult to determine whether the records refer to this species or to *Loxia leucoptera*. I am indebted to Professor Newton for the use of his notes on this species, he having most carefully examined all available data on the subject; and from these and information I have also gathered, it seems that out of the many recorded occurrences only the following can with safety be relied on as referring to *Loxia bifasciata*, viz.:—One is recorded by Mr. Rodd in 1843 (Zool. p. 142) as obtained a few years previously at Larrigan, in Cornwall, the specimen being still in his collection. Mr. Hancock states (B. of North. and Durh. p. 50) "a female was shot, out of a flock of about fifteen, near Brampton, Cumberland, November 1845: this specimen is in my possession. Two or three others were killed at the same time and place. This species ought not in strictness to be included in our list; but its place of capture is so close to the borders of Northumberland that

it would scarcely be right to exclude all notice of it. The flock, in all probability, may have just passed out of the county, and in a few minutes afterwards might have returned to it again." In May 1846 several were killed from a flock at Drinkstone, near Bury St. Edmunds, Suffolk; and one of these is now in the possession of Mr. J. H. Gurney. In 1845 a considerable number appeared in Cumberland; and nine or more were obtained in the same locality, either at the same time or in the following year. Of these, two were lent to Mr. Yarrell by Captain Johnson, of Walton House, while a third, obtained at the same time, was sent, together with one of the Suffolk specimens, by Heysham to Doubleday, from whose collection it has passed to Mr. Stevenson's. Professor Newton informs me that another of the Suffolk specimens is also in Mr. Gurney's possession; and about the same time, it is believed, Doubleday shot a young bird in his own garden at Epping. There does not appear to be any authentic instance of its occurrence in Scotland; but it was recorded as having been obtained in Ireland as early as January 11th, 1802, when, according to Templeton, in a letter to Dawson Turner (*Trans. Linn. Soc.* vii. p. 309), one was shot at Grenville, near Belfast. Mr. Blake-Knox also more recently records (*Zool. s. s.* p. 1376) a female or young bird obtained by him in Ireland.

I am indebted to Professor Newton for a list, compiled by him for publication in the edition of Yarrell's 'British Birds' on which he is now engaged, of instances in which "White-winged Crossbills" are said to have occurred without the distinction between the Nearctic and Palæarctic forms being observed or capable of later determination, which I give as follows:—
 1. Latham, in a contribution to the posthumous edition (1812) of Pennant's 'British Zoology' (i. p. 428), says that, before knowing of the Irish specimen mentioned in the text, he had been informed of the bird having been met with in Scotland, but the report was too uncertain for him to notice.
 2. Mr. Edward, writing in 1859 (*Zool.* p. 6631), declared that one stormy winter, about fifty years before, a large flock appeared at Banff.
 3. Hoy informed the author that, some time prior to 1839, Mr. Seaman, of Ipswich, had shot one, apparently near that town.
 4. Bary, in 1844, said (*Zool.* p. 643) he had been told of a pair of Crossbills with white bars on their wings having been obtained, about six years before, in the Isle of Wight.
 5. The late Archibald Jerdon, as accurate an observer as his more distinguished brother, stated that he examined one, apparently a hen, shot in February 1841, near Bonjedward, in Roxburghshire.
 6. In March 1845, Mr. J. Cooper had one alive, which was caught near Birmingham, as Strickland informed the author.
 7. Mr. R. J. Bell mentions (*Zool.* p. 1247) a hen shot, while accompanying Fieldfares, at Mickleover, near Derby, in November 1845.
 8. Salmon, in a contribution to Newman's 'Letters of Rusticus,' published in 1849 (p. 158), notices a cock bird shot in Unsted Wood, Surrey, and then belonging to Mr. Nicholson, of Waverley Abbey.
 9. Mr. Sterland says that four were shot at Edwinstowe, in Nottinghamshire, in the spring of 1849. And, 10. Mr. Prideaux, in 1852, recorded (*Zool.* p. 3474) one at Taunton, without giving any date for it. Several of these particulars having hitherto been erroneously given by various authors, the foregoing list, which so far as it goes, is believed to be accurate, may be found useful."

In Scandinavia the present species has occurred now and again, but merely as a straggler. Mr. Collett says that it is of very rare occurrence in Norway, and has only been observed near Christiania by Mr. Siebke. One, now in the University Museum, was shot in August 1840, and

three were seen in October 1852, and three in the autumn of 1858, in the Botanical Garden at Töjen. One is said to have been taken at Stockholm as early as 1792; and, according to Sundevall, several were obtained in 1845 in various parts of Sweden, and in the autumn of 1856, again, others were procured near Stockholm. In Finland it occurs now and again in flocks at irregular intervals. According to Von Wright (Finl. Fogl. i. p. 253) the first were observed in the Botanical Garden at Helsingfors, in November 1849, and two were caught alive by the late Mr. Arthur Nordmann, a third was soon after shot by Professor Bonsdorff, and Mr. J. von Wright shot a female in the autumn of 1857 at Haminanlaks. In the late summer of 1856 I was at Wyburg, where I had been sent, after leaving school, to learn business; and one evening, on my return to Hertuala, the country seat of my principal, where I was living, Mr. Wilhelm Hackman, then a school-boy, told me that he had observed in a fir-wood not far from the house a large flock of Crossbills. I could then skin birds; and being anxious to obtain a few specimens, we got up early next morning and visited the wood, where we found a flock of fifty or sixty individuals. I shot one or two, and finding that they were White-winged Crossbills I asked Wilhelm to try and get a few more; and in the evening, on my return from the office, he produced about two dozen choice examples; but, as the weather was warm and I could only skin very slowly, I only prepared six, three males and three females. Of these I sent a pair to Von Wright; and they are now, I believe, in the Helsingfors Museum. A second pair I gave to Mr. Leadbeater on my return to England in 1857; and the third pair, which I kept, were accidentally destroyed during my absence in Italy some time afterwards. They were very tame, and, when fired at, only flew to the next tree, uttering a note like that of the common Crossbill. In Northern Russia this species is tolerably common, and especially numerous in the vicinity of Archangel. I first received one or two skins from there through a collector; and Mr. C. Craemers, a young gentleman from Archangel who has for some time been working for me here, on being asked about it, assured me that numbers are seen every year not very far from Archangel, and that he was quite sure he could find its nest. In the spring of 1875 he went home for a holiday, and before he left he promised, if possible, to procure the nest and eggs of this bird; but he arrived too late, as the young birds were already fully feathered and able to fly. It may, however, be taken for granted that this Crossbill is common there; for he found four or five nests in one day, and brought back sixteen skins of young birds, besides several adults. Since then he has, through a friend, procured for me a fine series of specimens and a nest containing two eggs. South of the Archangel Government this bird is not common. Mr. Sabanäeff informs me that it is found in the Governments of Jaroslaf and Moscow, and possibly breeds in the former, but it is rare. He did not meet with it in the Ural, but believes that it may occur there. Count Casimir Wodzicki says (J. f. O. 1853, p. 440) that it is on the whole a rare bird in Poland, but is seen some seasons in small flocks; in the Carpathians it is a still rarer visitant. According to Borggreve it is an accidental and irregular visitant to North Germany; and in 1826 and 1828 it appeared in many parts of the country, more especially in Silesia, the Harz, Thuringia, &c.; and, according to Von Kettner, it appeared on the mountains of the Murg valley, in Baden, in the winter of 1829. In Denmark, Mr. Collin says (Skand. Fugl. p. 384), there are but few instances of its occurrence. Hage says that it has been caught at Herlufsholm. Bölling had a

young bird in confinement for six months, which was caught at the lime-kilns outside Copenhagen early in October 1845; in August 1846 one was caught close to Copenhagen; and on the 29th December, 1849, a fine old male was caught in a garden at Elsinore, and was presented to the Copenhagen Museum by Mr. Steenberg. According to Mr. Cordeaux (*Ibis*, 1875, p. 183) it is a rather rare visitant to Heligoland, where it usually appears, like the common Crossbill, in August with stormy weather from the west or north-west. From the end of August to the 20th of September, in 1868, it was uncommonly numerous, sometimes twenty or thirty together, the weather being fine, the wind easterly and north-easterly.

In the autumn of 1829, when so large a number visited various parts of Central Europe, it being then especially numerous in Silesia and Thuringia, it appears also to have visited Antwerp; it has been recorded on several occasions from different parts of Belgium, and was seen there in flocks in September 1842 and November and December 1845. According to Baron De Selys Longchamps an old male was shot at Longchamps-sur-Geer in 1827, and two females in November 1845. In February 1846 it was seen near Utrecht, in Holland; and westward it has been recorded from the vicinity of Caen, in Normandy, where, according to Messrs. Degland and Gerbe, an adult male was obtained. It does not range so far south as the common Crossbill; but, according to Meisner and Schinz, there is or was a Swiss specimen in the Bern Museum; and it has been recorded from Tyrol and the Bergamasco, but is stated to be very rare in the upper portions of Venetia and Lombardy, and does not appear to have been observed in Greece. It is, however, recorded from Southern Germany; and Dr. A. Fritsch says (*J. f. O.* 1871, p. 310) that it has appeared on several occasions in North-western Bohemia. In 1841 several were caught near Eger, and in March 1845 several at Grasslitz. Palliardi received some alive from Wildstein in the latter year. According to Mr. E. F. von Homeyer (*J. f. O.* 1872, p. 308) it was very numerous on the frontier mountains between Saxony and Bohemia, in the winter of 1845-46; and Von Pelzeln says that there are three specimens in the Vienna Museum which are said to have been obtained in Austria. It has also been observed in Hungary. I may here refer to a somewhat curious account of a species of Crossbill, probably not the present species, but *Loxia curvirostra*, given by an Arabic author, Cazvini, in the early part of the 13th century. In describing the wonders of Great Bulgaria on the Danube, he says:—"There is in the country of the Bulgares a bird which is found nowhere else. The upper part of its beak, which is very long, turns to the right for six months in the year, and to the left the other six months; but when it eats, the two mandibles are applied evenly to one another. It is said that it has a calculus in its bladder which is useful in medicine, and that if it drops its egg on the ice or snow it melts it as if it were fire." I am indebted to Mr. H. H. Howorth, of Manchester, for this interesting, though somewhat peculiar, natural-history extract, he having noticed it whilst pursuing his ethnological studies.

However, to return to the range of the present species. I find it recorded from Northern Asia; but it does not straggle very far south. Von Middendorff found it very numerous on the Jenesei up to above 63° N. lat.; and late in October he observed it in Mantchuria, on the southern slope of the boundary mountains, and obtained a young bird at Udskoj-Ostrog in June. Von Schrenck obtained one north of the Nikolaieffsk post on the 15th (27th) February; and Dr. G.

Radde met with large flocks on the north-west shores of Lake Baikal on several occasions, and he names especially the 15th July (O. S.). Dr. Dybowski says that it is very rare in the Kultuk district, but commoner in Dauria. It frequents the mountains, in the larch-groves, and breeds there. In Irkutsk the bird-catchers catch it and keep it in cages. It is said to be easily tamed, and sings well. In the Nearctic Region this species is replaced by a nearly allied but specifically distinct bird, *Loxia leucoptera*.

In habits our European White-winged Crossbill much resembles the common Crossbill. I have only on one occasion, many years ago, seen it alive; and, so far as I can recollect, there was no perceptible difference in its habits from those of the other species. The birds I saw were silently and busily engaged in extracting the seeds from the cones of the spruce-trees, and were exceedingly tame. When disturbed or fired at several times, they would fly from tree to tree uttering a low note like that of the common Crossbill. One curious circumstance with the present species is that the male is said to sing excellently. Mr. C. Craemers assures me that he has kept several for long caged, and that they sang quite as well as a Canary. Von Nordmann also says (J. f. O. 1864, p. 363) that one he had in confinement sang excellently. Wishing to convince myself of this by personal observation I asked Mr. Craemers to purchase a tame one for me; and he procured two, both of which, he assures me, he frequently heard singing; but, unfortunately, a cat which was on board the steamer when they were on their way to England got at them and killed both.

As above stated, Mr. Craemers obtained, through a friend, a nest and two eggs of this Crossbill. The nest closely resembles that of *Loxia curvirostra*, but is smaller, and somewhat slighter in structure; and the eggs are rather darker in ground-colour than those of that species, and smaller in size, but otherwise closely resemble them. I may remark that Meves describes the eggs as being whiter than those of *Loxia curvirostra*, which description does not apply to those I have examined: and there can be no doubt as to their authenticity; for both the old birds were shot and sent with the nest and eggs, and are now in my collection.

The present species and *Loxia leucoptera* have, as above stated, been very generally confused; and even when the differences were pointed out by Brehm and Gloger, they were not generally recognized as distinct, until Professor Nilsson and Baron De Selys Longchamps undertook careful investigation into the matter, and finally set it at rest. The main distinctions may be given curtly as follows, viz.:—*Loxia bifasciata* has a much stouter bill than *Loxia leucoptera*, the scapulars and dorsal feathers are more broadly edged with brown or red, these edgings being almost absent in *Loxia leucoptera*; the tail is rather less forked, and the feathers are always conspicuously margined with reddish white; whereas in *L. leucoptera* they have scarcely any light edges, and in old males the red colour is more of a light vermilion tinge in *L. bifasciata*, and almost pomegranate-red in *L. leucoptera*; but this last character is not much to be relied on.

The specimens figured are—on the same Plate with *Loxia leucoptera*, an adult male for comparison with that species, and on a second Plate a male in rather peculiar plumage, the red being intermixed with yellow, an adult female and a young bird.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Juras, Archangel, March 4th, 1876 (*Piottuch*). *b*, ♂, *c*, ♂. Talagey, Archangel, March 18th, 1876 (*Piottuch*). *d*, ♂. Valdushkey, Archangel, April 19th, 1876 (*Piottuch*). *e*, ♀. Valdushkey, May 2nd, 1875 (*Piottuch*). *f*, ♂. Juras, Archangel, May 8th, 1873 (*Piottuch*). *g*, ♂, *h*, ♂. Korela, Archangel, May 26th, 1876 (*Piottuch*). *i*, ♀, *j*, ♀, *k*, ♀, *l*, ♀, *m*, juv., *n*, juv. Archangel, June 1875 (*Craemers*). *o*, *p*, *q*. Uima, December 1875 (*Malina*). *r*, ♂. Siberia (*Möschler*). *s*, ♂. Siberia (*Dode*). *t*, ♀. Siberia (*Dybowski*).

Genus *EMBERIZA*.

- Emberiza*, Linnæus, Syst. Nat. i. p. 308 (1766).
Tanagra apud Gùldenstädt, Nov. Com. Petrop. xix. p. 466 (1775).
Fringilla apud P. L. S. Müller, Natur. Syst. Suppl. p. 164 (1776).
Xanthornis apud Pallas, Zoogr. Rosso-As. i. p. 428 (1811).
Passerina apud Vieillot, Nouv. Dict. xxv. p. 6 (1817).
Cynchramus apud Boie, Isis, 1826, p. 974.
Miliaria apud C. L. Brehm, Isis, 1828, p. 1278.
Cia apud Kaup, Natürl. Syst. p. 138 (1829).
Citrinella apud Kaup, op. cit. p. 142 (1829).
Spina apud Kaup, op. cit. p. 153 (1829).
Orospina apud Kaup, ut suprà (1829).
Cirlus apud Kaup, ut suprà (1829).
Fringillaria apud Swainson, Classif. of B. ii. p. 290 (1837).
Euspiza apud Bonaparte, Comp. List, p. 32 (1838).
Schænicola apud Bonaparte, Rev. Crit. p. 164 (1850).
Glycispina apud Cabanis, Mus. Hein. i. p. 120 (1850-51).
Cryptophaga apud Cabanis, tom. cit. p. 127 (1850-51).
Hypocentor apud Cabanis, tom. cit. p. 123 (1850-51).
Polymitra apud Cabanis, tom. cit. p. 129 (1850-51).
Granitivora apud Bonaparte, Cat. Parzud. p. 5 (1856).
Hortulanus apud Bonaparte, op. cit. p. 4 (1856).
Buscarla apud Bonaparte, Rev. et Mag. Zool. 1857, p. 163.
Hylæspiza apud Blasius, List B. of Eur. p. 13 (1862).
Spodiopina apud Von Heuglin, Orn. N.O.-Afr. i. p. 660 (1871).

THIS genus, of which sixteen species occur within the limits of the Western Palæarctic Region, is represented throughout the Palæarctic Region, being also met with in the Ethiopian and Oriental Regions; and, including *Euspiza* in the genus *Emberiza*, one species is also met with in the Nearctic Region.

The Buntings frequent open places, cultivated fields, groves, gardens, and also, to some extent, desert places where there are bushes scattered about, marshy districts, &c.; they have a rapid, rather undulating flight, move on the ground with ease by a succession of short leaps, are tolerably good songsters, and feed on seeds, fruits, insects, &c. They build cup-shaped nests of straws, roots, twigs, &c., lined with fine roots, wool, hair, &c., which they place either on the ground or in a bush or tree, or else in a hole in a wall; and they deposit several reddish white, greyish white, or buffy grey eggs marked with dark blotches and spots, and usually also with tortuous or angular lines.

Emberiza miliaria, the type of the genus, has the bill short, stout, conical, tapering to a point, the upper mandible not wider than the lower, gape-line ascending obliquely for nearly half its length and then direct; the palate generally furnished with a projecting hard knob; nostrils oblong, placed in the fore part of the nasal depression; wings moderately long, the first three quills nearly equal, the second or third the longest; tail moderately long, emarginate; legs strong, the tarsus covered in front with four large and three inferior scutellæ; claws arched, compressed, acute, laterally grooved.



BLACK-HEADED BUNTING.
EMBERIZA MELANOCEPHALA

EMBERIZA MELANOCEPHALA.

(BLACK-HEADED BUNTING.)

- Emberiza melanocephala*, Scop. Ann. i. H. N. p. 143 (1768).
Tanagra melanicteria, Guld. N. Comm. Acad. Sci. Imp. Petrop. xix. p. 466 (1775).
Fringilla crocea, Vieill. Ois. Chant. pl. 27 (1805).
Xanthornus caucasicus, Pall. Zoogr. Rosso-Asiat. i. p. 428 (1811).
Passerina melanocephala, Vieill. N. Dict. d'Hist. Nat. xxv. p. 28 (1817).
Emberiza granativora, Mntr. Cat. Rais. p. 40 (1832).
Euspiza melanocephala, Bonap. Comp. List B. Eur. & N. Am. p. 32 (1838).
Euspiza simillima, Blyth, J. A. S. B. xviii. p. 811 (1849).
Euspiza atricapilla, Brehm, Naumannia, 1855, p. 277.
Granativora melanocephala, Bonap. Cat. Ois. d'Eur. Parzud. p. 5 (1856).

Bruant crocote, French; *Zigolo capinero*, Italian; *Ortolano*, Corfu (*Lilford*); *Kappenammer* German; *Strenatka czerno-golowaia*, Russian.

Figuræ notabiles.

Vieill. Ois. Chant. pl. xxvii.; Werner, Atlas, *Granivores*, pl. 20; Roux, Orn. Prov. pl. 104 *bis*, 105 *bis*; Naum. Vg. Deutschl. Taf. 101. fig. 2; Gould, B. of Eur. pl. 172; St.-Hilaire, Expl. Scient. More, pl. vi. fig. 1; Fritsch, Vg. Eur. tab. 17. fig. 6; Bree, B. of Eur. iii. p. 24; Gould, B. of Asia, pt. xxii.

♂ *stiv.* pileo summo et laterali nigerrimo: dorso lt castaneo, nuch et uropygio flavo lavatis: scapularibus dorso concoloribus vix viridi-flavo lavatis: tectricibus alarum brunneis, minimis plus minusve dorsi colore lavatis, interdum omnin castaneis dorso concoloribus, medianis conspicu albo terminatis, scapis rufescentibus, majoribus exts albido marginatis: al spuri et remigibus brunneis, angust albido limbatis, secundariis exts latis marginatis et rufescente lavatis: caud cinerascenti-brunne, rctricibus exterioribus subts vix versus apicem dilutioribus: corpore toto subts et colli lateribus ltissim flavis, pectore superiore lateraliter lt castaneo, et hypochondriis etiam hc colore lavatis: subalaribus albis, flavo lavatis: rostro nigricanti-plumbeo, mandibul paull flavicante: pedibus flavicanti-carneis, unguibus brunneis: iride saturat brunne.

♂ *hiem.* similis ptilosi *stiv* sed omnin obscurior: plumis ubique cinerascente marginatis: rostro magis brunnescente, mandibul flavicante.

♀ *ad.* mari dissimilis: brunnea, dorso vix castaneo lavato et uropygio paull flavicante tincto: pilei dorsique plumis indistinct medialiter saturatiore brunneo striatis: loris cum regione oculari, mento et genis anticis albidis: subts obscur flava, plumis plus minusve cinerascente lavatis, hypochondriis paull brunnescentioribus: al brunne, tectricibus remigibusque cinerascenti-albo marginatis.

♀ *jun.* similis pcedenti, sed magis brunnescens, supr nigricante distinct striata: al caudque pallid

cinnamomeo-brunneo marginatis : gulâ et abdomine medio albis : capitis lateribus, pectore et corpore laterali ochrascenti-brunneis, his saturatè brunneo lineatis : subcaudalibus flavidis.

Pull. cinnamomeo-brunneus, pileo angustissimè nigricante striolato, dorso magis distinctè maculato : subtùs magis ochrascenti-brunnescens, subcaudalibus pallidè flavis.

Adult Male in breeding-plumage. Top of the head and sides of the face black; entire back and scapulars rich chestnut, the latter slightly washed with greenish, the nape and rump slightly tinged with orange; wing-coverts dark brown, the least ones chestnut, like the back, median ones tipped with whitish, the greater coverts edged externally with whitish, those nearest the back slightly washed with rufous; primary coverts dark brown, with narrow whitish edgings; quills brown, the primaries externally margined with ashy white, the edges of the secondaries very broad, and distinctly rufous; tail-feathers ashy brown, with margins of paler brown, greenish near the base, the outer feathers appearing whitish when viewed from underneath; entire under surface, as well as the sides of the neck, rich canary-yellow, the sides of the breast and flanks bright chestnut; under wing-coverts white, washed with yellow; beak blackish grey, the edge of the under mandible yellowish flesh-colour; legs dark yellowish flesh-colour, the claws brown; iris dark brown. Total length 6·8 inches, culmen 0·65, wing 3·75, tail 3·15, tarsus 0·85.

Winter plumage. The winter dress of the present bird resembles that of its congeners in being more obscure than the summer livery; but in no Bunting with which we are acquainted do the colours become so thoroughly obliterated; and this is the more remarkable as the coloration of the species in summer is so very brilliant. The entire upper surface turns to a sort of dull chocolate-brown, the bases of the feathers on the head being black, and those of the back dark chestnut, with a slight tinge of yellowish, which is more strongly visible on the rump; there are also indications of dark brown median shaft-stripes to the dorsal feathers; the edgings to the wing-coverts and quills are buffy brown; on the sides of the face the black feathers show a little more plainly, while the entire under surface of the body is yellow, which, however, is much obscured by ashy margins to the feathers of the breast; bill dark horn-brown, the lower mandible paler and more yellowish; legs and feet fleshy; irides brown. The above particulars of the soft parts are taken from an example given to us by our friend Dr. Henderson, from the North-west Provinces of India.

This winter-plumage is long in disappearing, and for some time after their arrival in Europe traces of the ashy margins are visible on the upper surface. Few, if any, attain to the absolute perfection of the summer-dress; for if the entire head is black, the dorsal feathers retain some traces of the ash-coloured margins.

Adult Female in breeding-plumage. Above brown, with a slight tinge of chestnut, the crown of the head slightly washed with yellowish, which colour is much more apparent on the lower back and rump, all the feathers of the upper surface streaked down the centre with dark brown; wings brown, the least wing-coverts uniform with the back, all the other coverts and quills broadly margined with brownish white; tail-feathers ashy brown, greyer on the under surface, margined with whitish, inclining to greenish near the base of the feather; lores and feathers round the eye whitish; sides of the face pale ashy brown, the ear-coverts slightly streaked with whitish; chin and lower margin of the cheeks whitish; under surface of the body yellow, with obscure ash-coloured margins to the breast-feathers, and a strong shade of the latter colour on the flanks, where some of the feathers have indistinct brownish shaft-lines; under wing-coverts yellowish white. Total length 6·8 inches, culmen 0·6, wing 3·5, tail 2·9, tarsus 0·8.

Adult Female in winter-plumage. Similar to the summer dress, but much more obscure, having dull ash-coloured edgings to all the feathers.

Young Female. Similar to the old female, but much browner, and more resembling a hen Sparrow. The edges to the wings are much paler and more fulvous, and the central streaks to the feathers of the upper surface are much more distinct. The breast and flanks are brownish, the throat and abdomen white, and only the under tail-coverts yellowish. On one specimen now before us there is a slight tinge of yellow on the abdomen; and another has a few little brown streaks on the upper breast; the bill is yellowish, inclining to brown on the ridge of the upper mandible.

Nestling. Pale fulvous, inclining to fawn-colour on the top and sides of the head and edgings to the wing-feathers. The crown is striped and the back spotted with dark brown centres to the feathers; the rest of the plumage as in the foregoing description.

THIS beautiful species of Bunting is a native of South-eastern Europe, and visits the countries on the northern shores of the Mediterranean, though it has not yet been known to occur as far to the westward as Spain. Indeed it is only a rare visitor to the west of Greece, but sometimes extends into Southern Austria and even South-eastern France.

Gätke mentions its occurrence in Heligoland once; and more recently it has been included in the British list on the strength of a single female example killed at Brighton in November 1868; Mr. Gould sent the following note on its capture to 'The Ibis' for that year (p. 128):—"I have now to inform you of the occurrence of *E. melanocephala*, of which a very fine old female specimen, in perfect plumage, is now before me. It was brought to me by Mr. Robert Brazener, of 23 Lewes Road, Brighton, by whom it was shot near Mr. Ballard's windmill, on Brighton racecourse, while, as he stated, 'it was following a flock of Yellow Hammers.' His two sons were with him at the time. On an examination of the bird, a number of eggs were found in the ovarium." It is, to say the least, a curious fact that this bird, like the Yorkshire Lesser Kestrel and other rare species, should have seized upon the *winter* as a fit and proper time to visit the shores of England, instead of following their usual line of migration to India or Africa: the solitary individual of the present species appears also to have mistaken the proper season for breeding, and to have come to Britain for that express purpose. We are not surprised to hear that no male bird considered it his duty to follow the course of this erratic individual in her peregrinations, which thus compelled her to consort with Yellow Buntings.

Its occurrences in France are confined to the south-eastern portion. Baron von Müller notices an example in full breeding-plumage as having been procured in the Camargue, where, however, he says it is rare. MM. Jaubert and Barthélemy-Lapommeraye state:—"We have verified six or seven instances of its capture near Marseilles, all of which took place in April or May, excepting one young male procured in the autumn by M. Bossomer." According to Naumann it occurs near Trieste, and occasionally in Upper Italy and Southern Germany, several having been killed near Vienna. Dr. A. Fritsch records a specimen from the Vindler Thal, in Southern Austria, and says it has once occurred in Bohemia. Count Salvadori gives a very good account of the species in Italy. He says that it occurs nearly every year in Liguria; and we have ourselves seen a specimen from the neighbourhood of Genoa in Mr. Basil Brooke's collection. It is by no means so rare in Venetia, and has been said to breed in this province.

Professor Doderlein says that it is extremely rare in Sicily, and only one single example is recorded by Benoit, obtained in the neighbourhood of Messina in 1847. Count Salvadori doubts its occurrence in Sardinia. Mr. C. A. Wright thus notes its occurrence in Malta:—"A specimen was obtained in 1867, and kept alive in a cage for some months. Drs. Giulia and Delicata also mention having observed it." Lord Lilford says it "arrives in Corfu and Epirus in great numbers in April, and remains to breed, disappearing in September; has an agreeable song. This bird is known in Corfu by the name of 'Ortolano.'" Our friend Mr. Hanbury Barclay has also lent us a pair shot in the same island, by one of his collectors, from the nest. Captain Sperling remarks:—"I observed lots of these birds in the high reeds at Butrinto; but they were very artful in dodging out of sight." Mr. W. H. Hudleston also, during his residence in Messolonghi and Southern Ætolia, found them abundant in the gardens and vineyards. Dr. Krüper writes to us that this species is very common in Greece and Asia Minor, rarer in Macedonia and on Mount Olympus. It arrives late in April or early in May. In a recent paper he remarks as follows:—"It is found in all vineyards and bushes, both on the plains and in the mountains of Naxos, though not in large numbers. I procured many nests."

Messrs. Elwes and Buckley did not procure the species themselves in Turkey, but they published some information respecting it from Mr. Robson, who has also kindly sent us the following note:—"This species is numerous in Asiatic and European Turkey. A summer visitant, it arrives in the latter end of April in small flocks, and feeds for a while on open grounds amongst the grasses on the mountain-sides, and it is found in summer on cultivated and uncultivated open grounds, but rarely on mountains." Professor von Nordmann writes as follows:—"It is common near the fortified towns of Soukhoun-kaléh and Pizounda, in Abasia, where I have seen several couples paired. There in its own country it is quite tame, perching on the tops of small trees, or moving about amongst the herbage without taking notice of passers by." Kessler states that Professor Andrzejowski observed it near Kiew in 1837. Ménéties procured this pretty bird during his expedition to the Caucasus, and says that it is "common enough not far from the Caspian Sea, from Kizil-Agaz to Lenkoran, and also on the mountains of Zalyche." In the same work he describes a new species of Bunting as *E. granativora*, which seems to have been rightly referred to the present bird, notwithstanding that he professes to describe both sexes.

Canon Tristram's notes on the species in Palestine are as follows:—"The so-called Black-headed Bunting (*Euspiza melanocephala*) has nothing in its habits and appearance to recall the true *Emberizinae*. It is a very common and conspicuous bird in spring and summer. I was in error in stating (P. Z. S. 1864, p. 446) that it returns in April. On reference to my note-book I find I did not observe it before the first week in May; and its plumage is too brilliant for it easily to escape notice."

Jerdon gives the following account of the species in the 'Birds of India':—"The Black-headed Bunting is found in India only in the North-western Provinces, most abundant in the Deccan, and thence extending to the Upper Provinces of Hindustan. It makes its appearance in the Deccan usually about the end of November, is found in immense flocks, and is very destructive to the crops of jowaree and other grains. It leaves early in March, and certainly does not breed in any part of India."

We translate the following excellent notes from Lindermayer's most useful work on the birds of Greece:—"This Bunting arrives always in the last five days of April in Greece, and like other migrants appears everywhere at once, so that the flats near the sea, which are covered with vines and other creepers, and in places where the olive-trees are scattered about, are alive with this lovely and melodious bird. It is peculiarly partial to vineyards, where it builds on the vines, pomegranates, thorns, or almond-trees. Its nest is always formed of dried straws, is carefully made, and lined with horse-hair. Five eggs are the usual complement; and these are pale sea-green, covered with scattered dark brown spots, though sometimes quite unspotted.

"I have received hundreds of nests, and often found them myself, as they are not difficult to discover, the bird not being at all shy, and only leaving the nest when approached within a distance of about a metre. I have often known the female to lay afresh after her eggs have been removed. During the breeding-season the male bird sits near the nest, on a branch or a tree-top, and continually serenades his mate with his sweet song. If scared away, even by a shot, it retreats to the next tree and continues its song. I cannot at all indorse Von der Mühle's statement that he only saw few females. I have observed this Bunting, amongst the many summer visitants who breed in Greece, as far as Arachava and Delphi, on the central heights of the Parnassus at the end of May, and infer that they breed there. Like all birds that breed here in Greece it is very quick in its breeding-functions: a few days after their arrival they pair and begin to build; and the first egg is laid about ten days after their arrival. This bird leaves us early, about the middle of August."

In his notes on the ornithology of Palestine, Canon Tristram writes:—"Its note is varied and powerful, more like a Linnet's than a Bunting's; and it resorts both to scrub, forest, and cultivated ground, affecting particularly olive-yards, and in the north apricot-orchards, where it sits pouring fourth its varied song from the topmost twig of some tall tree. The nest is placed either on the ground in a tuft or in a low bush, sometimes in the clump at the root of a shrub. The nest is more compact than that of most Buntings, lined with fibres of roots and hair; and the eggs, often six in number, are of a pale blue, powdered all over their surface, sometimes thickly, sometimes sparsely, with brown spots. It is strange to find Brehm quoted as stating its egg to be like those of other Buntings. We may observe that its American congener, *Euspiza americana*, lays a plain blue egg. Every thing I have observed in *E. melanocephala* disposes me to believe that Bonaparte is right in removing *Euspiza* from the Buntings, and classing it with the subfamily Spizinae."

Mr. Robson, of Ortakeuy, sends us some interesting particulars:—"Its habits are similar to those of the Common Bunting, often sitting on the top of a bush or low tree, and pouring forth its simple notes, or flying from one elevated part to another with its legs hanging down. The nest is built not far from the ground, in a rose-bush, vine, or bramble; indeed they are often found in brambles. The gardeners who find their nests in the rows of peas, allow both peas and sticks to stand until the young are fledged, and anxiously protect them, wondering very much what Europeans intend to do with small birds' eggs. They also consider it a cruelty to take the eggs from the old birds. These birds depart early in the autumn, as none of them are taken, like many other species of Bunting, by bird-catchers." Professor von Nordmann states that when the female takes wing she utters softly "*tchéh*."

Eggs of this species in Dresser's collection, obtained in Greece and near Smyrna by Dr. Krüper, measure from $\frac{3.3}{4.0}$ by $\frac{2.5}{4.0}$ to $\frac{3.9}{4.0}$ by $\frac{2.6}{4.0}$ of an inch, and in colour are of a delicate pale blue, with a slight greenish tinge, spotted all over (though generally more profusely round the larger end of the egg) with faint purplish underlying spots, and light or dark brown surface spots. Unlike eggs of other Buntings, those of this species are totally without the hieroglyphic-like scratchings so characteristic of the eggs of the true Bunting. Dr. E. Rey writes us that fifty eggs collected in Greece, now in his possession, average in size 22.5 by 16.1 millimetres, the largest measuring 25.0 by 16.5, and the smallest 19.3 by 15.7 millimetres respectively. He very justly remarks on the great dissimilarity between the eggs of this species and those of the typical Buntings, and thinks that this alone shows that it ought to be generically divided from them.

The accompanying account of the habits of the bird is taken from Professor Doderlein's work on the avifauna of Modena and Sicily:—"The Black-headed Ortolan arrives on the coast of Dalmatia about the middle of April, and takes up its quarters in the wooded plains and the vicinity of the districts where grain is cultivated. In the beginning of May it makes its nest, which it places in a tuft or bush, or at the foot of low trees, or amongst the crops and undergrowth, laying four or five eggs of a greyish white with brownish streaks. I think it lays twice, especially if the first clutch has been taken. During incubation the male takes up his station on the summit of a neighbouring tree, and thence emits a strong, vibrating, and monotonous note, which may be expressed by *cirririri-ciriri*. It has also a querulous note, common to the female, which is frequently repeated when in fear, and which may be rendered by *ciá ciá*. When disturbed from its post on the tree-top, it skims the fields with a low regular flight, until it meets with a similar perch, to which it rises suddenly, and there resumes its monotonous song. This bird does great damage in the fields of grain, where it shucks out the ears when nearly ripe, and wastes much more than it eats. About the middle of July it begins to take its departure, and by the beginning of August none remain. It is very impatient of captivity, and even when taken from the nest rarely survives the time of the autumn migration; still I have seen exceptional individuals brought to Genoa and Trieste."

The descriptions are taken from specimens in our own collection, procured by Dr. Krüper in Asia Minor. The figures also represent birds in our own possession, and it is to be noted that the female is a young bird, and therefore the adult hen of the present species would appear much more yellow underneath, and not so spotted.

In the preparation of the above article we have examined the following specimens:—

E. Mus. Sharpe and Dresser.

a, ♂. Asia Minor, May 28th, 1865 (*Robson*). *b*. Ortakeuy hills, May 5th, 1870 (*Robson*). *c*. Macedonia, June 8th, 1869 (*Dr. Krüper*). *d*, ♂, *pull.* Smyrna, June 15th, 1871 (*Dr. Krüper*). *e, f*. Smyrna, May 9th, 1863 (*L. Schrader* and *Dr. Krüper*). *g, h, i, j*. Smyrna, May 7th, June 19th and 20th, and July 8th, 1871 (*Dr. Krüper*). *k*. Volga (*Moeschler*). *l, m, n*. N.W. Provinces of India (*A. O. Hume*). *o*. Baniyas, Palestine, May 5th, 1864 (*H. B. Tristram*).

E. Mus. Howard Saunders.

a, b. Smyrna, May 5th and July, 1863 (*Dr. Krüper*).

E Mus. A. B. Brooke.

a, ♂. Genoa (Doria).

E Mus. Lord Walden.

a, b, c. Candeish. d, ♂. Baniat, Palestine, May 6th, 1864 (H. B. Tristram).

E Mus. H. B. Tristram.

a, b, ♂, ♀. Corfu, 1862 (Lilford). c, d, e, ♂. Near Baniat, Palestine, May, 1864 (H. B. T.). f, ♂. Merom, May 19th, 1864 (H. B. T.). g, ♀. Palestine, June 1st, 1864 (H. B. T.). h. Candeish (Walden).

E Mus. Lord Lilford.

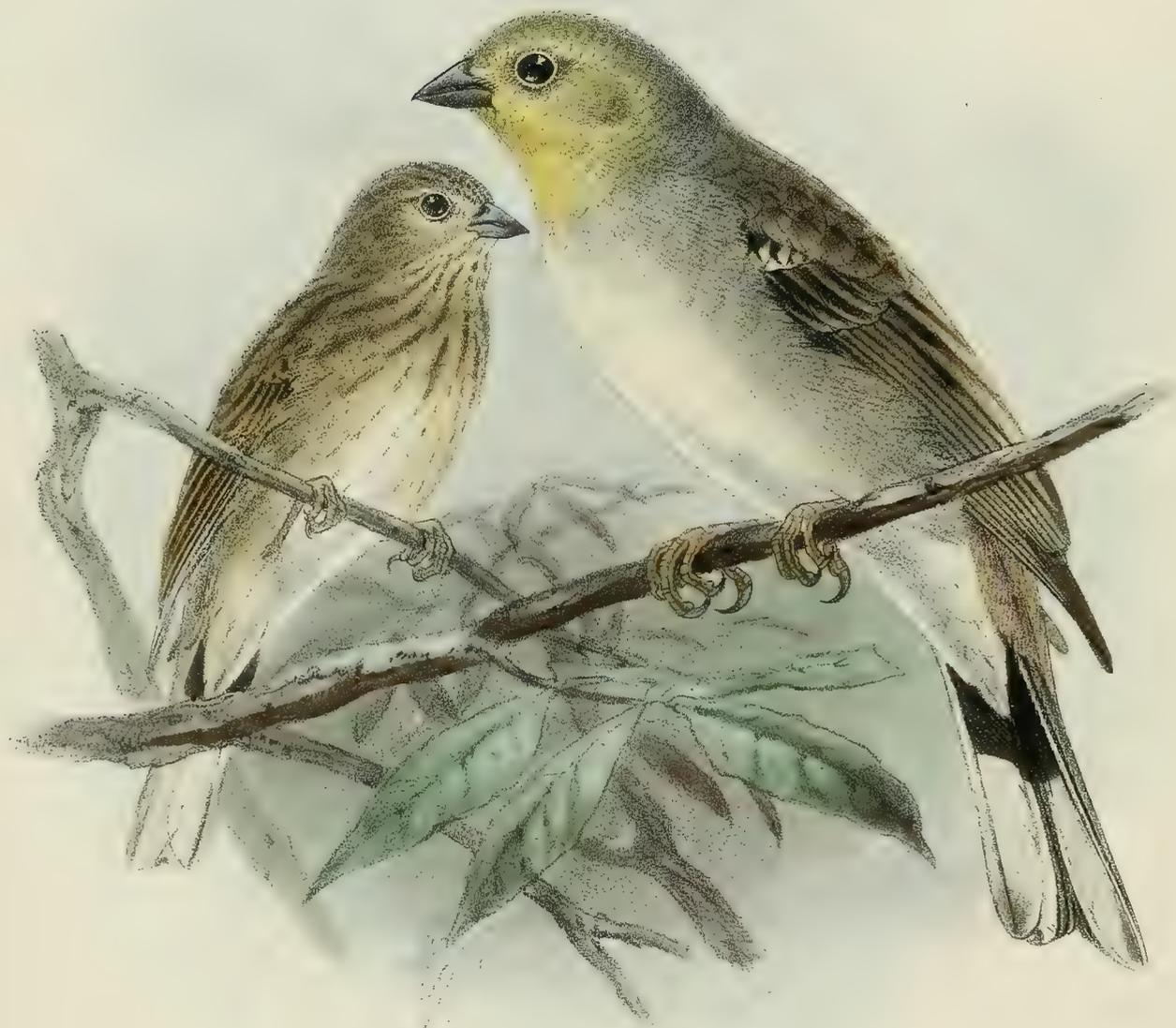
a, b, ♂. Corfu, May, 1857 (L.). c, d, ♂, ♀. Smyrna, May 7th and 13th, 1863 (L. Schrader and Dr. Krüper).

E Mus. Hanbury Barclay.

a, b, ♂, ♀. Corfu, June 4th, 1871 (Spiro Gallia).

E Mus. W. Schlüter.

a. South Russia. b, c, ♂, ♀. Smyrna, May 5th and 17th, 1871 (Krüper). d, ♀. Smyrna, June 21st, 1871 (Krüper).



J. Zuydam Lith

Hanhart imp.

STRICKLAND'S BUNTING.
EMBERIZA CINEREA.

EMBERIZA CINEREA.

(STRICKLAND'S BUNTING.)

Emberiza cinerea, Strickl. Proc. Zool. Soc. 1836, p. 99.*Emberiza cineracea*, C. L. Brehm, Vogelfang, p. 114 (1855).*Hypocentor cinerea* (Strickl.), G. R. Gray, Hand-l. of B. ii. p. 112 (1870).*Spodiospina*, Heugl. (*Emb. cinerea*, Strickl.), Orn. N.O.-Afr. i. p. 660 (1871).*Figura unica.*

J. Wolf in Mem. of H. E. Strickl. pl. 6.

♂ *ad.* pileo et nuchâ cinereis flavo tinctis : corpore suprâ fusco-cinereo, dorsi plumis centraliter saturatè fusco striatis : remigibus nigro-fuscis cervino-albido angustè marginatis, secundariis et tectricibus alarum latiùs cervino marginatis : caudâ nigro-fuscâ, rectricibus duabus externis versus apicem albis : capitis lateribus pallidè cinereis flavo lavatis : mento et gulâ lætè flavis : gutture imo cinereo, flavido tincto : corpore reliquo subtùs albido, hypochondriis cinereo lavatis : rostro sordidè plumbeo : pedibus carneo-fuscis : iride fuscâ.

♀ *ad.* sordidior : mento et gulâ pallidè flavis, fusco striatis.

Juv. corpore suprâ griseo-fusco saturatè fusco notato, plumis cervino marginatis : remigibus nigro-fuscis, primariis cervino marginatis, secundariis conspicuè rufescenti et tectricibus alarum cervino marginatis : corpore subtùs, gulâ et gutture albo-cervinis, saturatè fusco conspicuè striatis, abdomine centraliter fere albo.

Adult Male (Smyrna, 14th April). Crown and nape clear ashy grey, tinged with yellow ; upper parts pale brownish ash, the feathers with central dark brown stripes on the back ; wings blackish brown, the primaries narrowly edged with buffy white, and the secondaries and wing-coverts more broadly margined with warm buff ; tail blackish brown, the two outer rectrices broadly terminated with white on the inner web ; sides of the head ashy grey, tinged with yellow ; the chin and throat clear canary-yellow ; lower throat and upper breast ashy grey, tinged with yellow ; rest of the underparts white, the flanks washed with grey ; bill dull horn-blue ; iris dark brown ; legs fleshy brown. Total length about 6 inches, culmen 0·5, wing 3·6, tail 3·1, tarsus 0·85.

Adult Female (Smyrna, 1st May). Head greyish ashy brown with a slight yellowish tinge, striped with darker brown ; upper parts of the body as in the male, but duller ; underparts light buffy white ; the breast and flanks washed with ashy brown, and striped with darker brown ; chin and upper throat yellow, marked with short dark stripes.

Young Male (Smyrna, 12th August). Resembles the female, but has the upper parts darker and much more striped, especially on the head ; the inner secondaries are broadly margined with buffy rufous, and the remaining secondaries are narrowly tipped with white ; throat, breast, and flanks pale brownish ash, the former marked with blurry stripes and spots of dark brown, and the flanks striped with brown ; centre of the abdomen and under tail-coverts white ; chin and throat tinged with sulphur-yellow.

Young Male just fledged (Smyrna, 19th June). Upper parts greyish brown marked with dark brown, the feathers margined with buff; quills blackish brown, the primaries margined with buff, the secondaries broadly margined with rufous; the wing-coverts edged with warm buff; underparts buffy white, closely and distinctly striped with dark brown; the centre of the abdomen nearly white, and more sparingly striped.

Obs. In the autumn plumage the male has a yellowish tinge to the plumage, especially on the underparts, and the female also has this tinge, but more greenish in tone of colour.

THE range of this Bunting is very restricted. First discovered by the late H. E. Strickland, Esq., near Smyrna, in April 1836, it was for long lost sight of; and, with one exception, it has, so far as I can ascertain, been obtained nowhere else but in Asia Minor, whence of later years Dr. Krüper has sent many specimens. This gentleman states (J. f. O. 1875, p. 270) that he fully believes that it occurs in Europe proper, and that it is said to have been observed in Southern Russia. No specimen has, he adds, been obtained in Greece; but it is not improbable that it may visit that country. There is one solitary instance of its occurrence in North Africa, recorded by Dr. Th. von Heuglin, who writes (*l. c.*) as follows:—"Amongst the skins collected by us in Africa Dr. Blasius discovered an immature example of *Emberiza cinerea*, which I see from my original label was a female, obtained in October near Keren, in the Bogos country. This specimen, which is now in the Brunswick Museum, is the only known African example of this exceedingly rare species, which may therefore visit the Abyssinian coastal regions on passage, or as an accidental straggler.

That the present species is by no means rare near Smyrna is proved by the numbers of specimens obtained by Dr. Krüper; but I find nothing on record respecting its habits beyond what is given by that gentleman (J. f. O. 1875, pp. 268-270), which I translate as follows:—"On the 31st March last year (1863), when in company with Mr. Schrader in search of *Emberiza cæsia* on the mountains above Burnova (Burnabat), I observed a bird fly up onto a moderate-sized rock, and on shooting it was not a little surprised to find an unknown Bunting with a rich yellow throat. I then thought it to belong to a new species; for I had not seen Strickland's description for ten years, when I was a student, and had forgotten it. On the 2nd April I shot a second male; and on the 10th I obtained the first female. Since then I got to know the bird better, and procured several specimens. This season I observed the first male on the 3rd April, and the first female on the 15th. As is the case with all the Buntings, the males arrive first, about ten days before the females; and I also observed that, as with the other Buntings, the males predominate greatly in numbers. . . . Directly the females arrive they pair; so that one seldom sees a female alone, but in company with her mate. The nest is far more difficult to find than that of *Emberiza cæsia*; for although I used every exertion, and searched through the places where they must nest for hours and hours after insects, I never succeeded in finding a nest with eggs. Above Burnova I observed a pair engaged in building their nest. The female fetched the materials and was accompanied by the male, who gave warning. After having seen the female disappear three times amongst the stones and underbrush, I did not disturb them any more, but visited the place a week later and found the nest-place forsaken. I subsequently shot a female and found in her fully developed but shellless eggs; and another had laid all but one.

I suppose that its nest and eggs must resemble those of *Emberiza cæsia*; but the eggs must be as large as those of *Emberiza miliaria*, and cannot well be mistaken for those of any other Bunting. In size this bird approaches nearest to *E. miliaria*; and in general habits, choice of habitat, and song it closely resembles *Emberiza cæsia*. It is very shy and cautious, though not so much so during passage; but when a pair have selected a nesting-place they are very shy, especially old birds. Near Burnova I observed a pair, and shot the female, wounding it severely, but did not obtain it; and the widowed male remained the whole summer in the same locality, and I could easily distinguish it from other males by its voice. I determined to obtain this bird; but in spite of every endeavour I never succeeded in so doing, owing to its extreme caution.

“This species affects rocky mountainous districts where vegetation is scanty, and usually rests on the moderate-sized blocks of stone. It is found from the base of the mountains up high into the conifer-region. Its call-note is a short ‘küp;’ and its song is composed of short strophes resembling the syllables *dir dir dir didl di*, variously modulated.”

Since the above notes were written in 1864, Dr. Krüper has repeatedly tried to obtain the eggs of this species, but without success, and they are still unknown.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *ad.* Smyrna, April 14th, 1871 (*Dr. Th. Krüper*). *b*, ♀ *ad.* Smyrna, May 1st, 1861 (*K.*). *c*, *d*, ♂ *jun.* Smyrna, August 12th, 1871. *e*, ♂ *juv.* Smyrna, June 19th, 1871 (*K.*).



COMMON BUNTING.
EMBERIZA MILIARIA
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EMBERIZA MILIARIA.

(COMMON BUNTING.)

- Emberiza miliaria*, Linn. Syst. Nat. i. p. 308 (1766).
Fringilla projer, P. L. S. Müll. Syst. Nat. Suppl. p. 164 (1776).
Miliaria septentrionalis, Brehm, Vög. Deutschl. p. 291 (1831).
Miliaria germanica, id. tom. cit. p. 292 (1831).
Miliaria peregrina, id. tom. cit. p. 292 (1831).
Miliaria europæa, Swains. Classif. of B. ii. p. 290 (1837).
Cynchramus miliaria, Bonap. Comp. List B. Eur. & N. Am. p. 35 (1838).
Spinus miliaris, Gray, List of Gen. of B. ii. p. 61 (1841).
Cryptophaga miliaria, Cab. Mus. Hein. Th. i. p. 127 (1850).
Citrinella miliaria, Gray, Hand-l. of B. ii. p. 113 (1870).

Corn-Bunting, *Bunting-Lark*, English; *Golabhigean*, Gaelic (*H. J. Elwes*); *le Proyer*, French; *Strilozzo*, Italian; *Ciciruni*, Sicilian; *Triguero*, Spanish; *Trigulirão*, Portuguese; *Duraisa*, Maltese; *grau Ammer*, German; *de grauwe Gors*, Dutch; *Kornsparf*, Swedish; *Kornlærke*, *Bomlærke*, in some places *Knijtte* and *Stritte*, Danish (*A. Benzon*); *Prosianka*, Russian; *Potrzysszez*, Polish.

Figure notables.

Naum. Vög. Deutschl. v. Taf. 101; Yarr. Brit. B. i. p. 433; Gould, B. of Eur. iii. p. 171; Kjærb. Orn. Dan. tab. xxv. fig. 3; Schl. Vog. Nederl. pl. 153; Fritsch, Vög. Europ. Taf. 19. fig. 21; Gould, B. of Gr. Br. pt. xxvi.; Sundev. Svensk. Fogl. pl. vi. fig. 3.

♂ *æstiv.* suprâ griseo-brunnescens, plumis medialiter nigris: uropygio griseo-brunneo, ferè unicolori: tectricibus alarum dorso concoloribus, medianis paullò rufescentioribus, albo marginatis, majoribus fulvescente limbatis: remigibus saturatè brunneis, extùs fulvescente marginatis, secundariis latiùs: caudâ brunneâ, fulvo marginatis et terminatis, rectrice extimâ pallidiore: loris et supercilio indistincto genisque fulvescenti-albis, lineis parvis brunneis longitudinaliter striatis: regione auriculari brunneâ, striis nigricantibus notatâ: subtùs fulvescenti-albus, hypochondriis paullò rufescentibus, gutture sparsim, pectore magis, et hypochondriis distinctè brunneo striatis: subalaribus fulvescenti-albis, paullò griseo variis: rostro rufescenti-corneo, mandibulâ ferè omnino flavicante: pedibus pallidè brunneis.

Juv. autumn. similis adultis sed magis ochraceus, vix rufescens: subtùs ochraceus, maculis pectoralibus obscurioribus, linearibus.

Male in spring plumage. Above greyish brown, the feathers blackish down the centre as in a Lark, those on the crown more narrowly centred; the rump almost entirely greyish brown, with very faint indications of central black markings; scapulars and wing-coverts like the back, the median coverts tipped with white, and also slightly tinged with rufous, the greater coverts externally edged with fulvous; quills blackish brown, externally margined with buffy white, the secondaries far more

broadly, these latter being also slightly tinged with rufous; tail rather paler brown, with edges and tips of buffy white; feathers in front of the eye and an indistinct eyebrow buffy white, with very tiny longitudinal markings of dark brown; ear-coverts dark brown, with narrow streaks of black; under surface of the body creamy white; the throat and fore part of the chest streaked with small spots of blackish brown, these spots being very tiny on the throat, where, however, they collect thickly together on the malar line, forming a kind of moustachial streak; on the chest the spots are slightly more triangular, but on the lower part of the breast they take the form of narrow lines; flanks slightly rufescent, and strongly washed with brown, being at the same time distinctly striped with dark brown; under tail-coverts buffy white, with slight central streaks of brown; under wing-coverts of the same colour, varied down the centre of each feather with greyish; bill horn-colour with a slight dash of red, the edge of the upper mandible and the whole of the lower one yellow; feet pale fleshy brown; iris dark brown. Total length 7 inches, culmen 0.52, wing 3.9, tail 3.1, tarsus 1.0.

Obs. A great deal of difference is observable in Buntings killed in the spring and summer, some being almost pure white underneath, with very few and indistinct stripes on the breast, the general shade of the plumage being a pale greyish brown; others, on the other hand, are very thickly spotted on the under surface of the body. English examples are slightly darker than the Continental birds, the pale-coloured ones in our collection being from Smyrna and Turkestan, so that, perhaps, this peculiar variation is confined to the eastern specimens.

Young. Much darker than the adult, and more ochreous-brown, with a very strong tinge of ochre on the breast; the markings on the latter more confused, and not nearly so distinct as in the adult.

Obs. Macgillivray says that the young are "similar to the adult, but with the upper parts paler, and the dark markings of the lower more elongated." A specimen sent to us by Mr. Schlüter, from Hanover, as well as two examples killed by Dr. Selater in Oxfordshire do not answer to this description, but agree with that above given by us.

THE Common Bunting is a resident species in Europe generally, but does not range very far to the north in Scandinavia. It extends to the eastward in Turkestan and Central Asia. In the British islands it is everywhere distributed, but is decidedly local in some places; thus Mr. J. Brooking Rowe writes that it is common in Devonshire, but is scarcer near Exeter. In the vicinity of London it is often obtained, having been seen in the Zoological Gardens in the Regent's Park by Mr. Edward Bartlett. Mr. J. H. Gurney, jun., sends us a note:—"As the summer draws on, the Corn-Bunting becomes rather abundant at Greatham, in Durham. The first are generally seen about the 13th of March; and the following month small flocks begin to appear; but during the winter not a bird is to be seen. I have no doubt they breed there."

Mr. A. G. More states that it is "less numerous in Scotland, being attached to the corn-fields and cultivated districts, but reaches to the Outer Hebrides, Orkney, and Shetland." Macgillivray records it as common in the outer Hebrides, where it is called "Sparrow." Messrs. Gray and Anderson state that it is very abundant in both Ayrshire and Wigtownshire, especially near the coast between Girwan and the borders of Kircudbrightshire. "Mr. Gray has observed it to be particularly common in the southern districts of Wigtownshire, where the pasture lands are irregularly broken with protruding masses of rock." For the following interesting note we are indebted to our friend Mr. J. A. Harvie-Brown:—"Nowhere in Scotland have I observed the Common Bunting to be so abundant as in the north-west of the island of North Uist, in the

Outer Hebrides, where Captain H. W. Feilden and myself observed large flocks in the middle of May. In the east of the island I do not remember that we observed a single specimen. In Stirlingshire it is not an abundant species, and, besides, is very local in its distribution, only being found at all commonly in the low-lying 'carse lands' adjoining the sea. Even in these situations it does not appear to be so common as it was a few years ago. In Sutherland it is likewise locally distributed, common in the south and south-west of the county, rare or unknown in the west, and has been traced to the north coast by Mr. Selby."

Mr. R. Collett states that Mr. Landmark found this Bunting in colonies at Jæderen (in Norway) in June 1867; it has not yet occurred near Christiania. According to Nilsson it is common in Skåne, but in the eastern part of Sweden does not go further than that province; in the west it is found in Halland, up to near Warberg; near Gothenburg it is rare. Meves found it common in Skåne in July, and distributed throughout Öland. It is said to occur at Skara during the winter. It occurs in Livonia, according to Meyer, but does not seem to reach Finland. Mr. Alfred Benzon writes to us from Denmark, as follows:—"After the Yellow Ammer, it is one of our commonest birds, and like that Bunting is found all over the country, but not in the woods. It is common in the country-places, and sits calling on the top of a tree, whence its name *Bomlærke* (Tree-Lark). It is common in Germany. Herr A. von Homeyer states:—"It certainly is a resident in Vor-Pommern and Silesia. In winter in Pomerania hundreds come into the farmyards. In Rastatt (Baden) it is not found in winter, but appears in the spring (in March) in flocks on the meadows and fields. According to Jäckel, the same occurs in Bavaria. This is peculiar, as Baden and Bavaria lie so much further south than Pomerania." We are informed by Mr. H. M. Labouchere that this bird is "not very common in Holland, and has only been found breeding in some of its provinces; in autumn it visits the country on its yearly migration, but never in large numbers." De Selys-Longchamps says that it arrives in April in Belgium, leaving in the autumn; a few remain over the winter in company with Larks and Yellow Ammers. Mr. C. Sachse writes to us:—"It is not found in the mountains near Coblenz, and but rarely occurs in the narrow part of the Rhine valley, though south of Bonn it is more numerous." He adds that "in North Germany it remains over the winter, and ranges about in small flocks of six or eight individuals."

In Luxemburg, according to De la Fontaine, it is very rare in the valleys of the Moselle and Alzette, but common in that of Chiers, from Aubange to Montmédy. Kræner says it is sedentary on the plains of Alsace. Throughout the whole of France it is an abundant resident species, and is stated by Bailly to be plentiful in Savoy during the nesting-season and a considerable portion of the autumn.

Major Irby says that this species, which is called *Triguero* (*lit.* Wheat-bird), is resident and excessively abundant in Andalucia. This is borne out entirely by Mr. Howard Saunders, who writes:—"It is, I think, the most abundant bird in Andalucia, the number brought into the markets equalling that of all the Larks, Sparrows, and Thrushes, put together. It remains to breed." Professor Barboza du Bocage states that it is common in Portugal. Dr. Rey tells us that in Estremadura he never saw it, but found it tolerably often breeding in Algarve. The Common Bunting is also found in the Canaries, where Dr. Carl Bolle found it common in the rich wheat-fields of Rodeos, in the interior of Teneriffe. Major Irby tells us that it was as

abundant in Tangiers as in Spain; and Mr. C. F. Tyrwhitt Drake procured it in Morocco. Mr. J. H. Gurney, jun., found it common in Algeria; and Loche says that "in Algeria it is very common, and amongst the Arabs bears the name of *Derris*; its flight is rapid and noisy, and it is very shy. It frequents chiefly the plains and marshes, in which it is often observed in large flocks." Mr. Osbert Salvin records it as "everywhere very abundant in the eastern Atlas." Mrs. Strickland also kindly writes us word that Sir William Jardine's collection contains a specimen from Tunis. Mr. C. A. Wright, in his list of the birds of Malta, gives the following note:—"This well-known bird is more or less common during the greater part of the year. It is especially abundant in the breeding-season, in March, April, and May, when its nest is one of the commonest of the few found here." Professor Doderlein states that this species is abundant and resident in Sicily in all seasons, especially during winter in the low districts of the Madonia, becoming somewhat rarer in the neighbourhood of Palermo. He found it nesting near Syracuse, along the Anapo. In Sardinia it is very common." As regards Italy, he adds, "In the Modena district it is an annual breeder; and some remain throughout the year, gathering into flocks in the open country on the approach of cold weather, until the month of March, when they separate into pairs; others migrate in autumn, returning in spring." Seidensacher says it is not very common in Styria. It arrives there in March, and remains to breed.

According to Von der Mühle it breeds in Greece, and is particularly abundant in autumn and winter. Lindermayer says that it is resident, breeding early in April in the southern portions of that country, and early in May in the northern parts. On the plains it is numerous from October to the end of April, and during the summer inhabits the higher mountains. Lord Lilford observes that it occurs sparingly in Corfu and Epirus in winter. The Strickland collection has a specimen obtained in Anatolia by the late owner. "In Turkey in Europe and Asia Minor," writes our good friend Mr. Robson, "this species is very numerous and is widely distributed, being principally found in large valleys and open plains, also on cultivated and uncultivated uplands, never on the dry mountains, and rarely where mountains are covered with forest or dense shrubbery." Professor von Nordmann says that it is very numerous throughout Southern Russia. But few are seen in winter; and it is to be inferred that most of them migrate further south. Professor Kessler writes respecting this species as follows:—"It is found everywhere (in the governments of Volhynia, Podolia, and Kiew), but only lives in certain places; and it is impossible to give reasons for its local distribution. For instance, I have met with it in three quite different localities, such as the village of Zorin, near the town of Kamenka in the district of Czigirinsk in Kiew, and, lastly, near the village of Wychwatince, on the left bank of the Dniester, in the district of Balta in Podolia. It is not found during the summer in the districts near Kiew, but only appears in autumn during migration. I do not know whether it winters with us; but I have never seen it in winter. Professor Bogdanoff says that he has never seen it on the central Volga, as Rickbeil at Sarepta. According to Eversmann it is only found on the banks of the southern Volga. Severtzoff found it in the government of Woronetz, and includes it amongst the common summer residents."

Our friend Dr. Taczanowski writes to us:—"It is common and sedentary in Poland. Its northern limits are in the narrowest part of the province of Augustow, exactly at the town of Szezuczyn, situated in 53° N. lat. and 40° E. long. It appears to observe this frontier most

strictly; for I have been assured by the inhabitants of these parts that it is often seen to the south of this town, and no one has ever seen one on the north side. I myself have had opportunities of verifying this peculiar fact when passing several times through those parts; every time I have seen males singing close to the town, and never once have I seen one on the other side or further on in the province of Augustow." Pallas says that it is not found in Siberia, and does not like cold regions at all: it winters in the Crimea. It was not observed to the east of the Ural by Sabanaeff. Mr. Keith Abbott obtained a specimen near Trebizond; and on that occasion Mr. Gould remarked that the Common Bunting had never been obtained before so far to the eastward; but we have now in our collection an example from Turkestan, procured from M. Dode. De Filippi found it everywhere in Persia on the cultivated plains. Canon Tristram writes that in Palestine "*E. miliaria* is as common as the Skylark in England on all the corn-plains throughout the year." Captain Shelley has lent us three specimens procured by himself in Egypt, where, says Dr. Brehm, "it is a common winter visitant, extending as far as the frontier of Nubia; it frequents the clover-fields and is shy and difficult of approach." Dr. von Heuglin, in his 'Birds of North-eastern Africa,' gives the following account:—"The Common Bunting comes every winter into Egypt and Arabia Petræa, being observed more rarely in Nubia. It is generally found in small, scattered families, which disport themselves shyly in the meadows and clover-fields."

As its local name of Corn-Bunting implies, this species affects the flat corn-growing districts, but at the same time prefers places near corn-fields and meadows where bushes and trees are scattered about. Naumann remarks that in Germany it often frequents the neighbourhood of marshes, and especially places where *Brassica napus* grows; and he adds that wherever there are fields in which this plant occurs, the Common Bunting is sure to be met with. During the breeding-season the bird is seen only in pairs; but so soon as the young are fully grown, or at all events early in the autumn, they congregate together, forming small flocks. They then range over the country, visiting the stubble-fields as long as they find sufficient food there; but when the winter sets in, large numbers are to be observed about the farm-buildings, roads, and stack-yards, in company with Yellow Buntings, Sparrows, and other small birds; and whenever they can get at wheat-stacks they help themselves freely to the grain. When observed in the fields, they move about on the ground and along the furrows, much resembling a Lark, to which bird they closely assimilate in plumage; they also generally roost on the ground in a furrow, amongst the stubble, or, according to Naumann, in reed-meadows; and sometimes large numbers come from a distance to pass the night in some favourite resort of this kind, arriving immediately after sunset, chase each other about for some time, and finally settle down quietly to rest. Owing to this habit of roosting on the ground, many are taken in nets with Larks, and with these are brought to market. During the breeding-season the male is restless and quarrelsome, continually bickering with other small birds. He generally sits on some elevated perch, such as the top of a tree, bush, or stake, and thence utters his peculiar song, which is not unlike that of the Common Yellow Bunting, but is scarcely as musical, nor is it as loud. Naumann compares it to the noise made by a stocking-weaver when he puts his loom in motion, resembling the words, *zick, zick, zick, ter ill ill ill ill ill*, the latter portion being a sort of chirr that cannot well be expressed in letters. During the pairing-season they use a soft call-note, *zik, zik*; but the usual

alarm-note is a deep *zee*, like that of other Buntings. They call when on the wing, but seldom when on the ground in search of food, during which operation they remain very quiet and, from their plain greyish-brown livery, are not easily observed. It is a clumsy bird both on the ground and on the wing; and its flight is heavy and laboured, more resembling that of the Sparrow than the Yellow Bunting. When on migration they fly at a considerable altitude, but may be distinguished from the other Buntings by their call-note, which they continually utter, and which somewhat resembles that of the Common Hawfinch. During the spring and summer season they feed chiefly on insects, devouring many of the caterpillars so destructive to cereals; the young birds are, indeed, almost entirely fed on insects. In the autumn and winter, when these are not to be had in any numbers, they feed on grain. Mr. Yarrell gives the following extract from the 'Journal of a Naturalist':—"It could hardly be supposed that this bird, not larger than a Lark, is capable of doing serious injury; yet this morning I witnessed a rick of barley, standing in a detached field, entirely stripped of its thatching, which this Bunting effected by seizing the end of the straw and deliberately drawing it out, to search for any grain the ear might contain, the base of the rick being entirely surrounded by the straw, one end resting on the ground the other against the mow, as it slid down from the summit, and regularly placed as if by the hand; and so completely was the thatching pulled off that the immediate removal of the corn became necessary. The Sparrow and other birds burrow into the stack, and pilfer the corn; but the deliberate operation of unroofing the edifice appears to be the habit of this Bunting alone."

The nest is placed on the ground, carefully concealed amongst the rough herbage, tangled brambles, or bushwork, and is constructed of dried grasses, roots, &c., and lined with horsehair. The eggs, generally from four to five in number, are subject to great variation. The following account of the nest is given by Hewitson in his 'British Birds' Eggs':—"The Common Bunting, perhaps better known by the name of Corn-Bunting or Bunting Lark, builds its loosely constructed nest on or near the ground, sometimes in briars, more commonly in a clump of grass, and occasionally at the root of a low shrub; it is usually in the open fields, and at a distance from the hedgerows; it is composed of a few sticks, pieces of moss, and dry grass, becoming finer towards the inside, which is sometimes completed by the addition of a few hairs. The eggs are four or five in number, and differ a good deal in size, shape, and colour, but always retain the character of the genus. Their size prevents them from being mistaken for those of any other Bunting."

Mr. Robson has sent us a note on the habits of the present bird in Turkey. He writes:—"In spring they often sit on the top of a tree or bush, uttering their shrill and little-varied note, often shifting their situation from one elevated post to another. As they fly, their legs hang down; and they utter their note in flight. The nest is built on the ground, generally close to some tall plant, on which it is their habit to rest before entering: six eggs are the complement. They are very numerous during the autumn migration, when they are very fat, and great quantities of them are taken by bird-catchers on limed twigs; I have known one man take three hundred in a morning; while great numbers are shot by sportsmen for eating: they are plump heavy birds, and of all the Bunting family are in most request for the table. Many of them stay over the winter, when they congregate in flocks. In this country the present species feeds much on small beetles, which are very plentiful here." It will be noticed that Mr. Robson's statement

of the species in Turkey laying six eggs differs from the number given by Hewitson and other observers; Mr. Benzon writes that the eggs are "generally four or five in number." Our friend Dr. E. Rey states, in a letter to us, that the average size of one hundred eggs in his possession, all taken in Germany, is 24·3 by 17·6, the largest measuring 28 by 19, and the smallest 21 by 17 millimetres respectively. In Germany the breeding-season is between the 10th of May and the 20th of July. In Southern Portugal he found five eggs incubated on the 5th of April, on the 10th of April five much incubated, and on the 30th of April and 4th of May five nearly fresh eggs. We mention these facts because the only two examples sent by Mr. Robson, which we have seen in Lord Walden's collection, belong to the pale-coloured form which we have already noticed as occurring in Eastern Europe, and which may not be thoroughly the same species as the western bird.

The Common Bunting is apparently subject to great variation. Mr. Sterland mentions the fact of his having seen several which had an admixture of white in the plumage, giving the birds a dappled appearance. He adds, "I met with one in December 1859, at Clipstone, which was entirely white, with the exception of two or three slight markings of brown on the back." Such a bird is also in Mr. J. H. Gurney's collection. This gentleman likewise possesses one of a creamy-white colour, as also does Canon Tristram, who obtained his in Algeria. Mr. Benzon tells us that he has similar examples in his collection. A dusky-white variety was brought home from Spain by Major Irby, who informs us that in that country similar birds are not uncommonly met with.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b. Leadenhall Market, November 10th, 1871 (*R. B. S.*). *c.* Near London (*R. B. S.*). *d, ♂.* Pagham, Sussex, June 20th, 1870 (*R. B. S.*). *e, f.* Oxfordshire, October 1846 (*P. L. Sclater*). *g, h.* Cambridge-shire (*H. E. Fox*). *i.* France (*E. Fairmaire*). *j.* Hanover (*W. Schlüter*). *k, ♂.* Piedmont, May 25th, 1870 (*T. Salvadori*). *l, ♂.* Smyrna, May 14th, 1871 (*Dr. Krüper*). *m.* Crimea (*H. Whitely*). *n, ♂.* Turkestan, May 18th, 1866 (*Dode*).

E Mus. Lord Walden.

a, b, ♂. Asia Minor, April 17th and 18th, 1866 (*T. Robson*).

E Mus. Howard Saunders.

a. Granada (*H. S.*).

E Mus. G. E. Shelley.

a. Egypt, February 20th, 1871 (*G. E. S.*). *b, ♀.* Egypt, March 25th, 1871 (*G. E. S.*). *c.* Fayoom, Egypt, March 4th, 1871 (*G. E. S.*).

E Mus. L. H. Irby.

a, ♀. Seville, February 14th, 1871 (*Ruiz*).

E Mus. W. Schlüter.

a, b, c, d. Germany (*W. S.*). *e.* Halle an Salle (*W. S.*).

E Mus. H. B. Tristram.

a, b, ♂, . Orkney (*H. B. T.*). *c, d, e.* Algiers, April 21st, 1856 (*H. B. T.*). *f, ♂.* Hhora, Wilderness of Judea, February 5th, 1864 (*H. B. T.*).

E Mus. J. H. Gurney, jun.

a. Norfolk, var. (*T. E. Gunn*). *b, ♂.* Eastbourne, February 26th, 1867 (*J. H. G.*). *c.* Epworth, var. (*Grant*). *d, ♀.* Greatham, Durham, February 19th, 1866 (*J. H. G.*). *e, f, g, ♀.* Seaton, Durham, April 16th and May 4th, 1866 (*J. H. G.*).





EMBERIZA CITRINELLA.
xx.

EMBERIZA CITRINELLA.

(YELLOW BUNTING.)

Emberiza citrinella, Linn. Syst. Nat. i. p. 309 (1766).*Emberiza sylvestris*, Brehm, Vög. Deutschl. p. 294 (1831).*Emberiza septentrionalis*, Brehm, Vög. Deutschl. p. 294 (1831).*Citrinella citrinella*, Gray, Hand-l. of B. ii. p. 113 (1870).

Yellow Ammer, Yellow Hammer, Yellow Bunting, Yellow Yowley, Yellow Yeldring, Yellow Yoldring, Yellow Yite, Yeldrock, Yolkring, Yoit, Skite, Goldie, Writing-Lark, English; *Bruant jaune*, French; *Gold-Ammer*, German; *De Geelgors*, Dutch; *Gulsparf*, Swedish; *Gulspurr*, Norwegian; *Gualspurr*, Danish; *Strenatka Dvsyanka*, Russian; *Zigolo giallo*, Italian.

♂ pileo toto et gutture læte citrinis, vertice et capite laterali paullulum olivaceo-viridi striato: vitta malari post regionem paroticam producta castanea: collo postico et laterali olivaceo-viridi: interscapulio scapularibusque rufo-brunneis, parte mediana saturate brunnea, plumis omnibus plus minusve fulvo marginatis: dorso postico et uropygio cinnamomeis: tectricibus alarum minimis olivaceo-viridibus, majoribus brunneis extus late cinnamomeo marginatis: remigibus brunneis, primariis anguste olivaceo-viridi, secundariis cinnamomeo marginatis: cauda brunnea, pennis duabus mediis cinnamomeo, proximis olivaceo-viridi marginatis, duabus extimis pogonio interno versus apicem albis: corpore subtus læte citrino, pectore superiore cinnamomeo marmorato: hypochondriis hoc colore striatis, scapis plus minusve distincte brunneo notatis: subalaribus et subcaudalibus citrinis: rostro plumbescente: pedibus pallide brunneis: iride saturate brunnea.

♀ pileo grisescenti-brunneo, capite summo medio citrino, plumis medialiter brunneo striatis: regione parotica grisescenti-brunnea, citrino tincta: regione oculari albida: collo postico et laterali cinerascanti-flavo tincto: dorso superiore brunneo, plumis medialiter saturatius coloratis, marginibus cinerascantibus paullulum ochraceo lavatis: dorso imo, uropygio et supracaudalibus dilute cinnamomeis: alis et cauda ut in mari coloratis: gula circumscripte citrina, punctulis brunneis longitudinaliter notata: pectore superiore et corpore laterali olivascenti-brunneis, illo brunneo et cinerascanti marmorato paullo etiam citrino tincto, hoc distincte brunneo longitudinaliter striato, vix etiam rufo mixto: abdomine medio pure citrino: subalaribus et subcaudalibus citrinis brunneo variis.

Male in summer plumage. Head bright citron-yellow; the nape and back of the neck greenish olive; the forehead, sides, and back of the crown marked with narrow lines of black; a line of dusky black, behind the ear-coverts dusky greenish; a moustachial stripe and a few spots on the cheeks chestnut; back fulvous brown, the scapulars inclining to rufous, all the feathers distinctly marked with a median line of dark brown; rump and upper tail-coverts bay, slightly washed with fulvous; least wing-coverts rufous brown, with indistinct median shaft-stripes and distinctly washed with greenish yellow; the greater coverts dark brown, edged with cinnamon; the primary coverts dark brown, narrowly edged with greenish yellow; quills blackish brown, greyish underneath, the primaries narrowly edged with greenish yellow, the secondaries very broadly margined with cinnamon; tail dark brown, the middle

feathers edged near the base with rufous, the next ones edged with greenish yellow, the two outer feathers for the most part brown, but white for nearly the apical half of the inner web; throat, sides of the neck, centre of the breast, and abdomen bright citron-yellow; the upper part of the breast and flanks mottled with cinnamon, the latter distinctly striped with brown; bill bluish; feet pale brown; iris dark brown. Total length 6·7 inches, culm. 0·45, wing 3·25, tail 2·75, tarsus 0·7.

Female. Head greyish brown, strongly tinged in the centre with citron-yellow, of which colour the bases of the feathers are entirely composed, all of them being marked down the shaft with dark brown; the lores and a slight eyebrow clear citron-yellow; the eye surrounded by a ring of whitish feathers; cheeks and ear-coverts greyish brown, washed with citron-yellow and more or less distinctly tinged with rufous brown; sides and hinder part of the neck greyish brown, tinged with yellow; back-feathers dark brown in the centre, the edges fulvescent, and all slightly washed with ochre; lower part of the back, rump, and upper tail-coverts pale cinnamon; least wing-coverts brown, broadly edged with olive-green, the greater ones brown, margined with rufous; quills and tail coloured exactly as in the male; throat clear citron-yellow, with a few little shaft-markings of brown; rest of the body citron-yellow, the upper breast strongly mottled with brown and tinged with olive-green, the flanks inclining to grey and strongly striped with dark brown and washed with rufous brown; centre of abdomen clear yellow; under wing- and tail-coverts citron-yellow, the former mottled, the latter more or less striped along the shaft, with brown; bill bluish grey; feet pale brown; iris dark brown.

Male in winter plumage. More clouded than in summer, the feathers of the head especially, being marked longitudinally with broad greenish shaft-stripes, and a generally more dingy appearance being produced by fulvous edgings to the feathers.

Female in winter plumage. Like the male the winter dress is similar to the summer garb, but very much more dingy, owing to the edgings on the feathers.

THE Yellow Bunting, or, as it is more generally called, the Yellow Ammer, is a common bird in the western Palæarctic Region. The metropolis of the species is probably in Central Europe, whence it extends as far north as Lapland, and goes eastward even into Siberia. In Southern Europe it gradually becomes scarcer and scarcer by degrees, and in South-western Europe is decidedly a rare bird. As will be seen from the detailed account of its geographical range given below, it is an unsettled species, migrating in some localities.

As regards its distribution in the United Kingdom, Mr. A. G. More's useful paper, so often referred to, informs us that it is found everywhere during the nesting-season, even as far north as Orkney, where it is said to have bred twice to the knowledge of Messrs. Baikie and Heddle.

On the Continent the present species is equally common, but is generally richer in coloration than British examples. Specimens received from our friend Count Salvadori are exceedingly bright, the yellow throat being so intense as almost to amount to orange. In France MM. Jaubert and Barthélemy de la Pommeraye state that it is a regular breeder all over France, excepting the southern parts, where it is only observed on the more elevated localities. In Lorraine it is common and sedentary, according to Godron; and throughout Holland, we are informed by Mr. Labouchere, is very abundant. De Selys-Longchamps says it is plentiful in Belgium all the year round, receiving great additions to its numbers in the winter, when a great many are captured by the villagers. In Luxembourg also De la Fontaine states that it is a very common bird. In Denmark it is generally distributed, and is found likewise all over Germany.

Mr. R. Collett, in his work on the 'Ornithology of Christiania,' says:—"Early in March, or some years late in February, the well-known note of this bird may first be heard here. Although, generally speaking, it is very common near Christiania, it has happened that some years it is scarcely to be seen. Thus in 1861 and 1862 it was so rare as almost to appear to have vanished; and this was not only the case in this neighbourhood, but also in other parts of Southern Norway. Whether the explanation of this fact was in an epidemic or in a migration, and where in the latter case they went to it is hard to say. Those that returned after these years appeared certainly to be strangers."

In Finland Von Wright observed it as high as 67° 40' N. lat.; and Pastor Sommerfelt includes it in his list of the birds of the Varanger Fjord. Messrs. F. and P. Godman observed only two pairs at Bodö during the spring and summer of 1857. Professor von Nordmann states that it is common in the centre of Russia, but becomes more rare towards the south and east. Radde records it as occurring on the Jenesei in winter, as he saw it often at Krasnojarsk in November.

Messrs. Elwes and Buckley, in their paper on the 'Birds of Turkey,' say that the present species was seen "on the mountains of Macedonia, and also found near Constantinople."

Mr. Robson gives us the following note:—

"This species is very numerous in Turkey in Europe and Asia Minor, in the winter; they arrive in the autumn and depart in the spring, are fond of congregating in flocks, and feed much in farmyards, in valleys, and on mountain-sides. They are also very partial to feeding in thickets of brambles &c. Great quantities of them are taken during the autumn migration by bird-catchers for the table."

Following the range of the Yellow Bunting in Southern Europe, we learn from Lindermayer that it is, to the best of his knowledge, not found in Greece, even in winter. In Italy it is common, and has been observed during the winter near Pisa by Dr. Giglioli; it is included by Signor Bettoni among the birds that breed in Lombardy.

Malherbe says it is "not common in Sicily, on the Messina side. I have nevertheless seen it on the hills of Bagharia, near Palermo, and not far from Montreal."

Bailly writes concerning the present bird as follows:—

"Sedentary and very common in Switzerland and Savoy, and is met with in the mountains, both in cultivated places and those covered with brushwood, and fallow ground, particularly during the summer. It is very rare in the Alps, above the range of tree-growth. I have seen it once on the Mont Cenis, close to the range of eternal snow at Rivers, during the breeding-season. Its nest was on the ground amongst a mass of the *Rhododendron ferrugineum*."

It has likewise been included by Mr. W. Grant among the birds occurring in Malta. The many errors and misstatements recorded by the last-named author justly raised the indignation of Mr. Wright, who has resided so long on the island and so carefully elucidated the Maltese Avifauna. In concluding his criticisms on Mr. Grant's pamphlet, Mr. Wright says, "this is the last species I shall quote as an egregious blunder. We are not only told that it is found here, but that it is common too!"

In Southern and Eastern Spain, Mr. Howard Saunders has found it to be only an occasional visitant, occurring sometimes in winter. Naceyro, indeed, states that near Santiago it is common

and sedentary; but Guirao speaks of it as a very rare bird in the province of Murcia. In Portugal it has not yet been authentically determined to occur; but Moquin-Tandon has included it among the birds of the Canaries.

Mr. Gould states that it also inhabits the northern regions of Africa from Tunis to the Nile; but we cannot find his authority for this latter statement.

Loche says it is not common in Algiers, and found more frequently during the winter season. He procured it himself on the Zaccar, in the province of Algiers, where he often met with it.

The Yellow Bunting is a well-known bird, and is to be observed on almost every hedge-row. Perched on the top of the highest available twig, the male may be heard incessantly pouring out his monotonous but not disagreeable song; and during the breeding-season these notes fall upon the ear from the early morn till late into the evening; as twilight sets in, the Yellow Hammer may still be heard, and is perhaps the last bird to give a parting note to the retiring day, with the exception of his congener the Corn-Bunting, who sings till it is quite dusk. Country people imitate the note of the Yellow Hammer by the words, "a little bit of bread and no *cheese*," the accent on the last word; but sometimes the utterance alters in tone, the request being for a "little bit of bread and *no* cheese," the last word being dropped and the accent on the penultimate. In the north they render its note as "de'il tak' ye." These words, however, scarcely reproduce the true note of the Yellow Hammer, and we may quote the following from Bechstein:—"Its song, which it utters from February to August, sitting on the top of a tree or twig in a conspicuous position, is not disagreeable, and consists of these seven to nine clear notes, *ti-ti-ti-ti-ti-ti-tiiii-ti*, of which the first syllables are evenly sounded, whereas the latter are more drawn out." The call-note is sharp, and resembles the word "zeetsch."

The present species cannot be considered a true migrant, as it merely changes its habitat on the approach of winter, when it leaves the more wooded country and collects in flocks in the fields and in the neighbourhood of habitations. To some extent, when it has located itself in the high north in inclement situations, it seeks more temperate climes on the approach of the cold weather.

Its food consists chiefly of seeds, but during the summer season it is to a certain extent insectivorous, and is of utility to the husbandman from its feeding on the green caterpillar of *Papilio rapæ*, as observed by the Rev. H. F. Snell (J. f. O. 1857, p. 186). Macgillivray also (B. of Gr. Brit.) gives similar details. Naumann (Vög. D. iv. p. 245) states that during the summer time they chiefly feed on insects, without, however, despising seeds, on which latter they subsist principally during the winter. Oil-containing seeds they only feed on when cereals are unobtainable; rye, however, they do not seem to care for.

The nest is composed of dry grass-straws, roots, moss, and occasionally small twigs, and is neatly lined with fine roots and hair. Naumann states that it never uses feathers. It is generally placed near or on the ground, but is occasionally found in a bush some feet above the earth. Mr. Salmon, according to Hewitson, found a nest at the unusual height of seven feet above the ground among the thick bushy branches of some broom.

Yarrell remarks:—"The Yellow Bunting is a late breeder generally, but some exceptions to this rule have been noticed; and the nest is more frequently placed upon or very near the ground,

under shelter of a bush, in a hedge-bottom, or on the grass-grown bank of a deep ditch or brook, and the moss, roots, and hair of which it forms its nest are usually well put together. Exceptions to both these points also happen occasionally." Mr. Blackwall, in some ornithological remarks printed in the first volume of the 'Zoological Journal,' says:—"It is well known that the Yellow Bunting generally makes a very substantial nest, yet from some internal defect (for there did not appear to be any in its external configuration), a female of this species, in June last, deposited its eggs on the bare ground, in which situation it sat upon them till they were hatched. It is evident that birds of the same species possess the constructive powers in very different degrees of perfection; for, though the style of architecture is usually adhered to, the nests of some individuals are finished in a manner greatly superior to those of others." We have ourselves found the Yellow Bunting's egg deposited on the bare ground, but whether by accident or intention we are unable to say.

The eggs, from four to five in number, are dull white, occasionally with a russet tinge, and are profusely covered with long hair-like markings, giving the appearance of having been drawn by a pen. This peculiarity has gained for it in some parts of England the provincial name of "Writing-Lark." Naumann states that the male assists in the incubation, taking the place of the female several hours in the course of the day, and that the young are hatched in thirteen days.

Our descriptions and figures are from a pair in our collection, in full summer plumage.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b, c, d. Hampstead (*Davy*). *e, f, g, h, i, j.* Piedmont (*Salvadori*). *k.* Crimea (*Whitely*).

E Mus. J. H. Gurney, jun.

a, b, c, d, e. Greatham, Durham (*J. H. G.*). *f.* Somersetshire (*J. H. G.*). *g.* Northrepps, Norfolk (*J. H. G.*).

E Mus. Lord Lilford.

a. Lilford (*L.*).

E Mus. Salvin and Godman.

a, b. Surrey (*F. G.*). *c.* Cambridge (*O. S.*). *d.* Cambridge (*Baker*). *e.* Sarpsborg, Norway (*Baker*).
f. Borregard, Norway (*Baker*).

E Mus. H. B. Tristram.

a. Greatham, Durham (*J. H. Gurney*).



EMBERIZA CIRLUS.
1874.

EMBERIZA CIRLUS.

(CIRL BUNTING.)

Emberiza cirlus, Linn. Syst. Nat. i. p. 311 (1766).*Emberiza elæathorax*, Bechst. Orn. Taschenb. p. 135 (1802).*Citrinella cirlus*, Gray, Hand-l. of B. ii. p. 113 (1870).*Cirl Bunting*, English; *Bruant zizi*, French; *Linacero*, *Ave-tonta*, Spanish; *Cia*, *Cicia*, Portuguese; *Zigolo nero*, Italian; *Zaunammer*, German; *Strenatka ogorodnaya*, Russian.*Figuræ notabiles.*

Gould, B. of Eur. iii. pl. 175; Yarr. Brit. B. i. p. 448 (1843); Naum. Vög. Deutschl. Taf. 102; Schl. Vog. Nederl. pl. 156; Gould, B. Gr. Br. pt. x.

♂ *æstiv.* pileo toto lætè olivascenti-viridi, collo postico paullò griseo tincto, plumarum omnium parte medianâ nigricanti-brunneâ: loris et supercilio longo, usque ad regionem paroticam posticam producto, genisque lætè citrinis: lineâ a basi maxillæ per oculum ductâ et plumis malaribus nigricantibus paullò olivaceo tinctis: dorso superiore cum scapularibus badiis, parte medianâ nigricanti-brunneâ strias longitudinales formante, plumis omnibus angustissimè, interdum obsoletè, fulvo marginatis: dorso postico et uropygio olivascenti-brunneis, striis medianis indistinctis, supracaudalibus magis badio tinctis et scapis brunneo distinctiùs indicatis: tectricibus alarum brunneis, minimis clarè olivaceo tinctis, medianis albido marginatis et majoribus fulvescenti-badio latè lavatis: remigibus brunneis extus angustè olivaceo marginatis, secundariis latè badio marginatis et terminatis: caudâ brunneâ, pennis duabus centralibus fulvescenti lavatis, reliquis angustè olivaceo marginatis, rectricibus extimis plerumque albis, plagâ obliquâ albâ notatis, penultimis versus apicem pogonii interni obliquè albis: gulâ nigrâ, gutture imo lætè citrino: pectore summo flavicanti-olivaceo: corporis summi lateribus lætè badiis, angustè fulvo marginatis: abdomine cum subcaudalibus citrinis, hypochondriis fulvescenti-brunneis, lineis angustis brunneis conspicuè notatis: subalaribus albidis, minimè citrino tinctis: rostro saturatè cinerascenti-plumbeo: pedibus flavidis: iride brunneâ.

♂ *hiem.* vix à ptilosi æstivâ distinguendus, sed obsoletior et magis obscurus: plumis omnibus fulvescenti marginatis: gulâ obscuriore, fulvescenti-brunneo marginatâ.

♀ *æstiv.* fulvescenti-brunnea, dorsi plumis et scapularibus badio lavatis, scapis latè nigricanti-brunneo indicatis: uropygio magis olivascente: pileo brunnescente, vix flavido lavato, nuchâ posticâ clariùs flavo lavatâ: supercilio distincto sordidè citrino: regione paroticâ posticâ nigricante: genis pallidè flavicantibus brunneo notatis: tectricibus alarum brunneis, minimis clarè olivascentibus, medianis et majoribus fulvescenti marginatis, his badio lavatis: remigibus et caudâ ut in mari coloratis: gulâ sordidè albidâ vix citrino tinctâ: gutture imo lætiùs citrino: pectore superiore sordidè olivascente: corporis lateribus obscurè cinnamomeis: abdomine medio citrino, immaculato: corpore reliquo subtus lineis brunneis distinctis ubique striolato: subalaribus albidis paullò citrino tinctis: subcaudalibus pallidè citrinis brunneo medialiter striatis.

Obs. *E. citrinellæ* feminæ simillima, sed saturatior, pilei plumarum basibus grisescenti-brunneis nec flavis,

tectricibus alarum minimis olivaceis nec flavicantibus, et uropygio olivascente nec cinnamomeo distinguenda.

♀ *hiem.* sordidior, plumis omnibus fulvo marginatis, dorsi plumarum marginibus cinerascentibus.

♀ *hornot.* suprà brunnea, dorsi plumis vix cinnamomeo tinctis, marginibus plumarum pallidè fulvescentibus : tectricibus alarum minimis clarè olivaceis, majoribus vix cinnamomeo magis fulvescenti marginatis : corpore subtus toto pallidè flavicante, ubique lineis parvulis brunneis striato : abdomine paullò magis citrino tincto, immaculato : aliter ut in feminâ adultâ colorata.

Adult male in summer plumage. Crown of the head, back and sides of the neck clear olive-green, the shafts blackish, giving the appearance of stripes all over the head; back and scapulars dark bay, almost chestnut, each feather marked with a median blackish stripe; lower part of the back and rump greenish grey, the shafts obscurely marked, more plainly on the upper tail-coverts, which are faintly tinged with rufous; wing-coverts brown, the least ones olive-green, the median ones plain brown, conspicuously edged with fulvous, the greater coverts margined with bay, those nearest the back more broadly; quills brown, all but the innermost secondaries washed with olive-green on the outer web; these latter broadly edged with bay, like the back; all the quills whitish at the base of the inner web; tail-feathers brown, the two centre ones edged with fulvous bay, all the rest narrowly and obscurely fringed with dull olive-green, the outermost feather almost entirely white, excepting the shaft and part of the feather at the tip, and also an oblique narrow line running from the base along the inner web, penultimate all brown, excepting an oblique patch of white towards the tip of the inner web; lores and a very distinct eyebrow, as well as the cheeks, clear lemon-yellow; a line of feathers from the base of the bill, enclosing the eye, and broadening out over the hinder part of the ear-coverts, which it encircles before it joins the malar stripe of feathers, blackish with a slight tinge of olive; a malar stripe dull greenish; throat black, the lower part crossed with a citron-coloured crescent-like patch; fore part of the chest clear yellowish olive; sides of the upper breast rich bay, with slight fulvous markings to the feathers; flanks greyish brown with a slight fulvous tinge, the shafts indicated by very distinct brown lines, producing a striped appearance; centre of the breast and abdomen clear citron-yellow, unstriped; under tail-coverts pale citron, one or two of the feathers striped with brown down the centre; under wing-coverts whitish with a very faint tinge of yellow; bill dark ashy; legs yellowish; iris brown. Total length 6 inches, culmen 0·4, wing 3·15, tail 2·8, tarsus 0·7.

Obs. The specimen above described is in very complete spring plumage, but has not altogether lost the fulvous edgings to the feathers, which are the remains of the winter plumage. A male bird, killed by Sharpe near Chichester, on the 11th of July 1870, is in the fullest summer dress we have seen; but the plumage is everywhere worn and abraded; there are, however, hardly any remains of fulvous margins to the back-feathers, on which also the median shaft-stripe is excessively narrow. Considerable variation seems to exist in the colour of the head and green breast-patch; some are very green in tint, some, on the other hand, are more grey. One specimen in particular, in Lord Lilford's collection from Spain, is wonderfully grey, especially on the nape; but whether this variation is due to age or not, we are unable yet to discover.

Male in winter plumage. More obscure than in summer, the feathers, as in most Buntings, being plainly margined with fulvous; the summer plumage being gained by a gradual shedding of these pale margins. The throat is covered by brownish edgings to the black feathers, but never in such profusion as to destroy it entirely.

Female in summer plumage. Above fulvous brown, the back and scapulars, particularly the latter, exhibiting a strong tinge of bay; rump olive-brown, not striped like the rest of the body with dark blackish shaft-lines; head brown, with a very faint tinge of olive, a little clearer on the nape, everywhere streaked with dark shaft-markings; eyebrow dull yellow tinged with brown; cheeks and ear-coverts dull brown, the latter inclining to black, the cheeks specked with brown; least wing-coverts olive-green, median and greater ones edged with light bay; wing and tail as in the male, although on some of the third tail-feathers a spot of white appears at the tip; throat dull brownish yellow with specks of brown, the lower part of the throat rather clearer yellow; upper part of the breast dull olive-green with brown shaft-stripes; side of the upper part of the breast and flanks obscure bay, with very distinct longitudinal lines of blackish brown; abdomen dull citron, unspotted; under tail-coverts pale citron, streaked with blackish; under wing-coverts whitish, with a very distinct tinge of yellow. Total length 6 inches, culmen 0·4, wing 3·0, tail 2·7, tarsus 0·7.

Female in winter plumage. Like the male, more obscure than in summer, owing to the yellowish edgings to the feathers. Some birds when in full winter dress have a tinge of ash-colour in the centre of the back.

Young female. Pale brown above, with light fulvous edgings to the feathers of the centre of the crown and back, the latter mesially streaked with dark brown; least wing-coverts olive-green as in the adult, the edgings to all the other coverts pale fulvous, with scarcely any tinge of bay; the secondaries broadly edged with the latter colour, and also margined with fulvous towards the tip; rump and upper tail-coverts olive-brown, the latter with very distinct dark centres; under surface of the body very pale yellowish, almost white, with a little tinge of brighter yellow on the upper part of the abdomen, all entirely covered with little brown shaft-stripes, most distinct on the breast, and taking the form of little spots on the throat and flanks.

Obs. Considerable difficulty is often experienced in distinguishing the female Cirl Bunting from the hen of the Common Yellow Bunting; but in reality they are very different. Our friend Mr. J. Gatcombe, of Plymouth, suggests a very crucial test, and one which, we believe, will always be found to answer; this is by parting the feathers of the head, when the Yellow Bunting at all ages will be found to have the bases of the feathers yellow. In addition to this character, the colour of the rump is different in the two birds, that of the hen Yellow Bunting being bright bay, that of the female Cirl Bunting olive-brown; whilst one of the best distinguishing characteristics between the two species will be found in the colour of the least wing-coverts, which in the Cirl Bunting are conspicuous olive-green at all ages.

THIS is a more southern species than the Yellow Bunting, in its habits, however, much resembling that bird. Throughout the whole of Central and Southern Europe it is plentiful, extending its range eastward into Asia Minor and Russia in Europe. Its northern habitat does not extend into Scandinavia; but it is found in Northern Germany, Holland, and France, and is distributed, though not very common, throughout the southern counties of the United Kingdom.

The Cirl Bunting was first noticed in England by Colonel Montagu, who discovered it near Kingsbridge, in Devonshire, in the winter of 1800. According to Yarrell it has been found in Hampshire, Berkshire, Sussex, Wiltshire, Dorsetshire, Devonshire, and Cornwall, and is particularly abundant in the Isle of Wight. It is rare in the northern counties. One was obtained in 1837 near Doncaster; and he had also heard of its being captured near York and Edinburgh. Lord Lilford writes to us that on his own estate at Lilford, in Northamptonshire, he "once, and

once only, saw a fine male bird feeding among Sparrows, Greenfinches, &c. in the courtyard where the Emus are kept." He adds, "I never heard of it before or since in these parts, and never recognized its note, which I know well." In the continuation of his paper on the distribution of birds in Great Britain during the breeding-season, Mr. A. G. More thus writes:—"Along the south coast, from Cornwall to Sussex; but does not appear to breed in Kent. Nests occasionally in Surrey (*Mr. F. Godman*). Has been seen in Herts, in May, by the Rev. H. H. Crewe, who has lately found it breeding near Tring (*Ibis*, 1865, p. 114). It has been obtained in Berks by the Rev. F. O. Morris, and in Bucks (*H. H. Crewe*). Breeds in Gloucestershire (*Rev. F. J. Scott*), in Hereford (*Mr. R. M. Lingwood*), in Worcester and Warwick (*Mr. R. F. Tomes*). The few birds which have been noticed further north were most likely accidental visitors." In Belgium, De Selys-Longchamps records it as being rare near Liége, but found nesting in the valley of the Rhine. De la Fontaine says that in Luxembourg it is probably accidental, as he has never observed it. Herr von Homeyer writes to us that he found it breeding on the left bank of the Moselle; he also observed it near Trier, Igel on the Saar, and Metlach.

Mr. H. M. Labouchere informs us that in Holland it is of rare occurrence, and does not breed there. According to Degland and Gerbe it is a bird of passage in Northern France, but resident and common in the Pyrenees, Anjou, and Provence. Jaubert and Barthélemy-Lapommeraye also state that it "seldom breeds in the north of France, but is common and sedentary in the departments of the Var, Basses-Alpes, and Vaucluse." Bailly remarks:—"Although common in Switzerland and Savoy during the summer season, it is less so than the Yellow Ammer, which it much resembles in its habits. Very few remain with us during the winter, but retreat to the south to avoid the cold."

Respecting its distribution in Spain, Mr. Howard Saunders writes to us:—"This species is generally distributed throughout Spain, but is nowhere very numerous. Its favourite haunts are the sides of hills, preferring more barren and less cultivated ground than *E. cia*. I found its nest near Alora, almost within sight of Africa." We are likewise indebted to Major Irby, who has paid great attention to the ornithology of Gibraltar and the neighbourhood, for a note, in which he says that it is a resident in that locality, perhaps more common in spring, when an influx of individuals from the south appears to take place. In Portugal it is plentiful all the year round, according to Professor Barboza du Bocage; but Dr. E. Rey tells us that it is very rare in the southern part of the country. It is found, according to Von Homeyer, on the Balearic Isles, being the only southern form of Bunting occurring there.

Count Salvadori writes to us:—

"In autumn many of these Buntings arrive in Italy from the north and pass on to winter in the warmer southern regions. In spring they go northwards; but many remain to breed in our mountains." Professor Doderlein states that it is a bird of passage, of somewhat unfrequent occurrence in Modena, and rather more abundant about Bologna. The same author says:—"In Sicily it is common and resident throughout the year, frequenting the gardens and small hills in the neighbourhood of towns in winter, and retiring to the wooded mountains to breed. Lord Lilford found it "resident, but not very abundant, in Corfu." Lindermayer writes concerning the present species in Greece, as follows:—"Arrives in our olive-groves in considerable numbers, from the north of Europe, about the middle of October, when it loves to sit on the

top branches of the olive-trees and twitter a long song from thence. It remains the whole winter in our parts, and leaves from about the latter end of February to the middle of March. Many pairs breed here. It does not seem to occur on the islands of the Archipelago, is rarer in the Peloponnesus than in Rumelia, but I believe that it breeds there on the Taygetus and Kyllene mountains." Dr. Krüper has more recently procured it in Naxos. In Turkey, according to Messrs. Elwes and Buckley, it is "common and resident." The late Mr. Strickland found it near Smyrna, haunting the vicinity of streams. In Southern Russia Von Nordmann gives it as "rare in the steppes, but much less so in the mountainous country in the southern portion of the Crimea." In Palestine it was not met with by Canon Tristram.

Mr. C. A. Wright observes in his list of birds of Malta and Gozo:—"I have what appears to be a female of this species, taken on the 12th November 1862. Signor Schembri possesses a male, which was captured on the 20th November 1839;" and later on he writes:—"I have obtained another example, taken alive in 1863." His latest note is as follows:—"Since 1863 several examples have been taken; and on the 10th and 11th of November 1869 I picked up two males in the market." In Northern Africa, Canon Tristram says:—"I have found this bird occasionally in the open plains of K'sour and Oumache. It seems to be only of winter passage in the Sahara." Mr. Osbert Salvin also observes, "I frequently saw the Cirl Bunting at Khifan M'sakta and its neighbourhood. We afterwards, in May, obtained nests." Mr. L. Taczanowski writes us that "it is common in Algeria all over the coast and the slopes of the Atlas, but I never met with it in the desert. It always frequents the wooded districts and the bushes, and, like the Common Yellow Bunting, often comes to habitations to seek for food, and perches on the hedges. It is, however, much wilder than that bird."

Naumann states that it is migratory in Germany, leaving its northern habitat in November, perhaps even much earlier, wintering far to the southward and returning in April. It frequents the same kind of places as the Yellow Bunting, such as the bushy banks of streams, meadows, and hedges, small groves in mountainous districts, in the neighbourhood of fields and gardens. In many other respects the Cirl Bunting resembles the Yellow Bunting. It prefers to take up its position in a high and open place, on the tops of trees; but later in the season it is found lower down, and likes to hide in the dense thickets. It hops a good deal on the ground, and is by no means shy. When frightened up, it soon settles on the nearest low bush and shows little fear. Also in its flight it resembles its near relative, and quarrels and snaps at it when none of its own species are near with whom it can fall out: it is equally quarrelsome, and is at times as restless as that bird. The voice and song are strictly Bunting-like. Bechstein expresses the call-note as follows:—*zi-zi-zä-zirr*. The song, he says, is similar to that of the Yellow Bunting, but less melodious, and sounds as follows:—*zis-zis-zis-gör-gör-gör*: the male sings incessantly, sitting on an exposed twig or the top of a tree. These Buntings eat both insects and seeds—namely, the cabbage caterpillars and other larvæ of insects, small black coleoptera, grasshoppers, both ripe and ripening grain, such as oats, wheat, barley, &c., all grass seeds, but only in case of need oily seeds, such as turnip seed &c. We have taken the above account of the habits of the Cirl Bunting entirely from Naumann's 'Birds of Germany,' as it is by far the most complete record of its economy that has yet come under our notice. In England it is gregarious in winter, and may

be observed in flocks on the southern coast. Indeed as soon as the young have flown the whole family keep together, and may be seen in the dense hedgerows sitting low down in the thick parts, and displaying much fearlessness. When disturbed they only fly a short distance, and perching on the topmost bough of the hedge regard the intruder; but if not pressed further, they retreat once more into the thick of the bushes.

Von Homeyer describes the song as being loud, and consisting of the strophes *tütt tütt tütt tütt tütt tütt*, uttered in moderate tune, either monotonously or decrescendo. Major Irby says the song is the same as that of *E. citrinella*, but without the long drawn out note at the end.

Mr. T. Robson, of Ortakeuy, has kindly sent us the accompanying note:—

“This species is numerous in Turkey in Asia and Europe, and is a constant resident. It is widely spread over the hills and valleys, but seems most partial to those narrow valleys where the sides are covered with brushwood and grasses, and especially those which are partially cultivated and interspersed with a few low trees. It is a shy bird, and on alighting retires into the interior of bushes and trees, where it is not easily seen. It builds on bushes near the ground, mostly on hill-sides. Quantities of them are taken during the autumn migration by means of limed twigs and sold for food. They congregate in the winter in large flocks, and feed much in the summer on caterpillars that abound on the oak-trees.” Major Irby writes to us:—“The Cirl Bunting appears to me to frequent near Gibraltar more woody districts during the breeding-season than the Yellow Bunting, as it is there common in the cork-wood in open spaces.”

A specimen in the collection of Mr. J. H. Gurney, jun., shot by Mr. Gatcombe near Plymouth, bears the following label:—“The gizzard contained six or seven different plants (two of them Mr. Cordeaux believes to be grasses), and the usual accompaniment of small sharp angular stones.”

Hewitson thus describes the nest. “It generally builds in firs or some low bush. The nest is composed of dry stalks, roots, and a little moss, lined with long hairs and fibrous roots. The eggs are four or five in number.”

We have now before us eggs of this Bunting from Dresser's collection, taken on the Isle of Wight, and near Madrid. In colour they are pale greyish-white with a faint blue tinge, marked all over with the peculiar scratches so characteristic of Buntings' eggs; these are pale purplish-brown and dark blackish-brown. Compared with Yellow Ammers' eggs, they are lighter-coloured (these latter often have the ground-colour with a faint russet tinge), and the scratchings are bolder and darker. Dr. E. Rey, who gives the average size of fifty-three specimens as 21·5 millims. by 16·4 millims., states that the number of eggs is five, seldom six.

The descriptions and figures of the adult birds are from specimens in our own collection.

In the preparation of the above article we have examined the following specimens:—

E. Mus. Sharpe and Dresser.

a, b. St. Leonards, Sussex (*H. E. D.*). *c, d.* Pagham, Sussex, July 11th, 1870 (*R. B. S.*). *e.* Plymouth (*J. Gatcombe*). *f.* Hampstead (*Davy*), *g.* Middlesex (*Gardner*). *h.* Piedmont, November 1869 (*Salvadori*). *i.* Gibraltar, March 6th, 1870 (*L. H. Irby*).

E Mus. J. H. Gurney, jun.

a, b, c, d, e, f, g. Plymouth (*J. Gatcombe*). *h.* Essex (*J. H. G.*). *i.* Devonshire (*J. H. G.*). *j.* Bagnères de Bigorre (*J. H. G.*). *k.* Algiers (*J. H. G.*).

E Mus. Howard Saunders.

a, b. Macedonia, October 12th and November 29th, 1869 (*Th. Krüper*).

E Mus. Lord Lilford.

a, b. Brighton, Sussex (*Pratt*). *c.* Isle of Wight (*L.*). *d.* Aranjuez, April 27th, 1865 (*L.*).

E Mus. H. B. Tristram.

a. Kingsbridge, Devon (*H. B. T.*). *b.* Torquay, May 12th, 1855 (*H. B. T.*). *c.* K'sour, Mount Atlas, January 28th, 1857 (*H. B. T.*).



ORTOLAN BUNTING.
EMBERIZA HORTULANA.

EMBERIZA HORTULANA.

(ORTOLAN BUNTING.)

- Emberiza hortulana*, Linn. Syst. Nat. i. p. 309 (1766).
Emberiza maelbyensis, Sparrm. Mus. Carls. pl. 21 (1786).
Emberiza badensis, Gm. Syst. Nat. i. p. 872 (1788).
Emberiza chlorocephala, Gm. Syst. Nat. i. p. 887 (1788).
Emberiza tunstalli, Lath. Ind. Orn. i. p. 418 (1790).
Citrinella hortulana, Kaup, Natürl. Syst. p. 142 (1829).
Emberiza pinguescens, Brehm, Vög. Deutschl. p. 295 (1831).
Emberiza buchanani, Blyth, J. A. S. B. xiii. p. 957 (1844).
Euspiza hortulana, Blyth, Cat. B. Mus. As. Soc. Beng. p. 129 (1849).
Glycispina hortulana, Cab. Mus. Hein. Th. i. p. 128 (1850).
Hortulanus chlorocephalus, Bonap. Cat. Parzud. Coll. p. 4 (1856).

Ortolan, English; *Bruant ortolan*, French; *Ortolano*, Italian; *Urtulan*, Sicilian; *Ave tonta*, Spanish; *Gartenammer*, German; *de Ortolan*, Dutch; *Ortolansparf*, Swedish; *Hortulan*, Norwegian; *Hortulanen*, Danish.

Figuræ notabiles.

Naum. Vög. Deutschl. iv. Taf. 103; Gould, B. of Eur. iii. pl. 176; Yarr. Brit. B. i. p. 455; Kjærb. Orn. Dan. Afb. xxv. fig. 2; Schl. Vog. Nederl. pl. 155; Gould, B. of Gt. Br. part x.; Bett. Ucc. nidif. Lomb. tav. 68; Fritsch, Vög. Europ. Taf. 17. fig. 1.

♂ pileo toto et pectore antico sordidè cinereis distinctè olivaceo lavatis: regione oculari, strigâ mystacali et gutture pallidè citrinis: lineâ angustâ malari olivascente: dorso fulvescenti-brunneo, plumis medialiter saturatè brunneis, lineas longitudinales formantibus: uropygio rufescenti-brunneo unicolori: tectricibus alarum brunneis latè fulvescente marginatis: remigibus brunneis, primariis angustè, secundariis latè fulvescente marginatis: caudâ saturatè brunneâ, pennis centralibus angustè fulvo marginatis, rectrice penultimâ versus apicem pogonii interni albâ, rectrice extimâ plerumque albâ, ad basin et versus apicem pogonii externi brunneâ: corpore subtùs pallidè cinnamomeo: subalaribus flavicantibus, olivaceo lavatis: rostro saturatè carneo, maxillâ paullò saturatiore: iride brunneâ: pedibus pallidè carneis.

♀ mari similis, sed pallidior, et pectore plus minusve brunneo striato.

♂ *juv.* feminae adultæ similis sed lætiùs coloratus: strigâ malari punctulis linearibus brunneis indicatâ, et pectore antico maculis brunneis notato, hypochondriis quoque lineis brunneis angustissimis striatis.

♀ *jun.* suprâ brunnea, plumis nigricanti-brunneo medialiter striatis: genis et gutture toto flavicanti-albidis; strigâ mystacali et pectoris antici punctulis linearibus saturatè brunneis: corpore subtùs reliquo pallidè flavicanti-cinnamomeo, hypochondriis brunneo longitudinaliter striatis.

Male. Head grey, very strongly tinged with greenish yellow; a ring of feathers round the eye, lores, and throat pale citron-yellow; back fulvous brown, with dark stripes down the centre of the feathers; rump rather inclining to yellowish brown, unspotted; wing-coverts greyish brown, the greater ones edged with fulvous white, forming an indistinct double alar bar; quills brown, the primaries externally edged with yellowish, the secondaries broadly edged with rufous, shading into fulvous on the margin of the feather; tail dark brown, the two central feathers edged with fulvous, the two outer rectrices white for the apical half of the inner web; sides of the neck and fore part of the chest greenish, the latter strongly tinged with yellow; rest of the under surface of the body tawny, deeper on the lower part of the chest; the under wing-coverts whitish, tinged with yellow, and slightly mottled with brown along the edge of the wing; bill dark flesh-coloured, rather darker above than below; iris brown; legs pale fleshy red. Total length 6.5 inches, culmen 0.5, wing 3.6, tail 2.9, tarsus 0.75.

Obs. A certain amount of variation exists in the shade of colour on the head and breast of the male Ortolan Bunting, this part being much more grey in some birds than in others.

Female. Very similar to the male, but paler in colour, and having the plumage duller and more brown, and differing especially in having the breast and flanks more or less distinctly striped with brown; there is also no tinge of olive-green on the chest. Total length 6.2 inches, culmen 0.5, wing 3.3, tail 2.7, tarsus 0.75.

Obs. Another female, in Lord Lilford's collection, is richer in colour than the one above mentioned, having the throat brighter lemon-yellow, and the breast very pale tawny; the stripes on the chest are very distinct. One bird in Lord Lilford's collection, obtained by himself in Spain, and another shot by Mr. Robson in Asia Minor, scarcely differ at all from the male, and could not be distinguished, except by the slightly paler coloration. From this it would appear that the female, when adult, exactly resembles the male, rather an anomalous fact among Buntings.

Young Female. Above greyish brown, some of the feathers slightly edged with fulvous, everywhere streaked with broad dark brown median lines, fainter and less distinct on the rump; wings and tail as in the male, but the rufous edgings to the secondaries not so bright; lores dirty brownish white; ring of feathers round the eye and a distinct malar stripe yellowish white; a very dark brown moustache on each side of the throat; sides of the neck greyish brown; breast pale buff, more dusky on the upper part; the throat, breast, and flanks marked with narrow little brown stripes; under wing-coverts whitish, tinged with yellow and mottled with brown along the bend of the wing. Total length 6 inches, culmen 0.45, wing 3.3, tail 2.5, tarsus 0.75.

Obs. Some young birds sent to us the other day, said to have been caught by a bird-catcher at Yarmouth, are very remarkably coloured: unfortunately they were too young for us to distinguish the sex. They are all three yellowish cinnamon on the breast, one of them being darker than the others, and they all have the breast very distinctly striped. Above they are dark brown with very broad and distinct edgings to the wing-coverts and secondary quills. There is a certain tinge of olive on the head, but none on the breast; the throat in one is pale yellowish white, in another lemon-yellow, while the third has this part ochre; in all three examples the yellow on the under wing-coverts is very bright.

Winter plumage. As in other Buntings, this is assumed by the donning of fulvous-edged feathers.

THE Ortolan Bunting is widely distributed over the whole of Europe, and is found in summer from the high north of Sweden, breeding occasionally in Lapland. It extends into Morocco, but

does not yet appear to have been found in Algeria. Its eastern limit seems to be Western India; but it does not make that country its winter home, for this season of the year would appear to be passed in North-eastern Africa.

Its occurrence in England is only occasional, and it is probable that all the birds yet procured have been escaped specimens. Yarrell mentions four instances of its capture; besides which Sharpe has heard of four examples having been killed near Cookham, as mentioned by him in Mr. Alexander Clark Kennedy's 'Birds of Berks and Bucks.' It should, however, be stated that these birds were not preserved, and there is no positive authenticity concerning them, though he has every reason to believe that they really were rightly identified. In August of this year (1871) we received from Mr. Davy, a well-known bird-fancier in the Kentish-Town Road, several specimens of Ortolan Buntings, which he had sent to him alive from Yarmouth. Out of this consignment nearly a dozen old and young birds went to the Zoological Gardens, and we secured for our collection four more specimens. We suspect, however, that they were not really caught wild, but were brought over to Yarmouth in some ship, and we do not feel confidence in adding the Ortolan to the list of Norfolk birds on such slender authority. As yet we have been unable, even with Mr. Davy's cooperation, to trace out the circumstances connected with the capture of these birds at Yarmouth. Besides the above-mentioned instances, Mr. Rodd, in his 'Birds of Cornwall,' records one specimen as having been killed on a wall at Trescoe Abbey, in Scilly, in 1851. Mr. R. Collett writes as follows:—"Breeds only in the southern and eastern portions of our country; and in some parts of the provinces of Christiania and Hamar it is scarcely less numerous than the Yellow Bunting. Northward of the fell-ridge it is common about Trondhjem and at Ærkedal. In the province of Christiansand it breeds near Christiansand, but seems to be wanting all along the west coast. At Etne, in Hardanger, it has only been occasionally observed in the spring. On the sides of the fells it sometimes extends to the upper part of the conifer region, where it is found on the Hemsedalsfjeld and on the Dovre." Nilsson says that in some parts of Scandinavia the Ortolan breeds numerously. It particularly affects mountain-ridges where granite or other stony ground is but thinly covered with trees and bushes, but is sometimes found in dense birch-woods or the skirts of the forest. In parts of Skåne, Halland, along the coast, and in Bohuslän it is common. In some parts of Wermland it occurs, is common in Dalarne, and abundant in Lapland as high as the fells; but on parts of the east coast and islands, as for instance on Gottland, it is rare. Dresser when travelling along the east coast of Sweden, from Torneå to Stockholm in the early summer, found it nearly everywhere, and particularly numerous near Luleå and Skellefteå, where many must have been breeding. It has not been noticed by Pastor Sommerfeldt at the Varanger Fjord; and at Quickjock, in Lapland, Wheelwright records it as very rare, and says he could only find one nest. Travelling up the coast of Finland in the early spring, Dresser first observed the Ortolan above Åbo, and noticed it oftener as he travelled northward. This agrees with the statements of Von Wright and Von Nordmann, that it is common in Northern, but rare in Southern and Central Finland. Near Uleåborg, and between there and Torneå, Dresser found it very abundant, generally observing them sitting on the fences by the road-side amongst the open grass- or grain-fields, or perched on the small barns which are scattered about the meadows. Numbers breed in the north of Finland, extending to within the Polar circle.

In Livonia, according to Mayer, it is rare, only being occasionally observed in the autumn. Mr. J. C. H. Fischer states that it probably passes through Denmark every year, but is seldom noticed. Gätke has procured it on Heligoland. In Prussia it is stated by Herr Carl Vangerow to be common; and breeds in Anhalt, according to Herr von Homeyer; while Dr. Rey sends us word that since 1865 it has bred near Halle a. S.; indeed it would appear to have become more numerous in Germany since Naumann's time; while Borggreve considers it to be generally distributed throughout the country in summer, but nowhere common. Herr von Pelzeln informs us that it was procured by Natterer in Hungary; and our friend Dr. Taczanowski writes as follows:—"It comes to Poland to breed, and leaves us as soon as the nesting-season is over, arriving about the 20th of April, and leaving before the end of August. Its distribution is peculiar, and is difficult to account for, as in certain localities it is entirely wanting. It is very common near Warsaw, almost as numerous, indeed, as the Yellow Bunting. On the left bank of the Vistula it is found everywhere in smaller or larger numbers; but on the right bank of this river there are two large tracts of country where it never occurs—that is to say, in most of the province of Lublin, so renowned for its fertility. It is again found near Pultaway, on the banks of the Vistula, about six geographical miles to the north of Lublin; but further on it is never seen, though the country is exactly similar to that inhabited by it elsewhere. According to Professor Kessler it is found further eastward in the provinces of Volhynia, Podolia, and Kiew. The second district is the province of Augustow, where it is still found about a league to the north of the town of Lomzia; and this is its northern frontier in our country. It will be curious to note if it ever establishes itself later on in these two districts; for some people will have it that the Ortolan was not formerly known in places where it is now so common."

"In Holland," writes Mr. H. M. Labouchere, "the Ortolan is a very rare bird, and in some places is called 'Vreemdeling,' which means a stranger or foreigner. Some years, however, large flocks pass through the country on their way south;" and De Selys-Longchamps says that it arrives in Belgium to breed at the end of March, leaving in September: some pass Lorraine in the autumn, according to Godron. Mr. J. H. Gurney writes to us:—"I was told in Belgium that the Ortolan is there very local in its habits, frequenting one corner or end of a wood or a particular part, and not the remainder, so that the bird-catchers always know where to go to look for them." In the south and north of France, say Degland and Gerbe, the present bird is very common from April to the end of August; and in Savoy, according to Bailly, it is only found during the four or five finest months of the year. It frequents the plains and the adjacent hillocks, being rarely met with on the mountains, not even in the cultivated portions. They arrive every year about the 15th or 20th of April, in small flocks of from four to six individuals, or sometimes in pairs, but the greater number arrive about the end of the month. They breed in Savoy, and leave about the end of August or early in September." Lord Lilford writes to us:—"The Ortolan is very abundant in Northern and Central Spain, particularly in the neighbourhood of San Ildefonso, Old Castile, frequenting stony hill-sides amongst low bushes." Mr. Howard Saunders has procured it near Seville; but near Gibraltar it has not as yet occurred to our indefatigable correspondent Major Irby, who, however, has given us two beautiful specimens preserved by Signor Olcesse, of Tangiers, and shot near that place, where also Mr. C. F. Tyrwhitt Drake found it in summer.

Professor Doderlein says "that the Ortolan arrives in plenty near Modena, in Italy, for its spring residence, and is dispersed equally over the plains and hills, passing again in September. In Sicily it is partly resident, rare in Palermo and Messina, common in the higher portion of the island (Benoit). In the early spring a large portion pass on to the continent and do not return in the autumn. A stray pair or two may remain to breed in Sicily; for some are taken near Syracuse in May. In Sardinia they pass occasionally." Captain Sperling obtained a specimen at Malta in April; and Mr. C. A. Wright, our great authority on the birds of this island, writes as follows:—"Not uncommon in some years. It appears in spring and autumn, in March and April in the former, and in September and October in the latter season."

Von der Mühle says that it is not common in Greece, but more numerous on the autumn migration. It inhabits the bushes along the shores of the rivers. It breeds in the flat fruitful parts, as, for instance, on the shores of the Eurotas, near Sparta. Lindermayer calls it a rare migrant in the country. Lord Lilford states:—"This Bunting arrives in Corfu in April, and remains to breed. It is rather common. I never observed it in winter." Messrs. Elwes and Buckley state that it is very common in summer all over Turkey; and Mr. Robson has sent several specimens to England, procured by him in Asia Minor. Strickland found it at Smyrna in April. Messrs. Dickson and Ross also noticed it at Erzerum from the 19th of April to the 8th of May. Von Nordmann records it as the most common of all Buntings in Southern Russia. He states as follows:—"It is found in the most contrary localities:—in Bessarabia, in the gardens, in the copses, and in the low grounds where trees are scattered round; in the Crimea, in the flat steppes as well as among the rocks of the south coast. It nests in all these localities. . . . On the south coast of the Crimea we often see this bird consorting with *Turdus saxatilis*." Dr. Gustav Radde writes:—"It is seen in South Russia now and then in summer, as, for instance, at Simpheropol, on the country of high, rich, flowery grass along the limestone hills." Herr H. Goebel also observes that it is "common in summer at Uman (South Russia), arriving late in April or early in May, and leaving in September." Ménétriés says that the Ortolan is very common on the Caucasus—a statement confirmed by Defilippi in the account of his travels in Persia; it was, adds the latter author, rare near Elburz. It even extends its range into the confines of India; for Jerdon says:—"The Ortolan of Europe, considered by Horsfield identical with Blyth's species formerly named by him *E. buchanani*, is recorded to have been occasionally found in Western India.

Canon Tristram, speaking of the occurrence of the present species in Palestine, says that it is "very abundant in the upper country in spring, returning to breed about the first or second week in April." Again he writes:—"Abundant in the hills and plains in spring. Does not seem to descend into the Ghor." It has not yet occurred to Captain Shelley during his ornithological excursions in Egypt; but Mr. E. Cavendish Taylor once shot one near Benisouef in March. Von Heuglin, however, states that the Ortolans arrive in Egypt about the end of March, and in April in flocks, and again in the autumn. In Abyssinia they are common from the end of September to April; and possibly a few pairs breed there. In the highlands they range up to the plateau of Semién, Wogara, and Begemeder, to an altitude of 10,000 feet, not in large flocks, but scattered on the bushy pasturages and hills. In another note he says that it is very common at the end of September in the Bogos country, on grass-land and on rocky precipices.

Respecting the occurrence of this Bunting in Germany our friend Mr. von Homeyer writes us as follows:—"Various opinions are held respecting the occurrence of this bird with us, caused partly because it leads a very silent life, and partly because it only frequents certain localities, and deserts these so soon as they are no longer suitable to its taste. In general it affects sandy soils, but also occurs, not unfrequently, in many fruitful parts. Places where low bushes and old trees are scattered round, pasturages with scattered open thickets and single high trees, where water is near, appear to suit it best. I found it numerous in Mark Brandenburg and parts of Silesia; in Vor-Pommern it is in general rare, and only in some parts, as, for instance, Uecker-münde, commoner. In many parts of Hinter-Pommern it nests not unfrequently, but always in localities like those above referred to. During the autumn migration in August I found it singly, but annually, on the island of Rügen; and here I procured the first *old* autumn bird known to scientific men, which Naumann figured in his appendix. In the spring its song is first heard early in May." Naumann's account of its habits is as follows:—"It frequents, like other Buntings, not the dense forest, nor the fir-woods, but the edges of the thickets, hedges, and low brushwood on meadows and fields, and lovely gardens, when these are near the woods, but always near water. It therefore resorts to marshy underbrush, field-hedges where there are wet ditches, bushy banks of rivers and streams or other such low-lying localities. It likes willows and willow-thickets, but not the true fens, and is only found on the edges of large marshes, thus differing considerably from the Reed-Bunting. It does not show itself much, but keeps either hidden amid the branches of the bushes, or hops about on the ground amongst the grass and weeds seeking its food, flies but little, or never to any distance, and avoids the open country. Only the males are in the breeding-season more restless, sit often on the tops of trees, particularly on trees standing alone in the fields. The females one sees far more seldom." Mr. Dresser has found them abundant in North Finland and Sweden during the spring. They arrive there soon after the snow leaves; and the males may be seen abundantly as one travels along the country roads, sitting on the tops of the small haybarns that stand in most of the meadows, or on the top of a pole in the rough fences, uttering their melancholy call-note. As Naumann remarks, the females are but seldom observed, though the males seem to be so abundant. Its flight is swift and strong, being a continuation of semicircles; but it appears to avoid long flights, only going short distances, from bush to bush, or fence to fence. The note bears considerable resemblance to that of the Yellow Bunting, but appears more melancholy and softer. Boie (Naum. 265) very correctly describes it in the following syllables:—*jif, jif, jif, tjör, tjör*. According to Naumann it breeds here and there in different parts of both Central and South Germany; but he says that but little is known as to its nidification.

Mr. R. Collett, of Christiania, sends us the accompanying interesting note:—"Only once, on the 21st of May 1863, have I seen this bird rise, singing in the air like a Pipit, and drop down again slowly on to a stone; its song consisted of the normal strophe, which is distinguishable from that of its congener *Emberiza citrinella* by the first note being divided thus, *ti-i*, and the final note deep *tjör*, with the addition of a slight preliminary and closing twitter. It rose, several times, about fifty feet into the air and descended again. It was a clear fine evening. I have otherwise heard it sing like the Yellow Bunting, sitting on the top of a tree. Both these species are early birds, and are singing loudly at the first appearance of dawn."

Mr. C. A. Wright, of Malta, has noticed that this bird is fond of bathing itself in pools formed in the rocks.

The following account was contributed by the late Mr. Hoy to Mr. Hewitson's 'Eggs of British Birds':—"The Ortolan Bunting begins to build early in May; it places its nest almost invariably in the corn, preferring rye to other kinds; indeed it is partial to light sandy soils where rye is much cultivated. The nest is placed in some little hollow in the ground, in the manner of that of the Sky-Lark. It is formed of dry grass and roots, thickly lined towards the interior with very fine roots; in some the inside is furnished with a few hairs. The eggs are four, or five—sometimes, though rarely, six in number. I have never found them breeding except amongst corn. The male is almost incessant in its monotonous song during the pairing-season; it much resembles others of the tribe, having some resemblance to that of the Cirl, as well as the Reed-Bunting."

The song much resembles that of the Yellow Bunting, but is easily distinguishable. Nilsson describes it in the words *tink, tink, tink, tink, tjöhr*, the last note being long drawn out and harsh. It sings both during the day and throughout the light nights of the arctic summer. The song is uttered when the bird is sitting on a fence, bush, high stone, or the roof of a barn; and the bird will often fly up into the air for a moment like a Wheatear. Bechstein says "it calls continually and harshly *tir-jitz*; and its song, with which it addresses its mate in the neighbourhood of its nest from March to August, is shorter, more lively, and harsher than that of the Yellow Bunting, and can be expressed by the following syllables:—*toi-toi-toi-tiritz*. When it flies up it makes a peculiar rough sound (*Knarren*) with its bill."

Mr. R. Collett writes to us:—"The nest is always placed on the ground. I have found them on hillocks, under long dry grass, under small bushes (particularly junipers), or broad-leaved plants (as, for instance, *Aconitum septentrionale*, &c.), between the roots of trees, or in hollows beneath small tussocks, or between stones. The eggs are four to five in number, and are deposited rather later than those of the Yellowhammer." Dresser, who has taken many nests, found them invariably placed on the ground, and generally in the open fields; in one nest, taken near Uleaborg, he found a Cuckoo's egg.

We have now before us a series of Ortolan's eggs from Dresser's collection, obtained by the late Mr. Bridger in Holland, and by Dr. Krüper in Greece. In size these eggs measured from $\frac{3.0}{4.0}$ inch by $\frac{2.4}{4.0}$ to $\frac{3.4}{4.0}$ by $\frac{2.5}{4.0}$, there being no perceptible difference in average size between eggs from the two localities. The ground-colour is pale ashy grey, sometimes with a faint russet tinge; and the spots, which are generally distributed over the egg, are pale purplish grey and blackish brown—the former being underlying shell-markings, and the latter overlying surface-spots. The markings are roundish; and only occasionally do the scratchy hieroglyphics so characteristic of Buntings' eggs occur on the eggs of this bird. Dr. Rey writes us that the average size of twenty-nine eggs of this bird from Germany, Greece, and Sweden is 19.9 by 15.6 millims., the largest measuring 22 by 16.25 and the smallest 18.5 by 14.75 millims. It appears to breed in Greece late in May and throughout June. The number of eggs is generally five.

The following note on its food was published by Messrs. Dickson and Ross while at Erzeroum:—"It is singular that among fourteen or fifteen birds which we examined, shot at different times and places, every one had insects as well as seeds in the crop and gizzard."

It is well known that in some of the countries of continental Europe the Ortolan is considered a great delicacy. MM. Degland and Gerbe write as follows:—"This species is much sought after by gourmands on account of its good flavour and the delicacy of its flesh. It soon becomes very fat in captivity. During the autumn migration numbers are netted in Belgium, the south of France, and Italy, and when it appears in spring it becomes, on the coasts of the Mediterranean, from Port Vendres to near Perpignan, the object of unceasing and most destructive persecution."

The description and figure of the adult male are taken from a specimen in our collection, obtained by Mr. Robson, who shot it in Asia Minor. The young female figured in the Plate was collected by Drs. Krüper and Schrader near Smyrna. The adult female is described from a Palestine specimen in Canon Tristram's collection.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b. Tangiers (*Olcesse*). *c.* ♂. Italy, May 15, 1863 (*T. Salvadori*). *c.* ♀ *jun.* Smyrna, May 3rd, 1863 (*L. Schrader* and *Dr. Krüper*). *d.* ♂. Asia Minor (*T. Robson*). *e.* Egypt (*E. Cavendish Taylor*). *f.* ♂. Vestergotland, May 22nd, 1864 (*J. Meves*). *g, h, i, j.* Yarmouth ?? (*C. R. Davy*).

E Mus. Lord Lilford.

a, b. ♂ ♀. San Ildefonso, Old Castile, June 1865. *c.* Jaca, Aragon, May 1867. *d.* Pamplona, May 1867 (*L.*).

E Mus. H. B. Tristram.

a. Geneva, July 1844 (*H. B. T.*). *b, c.* ♂ ♀. Jericho and Tell Kadi, Palestine (*H. B. T.*).

E Mus. Lord Walden.

a. ♂. Wady Beerba, under Mount Tabor, April 1864 (*H. B. Tristram*). *b, c, d, e, f,* ♂, *g,* ♀. Asia Minor (*T. Robson*).

E Mus. Howard Saunders.

a. ♂. Seville, May 10th, 1868 (*H. S.*).



YELLOW-BROWED BUNTING.
EMBERIZA CHRYSOPHRYS.

EMBERIZA CHRYSOPHRYS.

(YELLOW-BROWED BUNTING.)

Emberiza chrysophrys, Pall. Reise Russ. Reiches, iii., Anhang, p. 698 (1776).*Emberiza chlorophrys*, David, Nouv. Arch. Mus. iii., Bullet. p. 31 (1867).*Citrinella chrysophrys*, Gray, Hand-l. of B. ii. p. 113 (1870).*Figuræ notabiles.*

Pall. Zoogr. Rosso-Asiat. tab. xlvi. fig. 2; De Selys-Longchamps, Faune Belge, pl. 4;
 Radde, Reisen in Süd. von Ost-Sibir. Taf. iv. figs. 1 a, 1 b, 1 c; Bree, B. of Eur. iii. p. 63.

♂ *ad.* pileo nigro, lineâ centrali albâ posticè dimidiato: supercilio distincto lætè citrino: facie laterali nigrâ, lineâ malari, colli lateribus et maculâ lineari supraauriculari albidis: dorso brunneo, interscapulio paullulum cinnamomeo tincto, plumis medialiter nigricantibus: tectricibus alarum brunneis, ferè dorso concoloribus, extùs fulvescente lavatis, plumis omnibus medialiter nigricantibus et albo terminatis fasciam duplicem alarem formantibus: remigibus brunneis, extùs fulvescenti-brunneo marginatis secundariis saturatoribus, nigricantibus, pallidè brunneo marginatis: dorso postico et uropygio lætiùs cinnamomeis, plumis quibusdam medialiter saturatè brunneis: caudâ brunneâ, rectricibus duabus centralibus multò pallidioribus, pennis duabus extimis pogonio interno ferè obliquè albis: fasciâ mystacali distinctâ nigrâ: corpore reliquo subtùs albicante, hypochondriis fulvescentibus, pectore superiore et pectore laterali toto lineis nigricantibus distinctè notatis: subcaudalibus albis: subalaribus albidis paullò cineraceo lavatis: rostro brunneo, mandibulâ sordidè albidâ: pedibus pallidè carneis: iride brunnescente.

♀ *ad.* brunnea: pileo laterali nigricanti mixto, pileo mediano albido, nigro striolato, fasciam verticalem albidam formante: lineâ superciliari distinctâ lætè citrinâ: facie laterali rufescenti-brunneâ, parte anticâ paullò albicante, plumis postauricularibus nigris: lineâ malari albidâ: dorso brunneo, cinnamomeo lavato, plumis medialiter nigro striolatis: uropygio distinctiùs cinnamomeo tincto, ubique lineis longitudinalibus notato: tectricibus alarum nigris, pallidè fulvo marginatis, majorum marginibus posticis rufescentibus: remigibus brunneis, extùs ferrugineo marginatis, secundariis latiùs: caudâ brunneâ, ferrugineo marginatâ, pennis centralibus hâc colore clarè lavatis, rectricibus duabus extimis plerumque albis, ad apicem pogonii externi et versus basin pogonii interni obliquè brunneis: subtùs albicans, gutture cum pectore superiore et corporis lateribus fulvescenti-brunneis, his distinctiùs lavatis: gutture imo et pectore maculis sagittiformibus nigris notatis, hypochondriis nigro longitudinaliter striatis.

Adult Male. Crown and sides of the head deep black, with a very distinct central line of white from the centre of the crown to the nape; a broad superciliary streak of lemon-yellow produced backwards over the ear-coverts; sides of the neck white, with a few indistinct brown markings; back greyish brown tinged with cinnamon, and longitudinally streaked with blackish shaft-stripes to the feathers; rump rather more rufous than the back, and also marked with dark central shaft-stripes, somewhat indistinctly indicated; wing-coverts blackish, slightly edged with rufous, and tipped with dirty white, forming two bands across the upper wing; quills blackish brown, the outer web narrowly

edged with pale brown; tail slightly emarginate, blackish brown, the inner webs of the two outer tail-feathers for the most part white, this colour occupying nearly the whole of the outer rectrix, but being much narrower on the second feather, where it is little more than an oblique stripe of white; throat white, bordered on each side by a moustachial line of black commencing from the base of the lower mandible; breast dull white, inclining to buff on the flanks, striped with longitudinal shaft-markings of dark brown, more numerous and larger on the flanks, and collecting on the fore part of the chest so as to form an irregular band; upper mandible deep horn-grey, more reddish and lighter at the base and round the nostrils; under mandible at the basal part dirty white, the rest grey; feet and nails pale flesh-colour, the latter horn-grey towards the tip; iris brown. Total length 5.5 inches, culmen 0.45, wing 3.1, tail 2.5, tarsus 0.75.

Female. In general coloration very similar to the male, but more rufous on the back and rump, and especially on the wings and tail, which are edged with deep rust-colour; the crown of the head is slightly tinged with brown, and the central white stripe extends from the base of the bill to the nape; cheeks dull brown, inclining to rufous; the under surface of the body more numerous spotted and streaked with blackish, the markings on the chest being arrow-shaped, and extending further up the throat than in the male. Total length 5 inches, culmen 0.45, wing 3, tail 2.5, tarsus 0.75.

Obs. The sexual difference in this Bunting is scarcely observable in the plumage; for very old females in my series of specimens much resemble younger males, and differ from the adult males more in the smaller size and breadth of the black markings on the side of the head than in any other point. (*Radde, l. c.*)

Obs. In the immature birds both sexes are alike. The superciliary streak increases in breadth above and behind the eye, extending forwards towards the nostril, and on the forehead almost unites with the one on the other side of the head (*vide* Taf. iv. fig. 1 c). In the male the lemon-yellow tinge appears even on the fore part of the coronal white stripe; the mark on the cheek is brown, paler in the centre, and less distinct on the fore part, being lighter in the female than in the male. The white spot behind the ear is less distinct than in old birds. The white band along the side of the head is broader in immature birds, but is intermixed with black spots, and the feathers edging it are mixed with black and brown. The brown coloration and the edgings of clayey yellow are noticeable points in the feathers of the upper parts. The reddish edgings to the shoulder-feathers and rusty yellow edgings to the primaries and secondaries are broader. On the white of the breast and on the yellowish feathers between the forks of the lower mandible are numerous black spots, pointed at the base and more or less broad at the end, these spots being forked on the throat and elongated on the sides. The white mark on the second tail-feather is much broader at the end of the inner web than in adult individuals; and the third feather has near the shaft a white wedge-shaped spot on the inner web. On the white under wing-coverts are a few greyish-black spots. (*Radde, l. c.*)

THE present species forms an interesting link between the avifauna of the Nearctic and Palæartic Regions; for it is by no means a typical Bunting, but belongs to the subgenus *Passerculus*, a well-known American form: indeed its nearest ally is certainly *P. savanna*, of North America. It is strictly an eastern bird, and its occurrences in Europe are only two in number.

The Yellow-browed Bunting was first discovered by Pallas in Dauria, where it was rare. It has since been met with by Radde during his journey in Siberia; and this excellent collector met with it during the autumn migration on the Tarei-Nor, and procured many specimens. Père David speaks of it as abundant near Peking in the spring; and Mr. Swinhoe obtained it in the

same place in September. The latter author, in his most recent list of the "Birds of China" (P. Z. S. 1871, p. 388), gives the localities of the present species as "North China; Szechuen." The latter habitat has, we believe, never been mentioned before.

Its admission into the European avifauna rests apparently on two specimens, obtained respectively near Lille and in Luxembourg. In his 'Faune Belge,' Baron de Selys-Longchamps says:—"I include this species on the authority of an individual which M. Degland has examined, and which is stated to have been captured in a net behind the citadel of Lille." M. A. De La Fontaine also writes, in his 'Faune du Pays de Luxembourg':—"M. Mouhimont tells me that in the spring of 1863 he observed two of these Buntings, of which he killed one, and more recently he has again seen the species. He says that they are not shy birds, but will let any one approach closely, and are easy to kill."

Dr. G. Radde is the only person who has given any detailed account of the species, and we translate as follows from his notes:—"On the 13th (25th) of August, 1856, I saw this Bunting in small flocks, in company with *Emberiza pusilla*, in the evening, in the vegetable garden at Kulussutajefsk, on the Tarei-Nor. They often uttered their 'zipping' call-note, which is softer and shriller than that of the other Buntings. On the 17th September, 1859, I found this bird near the Tunkinskish fortress, in the locality called Saktui, where I observed four specimens in the willow bushes." Its mode of nidification is as yet quite unknown.

The descriptions and figures in the Plate are taken from a pair of birds in our collection, received in exchange from the S. Petersburg Museum. They were both procured by Radde on his expedition, the male being shot at Kulussutajefsk, on the 14th of August, 1856, and the female at the same place, on the 3rd of September, 1856. The colours of the soft parts are derived from Radde's notes taken from the fresh specimens.



STRIPED BUNTING.
EMBERIZA STRIOLATA.

EMBERIZA STRIOLATA.

(STRIPED BUNTING.)

Fringilla striolata, Licht. Verz. Doubl. p. 24 (1823).*Emberiza striolata*, Cretzschm. in Rüpp. Atlas, Aves, p. 15, t. 10. fig. *a* (1826).*Fringillaria striolata*, Swains. Classif. of B. ii. p. 290 (1838).*Polymitra striolata*, Cab. Mus. Hein. Th. i. p. 129 (1850).*Figuræ notabiles.*Rüppell, Atlas, t. 10. fig. *a*; Bree, B. of Eur. vol. iii. p. 44; Fritsch, Vög. Eur. tab. 25. fig. 16.

♂ pileo albo, vix fulvescenti lavato, striis longitudinalibus nigris distinctè lineato: supercilio longo albo et strigâ rostro basali ortâ faciem lateralem transeunte, cum alterâ strigâ malari, albis: lineâ a basi rostri per oculum ductâ et alterâ trans genas eunte, nigricantibus: dorso pallidè cinnamomeo, scapis nigricanti indicatis, lineas longitudinales nigras formantibus, uropygio magis cinerascente: tectricibus alarum clarè cinnamomeis, parte basali celatâ brunneâ: remigibus fumoso-brunneis, extus cinnamomeo marginatis: rectricibus fumosis, angustè cinnamomeo marginatis, pennis externis latiùs: mento albo: gutture et pectore superiore cinerascens, nigricanti marmoratis: abdomine fulvescente, vix cinnamomeo tincto: subalaribus et remigum pogonio interno pallidè cinnamomeis: rostro brunneo, mandibulâ flavicante: pedibus flavidis: iride brunneâ.

♀ mari similis, sed magis cinerascens, pileo undique fulvescente, et gutture conspicuè cinerascente haud nigro marmorato.

ptil. hiem. obscurior, cinerascens, plumis omnibus plus minusve cineraceo marginatis.

Adult male in summer plumage. Head whitish grey, striped with longitudinal black markings; on each side of the head three distinct white stripes, one springing from the lores and passing above the eye, another springing from the same point and passing below and behind the eye, and a third from the base of the bill bordering the throat on each side; a line from the bill, drawn through the eye, and another from the base of the bill backwards including the ear-coverts, blackish grey; back of the neck greyish brown; rest of the back sandy brown, the middle of each feather darker along the shaft, giving it a striped appearance; wing-coverts sienna, with obsolete grey margins, the greater wing-coverts marked with a more or less distinct central line; quills dark brown, the inner web sienna at the base, the outer web margined with pale sienna, the secondaries more broadly washed with this colour; tail blackish brown, narrowly margined with sienna, more broadly on the outermost feathers; chin white; throat and upper part of the breast black, washed with greyish white, this effect being produced by the whitish grey margins to the feathers; rest of the under surface of the body dull buff, purer on the flanks and under tail-coverts; under wing-coverts pale sienna; bill blackish brown, the lower mandible yellowish; feet pale yellow; claws pale brown; iris brown. Total length 5·2 inches, culmen 0·4, wing 3·25, tail 2·45, tarsus 0·6.

Adult male in winter plumage. As in most Buntings, the winter dress is assumed by putting on a series of

grey edgings to the feathers, so that, although the markings are much the same as in summer, they are always more ashy and obscure.

Adult female. Much paler in colour and more obscure; stripes on the head light and dark brown, instead of black and greyish white; the black markings on the chest obsolete, fading into dirty brown.

THE habitat of this pretty little bird extends from Algeria to North-western India, being, as far as we can learn from the dates of specimens now before us, a resident in the whole of this extent of country.

It will be convenient to trace out its geographical distribution in the order of the countries above mentioned, commencing with Algeria. Canon Tristram, who has an undoubted skin of this species in his collection, obtained by himself at Berroughuia, on the 2nd of December 1856, has not published any notes on the bird; but Loche gives the following account:—"Mr. Schousbœe, principal interpreter to the Governor-General of Algeria, who has had numerous opportunities of observing this bird, assures me that it is very tame, rarely wanders from inhabited places, and, like our Common Sparrow, lives under the eaves and holes in the walls in the towns of Mogador and Morocco, as also in all the towns on the slope of the Great Atlas, within a circle of about forty kilometres to the south of the last of the above-mentioned towns, where it is very common; but it is not found more than a few leagues to the north of these localities. Its song, which it repeats often, is but little varied, and may be expressed by the word *tibbid* frequently repeated, laying stress on the last syllable; and it has from this probably obtained the name of *Tib-bid*, by which it is known to the Morocco Arabs. In the most southern part of Algeria we have found this bird; and M. Malherbe states that it is found on the slopes of the Atlas." Dr. Taczanowski has also published the accompanying note on the bird as observed by himself during his travels in Algeria:—"Common, but not plentiful, in El-Kantara and on mountains further south, in Biskra, and in the oases. It is here a very bold and familiar bird, continually taking up its quarters close to human habitations, perching upon houses, and even entering them in search of food: as soon, however, as a person moves, it flies off, to return immediately afterwards to the same spot. These birds are said to build their nests under the roofs. They sing from the beginning of February."

Dr. von Heuglin, in the course of his critical notes on Dr. Taczanowski's paper, suggests that the above remarks have reference to *E. saharae*; and we cannot help thinking that M. Schousbœe may have been writing to Loche about the same bird; for Canon Tristram has sent us the following observations, which throw light on the subject:—"You know how near this bird runs to *E. saharae*. Yet there is a very marked difference in their habits. *E. saharae* affects the neighbourhood of man, lives in pairs about houses, and feeds in yards, just in fact like our Sparrows. *E. striolata* is a wild, shy bird of the rocks (wherever I have seen it), restless, and very like our *E. schœniclus* in its uneasy wild flitting from bush to bush, always keeping well ahead of too curious investigators. Its note is quite distinct from the other's (at least its call-note; for I do not know its breeding-habits or song), and is a hurried thrice-repeated note, exactly like our Black-headed Bunting's. It is quite a bird of the open, among rocks and loose short scrub, where there is no cover." We do not of course wish to deprive this bird of its Algerian habitat; for that is an undoubted fact; but we think that it has scarcely been well distinguished

from *E. saharae*; from this latter bird it may always be recognized by its striped back, this being uniform in its ally.

In North-eastern Africa it was originally discovered, and was figured by Cretzschmar from examples procured by Rüppell during the winter months in the neighbourhood of Ambukol and Schendi, where it frequented low brushwood in sandy steppes. Dr. von Heuglin gives the following note in his new work the 'Birds of North-eastern Africa':—"Resident in Central and Southern Nubia, Kordofan, at Atbara, and in the mountains of the Hadendoa and Bischarin Arabs, northwards as high as 20° N. lat.; lives generally in families on the steppes where stony and rocky places are covered with bushes and grass, on the cliffs by the rapids of the Nile, and on desert sandy places; is shy and cautious, and hides behind stones rather than take to wing. The note is Bunting-like, but not loud, and lively."

Canon Tristram, in his paper on the Ornithology of Palestine, says, "The lovely little *Emberiza striolata* confines itself throughout the year to the nooks by the Dead Sea and to the southward, where its hitherto unknown egg remains to be discovered by some future adventurous collector." It has likewise occurred to that indefatigable naturalist Mr. T. Robson, who has met with it near Constantinople; he tells us, however, that it is only of rare occurrence in that neighbourhood. On this fact rests the claim of the present bird to be included in the European avifauna, according to the limits drawn by previous observers, and not on Temminck's assertion of its Spanish habitat, which has yet to be proved along with that of the Hooded Shrike and Dusky Bulbul, none of them having been detected in that country since Temminck's time.

Quitting the western range of the Striped Bunting, we subjoin the notes lately published by Mr. Hume on the species in India, adding one word of praise for the very complete monograph of the species which that author sets before us:—"It was when travelling through Rajpootana in March and April 1868, that I first met with and identified the Striolated Bunting, until that time unknown in India*. I procured a few specimens both on the Taragurh Hill at Ajmere and at Mount Aboo; but I was travelling too rapidly to learn much, either of the haunts or habits of the species. Later in the year my friend Mr. Brooks procured specimens of the same species in the Etawah district; and now recently, while detained at Ajmere for the purpose of negotiating a treaty with the Jodhpoor Government, I have obtained numerous specimens and had ample opportunities of observing this pretty little bird, not only on Taragurh, but on all the bare rocky hills and ranges of the Aravallis (to which hill-system Mount Aboo also belongs) that I have yet visited. Hitherto, so far as I am aware, no authentic account of its nidification and eggs or details of its habits has appeared; and some little interest may therefore attach to the observations on these points that I have recently made.

"The Striolated Bunting is a permanent resident of the western and central portions, at any rate (I have not yet observed it on the northern), of that broad belt of bare rocky hills, mounds, and parallel detached ranges which, under the names of the Inewat and Aravalli Hills, run down from Delhi, and, passing through or near Ulwur, Bhurtpoor, Jaipoor, Ajmere, Pali, and Serohie, culminate in Mount Aboo (the highest of the whole series), which attains an elevation of 5500 feet above the level of the sea. These hills, running through and being studded about on an elevated sandy tract varying from 1000 to 1700 feet above the level of the sea, rise from

* See Ibis, 1869, p. 355.

200 to 1200 feet above the surrounding plain, few, if any (except Mount Aboo), much exceeding in height the Taragurh Hill at Ajmere, which is said to have an elevation of 2900 feet. This chain, so far as I am acquainted with it, is composed almost exclusively of metamorphic rocks,—granite, greenstone, micaceous schists, syenite, and quartz, with various altered sandstones, being the characteristic minerals, though patches of limestone and marble are quarried more or less in many localities. Very bare, bleak in winter and burning in summer, these hills, often conveying the idea of huge barrows of rocky *débris*, can boast scarcely any vegetation, except multitudes of huge candelabra-like, many-thorned, succulent *Euphorbiæ*, and a more or less sparse growth of lanky ghost-like grass, which always appears withered and dead. Wrapt in the hues of distance, these rugged and often very fantastically shaped hills and groups of hillocks afford the most beautiful backgrounds to every view, and give an inexpressible charm to every landscape, especially to those fresh from the rich but unvaryingly level plains of the rest of Upper India. Seen, however, close at hand they are bare, and in many cases desolate to a degree; and they are, in their sameness and churlish ruggedness, as wearying and discouraging to the traveller as they are, with rare exceptions, unproductive to the ornithologist. A few pairs of the beautiful Banded Rock-Grouse (*Pterocles fasciatus*), of the Jugger Falcon (*Falco juggur*), of the Brown Rock-Chat (*Cercomela fusca*), and of the Red-winged Bush-Lark (*Mirafra erythroptera*), with large companies of the Long-billed Vulture (*Gyps indicus*), all of which breed here, together with numbers of the Striolated Bunting, almost complete the catalogue of the resident avifauna, supplemented during the cold season by little flocks of Hutton's and Stewart's Buntings (*Emberiza huttoni* and *E. stewarti*) and solitary individuals of our well-known Pipit (undistinguishable from *Pipastes arboreus* of Europe), the Brown Rock-Pipit (*Corydalla griseorufescens*, nobis), and the Common Kestrel (*Tinnunculus alaudarius*).

“Dreary and uninteresting as they seem to us, these great stoneheaps (the best possible name for many of them) are the homes *par excellence* of the Striolated Bunting. Everywhere a dwarf withered grass peeps out in yellow tufts amongst the particoloured fragments, and furnishes the tiny seeds which, so far as my observations both in April and November go, constitute the sole food of this species. Fearless, cheerful, active little birds, they flit rapidly up and down the rocky slopes, sportively chasing each other like children at play, or, pausing motionless for several minutes, sun themselves on some grey rock's broad bosom. But it is on the hills and amidst the rocks that they are here alone found. Scarcely a hundred feet below, the valley may stretch away all soft and green into the far distance, rich crops may wave, or the feathery golden-blossomed acacias smile invitations irresistible to Warblers and White-throats; but our little Bunting is a mountaineer, and, disdainful of Capuan luxuries, clings to his much loved though inhospitable-looking alps. It is pleasant to watch a pair running and hopping about on the ground, pecking over stones and in amongst the stunted grass, and then flying to the topmost shoot of some many-branched *Euphorbia* hard by, where the female sits and plumes and suns herself, while the male alongside pours out his little feeble song. On a sudden both are off with a dart, twisting and turning in jerky flights, and dropping unexpectedly, as if shot, out of sight amidst rocks and grass. Towards the base of Taragurh some bygone chieftain (for the ‘Fort of Staro’ was once the stronghold of mighty men) has built a massive masonry dam across the bed of what, during the rainy season, may be a torrent, but now in the winter is only a tiny rill.

The bed of the stream has been brought up level with the top of the dam by rough masonry, so that in the rains there is probably a tolerable waterfall here. Inside the masonry of the dam, opening with pillar-supported arches (in front of which the falling water would hang like a curtain), a vaulted chamber has been wrought. In the course of ages innumerable cracks have opened in the roof, the whole interior surface of which, dripping from the percolation of the water running overhead, is tapestried with luxuriant tresses of maidenhair. Right and left the rocks rise precipitously; and here and there water dribbles sluggishly in long green mossy streaks down their grey faces. Here it is that at the present time (November) our little Buntings, after a hearty breakfast on grass-seeds, come between 8 and 10 A.M. to drink. A few days ago I sat in one of the archways of the vaulted chamber for a couple of hours watching them, seeing at least a hundred pairs, and shooting some dozen or so. The birds always come in pairs (this is the breeding-season), chasing each other, not with long flights, but flitting from *Euphorbia* to *Euphorbia*, or point to point of rock, until near one of these drinking-places, when, perching on the rock-face, where some tiny ledge affords a comfortable footing, they drink for a moment greedily, then pause to squat where they stand and enjoy the warm sunshine, drink again, zealously pick out minute grains of quartz (which always abound in their stomachs), then sit and sun themselves again, and so on. Presently one will fly up, making a pretence of swooping at the other; and then off they go, skirmishing up the hill-side, one after the other, like a couple of kittens. The natives here call them '*Andhi Cherya*,' which might be translated 'the blind birds,' a by no means inappropriate name, as they will often sit motionless until one's foot is almost on them. The people, however, interpret it as signifying 'the bird to which men are blind;' and there is no doubt that their plumage harmonizes so well with the grey stones interspersed with reddish-yellow stunted grass, that even at short distances they are practically invisible so long as they remain, as they often will for ten minutes at a time, perfectly still.

"The breeding-season appears to be November: the natives say that they also lay early in July, at the commencement of the rains; but as to this I can say nothing. The very first birds that I shot, on November the 2nd, the day after I arrived here, proved on dissection to be breeding; and out of the oviduct of a female shot on the 3rd, I took a nearly perfect though colourless egg. For several days we hunted without success, finding many nests that I believed to belong to this species, and seeing everywhere females about, straws in mouth, but meeting with no eggs. At last, on the 12th of November, I myself accidentally stumbled upon two nests. I was walking slowly, and, if it must be confessed, footsore and somewhat despondent, amid the loose blocks and rocky shingles of the southern flanks of the Taragurh Hill, when a female suddenly sprang up and darted off from within two inches of my foot. I looked down; and there, on the sloping hill-side, half overhung by a moderate-sized block of greyish quartz, was a little nest, from which the bird had risen, and on which I had been within an ace of stepping. Close at hand were two or three small tufts of yellow withered grass; but these were several inches distant from the nest. This latter (which, laid on the hill-side, was some three or four inches thick on the valley side, and barely three quarters of an inch towards the hill) was composed at the base, and everywhere externally, of small thorny acacia-twigs and very coarse roots of grass. This, however, was a mere foundation and casing, on and in which the true nest was constructed of fine grass-stems, somewhat loosely put together, the bottom being lined with soft white

feathers. The egg-cavity was circular and cup-shaped, about 2.25 in. in diameter and 1.25 in. in depth, and contained two tiny, yellow-gaped, dusky-bluish, fluffy chicks, apparently just hatched, and one (as it proved) rotten egg. We drew back a few paces; the female bird returned (we saw nothing of the male), and one of my men adroitly captured her. I took the egg, and, having made sure of the species, left the mother with her young ones. We had not moved five yards away before she was again sitting on her nest as unconcernedly as possible.

“Scarcely twenty yards further, on a slightly sloping slab of stone, partly overhung by a huge block, between two tufts of dry grass springing from the line of junction of the slab and block, I found a second, precisely similar nest, containing two fresh eggs, round which both parents fitted closely all the time I was occupied in examining and securing the eggs and nests, exhibiting no apparent signs of fear. The three eggs thus obtained were regular, moderately broad oval, slightly compressed towards one end, but somewhat obtuse at both. The shells were very delicate, and had a slight gloss. The ground-colour differed somewhat in all three: in one it was pale greenish, in another pale bluish, and in the third faintly brownish white. All were spotted, speckled, and minutely but not very densely freckled with brown, a sort of reddish olive-brown in two, rather more of umber in the third; small clouds, blotches, and streaks of the same colour, and of a pale purple, were intermingled with the finer markings. In two of the eggs the markings were far more numerous towards the large end, where in one they are partially confluent; in the third they are pretty evenly distributed over the whole surface, being, however, rather denser in a broad irregular zone round the middle of the egg. These eggs remind one not a little of those of *Emberiza elegans*, figured by Radde (Reisen im Süden von Ost-Sibirien, ii. Taf. v.), but are not nearly so broad. They are not very unlike the egg of *E. pusilla*, as figured by Dr. Bree, but they are narrower and more oval. On the 16th, near the base of Taragurh Hill, I found another nest, precisely similar to that already described, containing two fresh eggs. These were of the same general type as those already described, but were much more strongly marked. They were richly freckled and mottled with a fine umber-brown on a pale greenish white ground, the markings being in both most dense at the large end (where there was a conspicuous confluent zone), and almost wanting at the smaller end. The purple spots, well marked on the first three eggs, were entirely wanting in these. As usual, we captured the female bird without the slightest difficulty. These five eggs (all I have as yet obtained) varied from .73 to .75 in. in length, and from .48 to .53 in breadth. The nests from which they were taken were all at an elevation of about 2000 feet above the sea-level; but we found others later (empty or containing young ones), from 1500 to 2500 feet.

“Early in the morning of the 19th of November I climbed up the Mudar-Shah range (on the opposite side of the Ajmere plain to the Taragurh hill), which is very nearly, if not quite, 2600 feet high. On the highest pinnacle of the long knife-like ridge a tiny square temple is perched, at one season of the year a place much resorted to by pilgrims. Inside the temple the whole upper portion of the domed roof is thickly incrustated with what I may term *confluent* nests of our Common Swift (*Cypselus abyssinicus*), a mass of feathers, straw, wool, and the like, cemented together with inspissated saliva. All over the exterior of the temple are little arched recesses sunk about eight inches in the masonry; and in one of these, about five feet above the plinth, one of my people discovered a female *E. striolata* sitting on her nest. Going to the spot,

I stood with my eyes within two feet of the bird; she, however, never moved, but sat calmly gazing at me with her bright dark eye. She looked so nice and sleek and cosy that I hesitated to disturb her; but the eggs of this species are almost, if not entirely, unknown in European collections, and I thought it only right to secure all I could; so I emptied a cap-box into my pocket, and had some soft rags torn to shreds, and then put my hand out gently to the nest. Away flitted the old bird, disclosing, alas! three fluffy nestlings; I drew back my hand, and that very instant the female returned and hid the chicks under her. They were very young, and the morning air on this lone pinnacle was very cold; hence her extraordinary tameness. The nest, built on the flat bottom of the niche, was perfectly circular, with an external diameter at bottom of about 5.5 in., and an internal at top of about 2.5. The lower portion was composed of fine twigs, the upper portion and the lining of the cavity, so far as the young ones allowed this to be seen, of fine grass stems. Altogether the nest was about 2.5 in. high, and very neat and symmetrical. Judging from my present experience, I should say that three is the full number of eggs usually laid.

“I subjoin descriptions and exact dimensions taken from freshly killed specimens:—
Dimensions.—Male: Length 5.75 to 5.97; expanse 9.37 to 9.75; tail from vent 2.45 to 2.75; wing from carpal joint to tip of longest primary 2.96 to 3.1, and when closed reaching within 1.1 to 1.3 of the end of the tail; foot, greatest length from 1 to 1.1, greatest width from .63 to .8; bill from front .36 to .39; weight from .45 to .5 oz. (Seven males measured and weighed.)
 Female: Length 5.5 to 5.9; expanse 9 to 9.5; tail from vent 2.2 to 2.72; wing from carpal joint to tip of longest primary 2.87 to 2.96, when closed reaching within 1.1 to 1.7 of the end of the tail; foot, greatest length 1.1 to 1.17, greatest width .72 to .8; bill from front .35 to .38; weight from .38 to .6 oz. (Five females measured and weighed.)

“*Description.*—The legs and feet were in some pale waxy-yellow, in some dingy, in some fleshy-yellow or yellowish-fleshy, the feet, especially at the joints, more or less tinged with brownish, the claws rather pale brown; the bill had the upper mandible brown, in some blackish brown, the lower in some waxy, in some fleshy, and in some dingy yellow; irides brown. The male has the forehead, top of the head, and nape greyish-white, grey, or white, in different specimens, each feather with a conspicuous linear, median, black streak, a narrow, pure-white superciliary stripe starting from the base of the bill and extending behind the eye over the ear-coverts; the lores, and a moderately broad stripe directly behind the eye (and immediately under the white stripe), involving the upper portions of the ear-coverts, black; below this another, greyish white stripe, involving the rest of the ear-coverts; below this, starting from the base of the lower mandible, a black stripe; below this, from the lower angle of the lower mandible, a greyish white stripe, which, again, is divided from the greyish white of the chin by a narrow inconspicuous dark streak.

“In the fresh birds in breeding-plumage which I am describing, all these streaks and stripes are as clearly and sharply defined as if painted; but at other seasons, and in stuffed specimens, they are not so clear. The whole of the back, scapulars, and tertials are hair-brown, the former two very broadly, the latter more narrowly margined with pale, more or less sandy- or even rufous-brown. In many specimens the darker median streaks of the back-feathers are reduced to mere lines; and in some the rufous tinge on the upper back is well marked. The primaries and

secondaries and their coverts are a mixture of hair-brown and rich rufous (recalling in colour the wings of *Mirafra erythroptera*), the extent of each varying in different specimens, but the brown predominating in the earlier primaries and everywhere at the tips, and decreasing in extent in the hinder part of the wing and towards the bases of the feathers. The second primary, for instance, will be all brown, except a narrow rufous edging for the basal two-thirds of the outer web and a broad rufous stripe on the margin of the inner web for the same distance, while one of the later secondaries will be all rufous, except a narrow brown stripe running down the shaft till within one-third of the end of the feather, whence it gradually widens so as to occupy at the tip the whole of both webs. The rump and upper tail-coverts are much the same as the back, but in some specimens slightly more rufous than the lower back; and the longest of the coverts are in some specimens very narrowly tipped with very pale fulvous-white. The tail is hair-brown, darker than the brown portion of the quills, all the feathers externally very narrowly margined with pale rufous, except the external feather on each side, which has the whole outer web of that colour. The throat and upper breast are greyish-white or grey, with more or less numerous and conspicuous black median stripes on the feathers. Specimens differ widely in this respect: in some the greyish-white is a mere edging to dusky black feathers; in others only a few black spots and streaks peep out of an almost unbroken grey, and this among specimens killed at the same time and of apparently the same age. The lower breast and the whole lower parts of the body are pale greyish-rufous, all the bases of the feathers (only seen if their tips are lifted) being a sort of bluish-dusky; the axillaries, wing-lining, and, in fact, the whole lower surface of the wings, except the points of the quills, a pale delicate salmon-rufous.

“The female only differs in being generally somewhat smaller, in having the white, grey, and black of the head, neck, throat, and breast much duller (and in many specimens overcast with a sandy or pale rufous shade), in the various stripes being less well marked, and in having the dark spots and streaks of the throat and breast almost obsolete.”

We have given here Mr. Hume's technical descriptions of the bird, well knowing the advantages to be derived from an account of freshly killed specimens. Our own descriptions had been written before Mr. Hume's notes were published; so we retain them for the sake of the uniformity of the work: they are taken from skins sent to us by our friend Mr. W. G. Brooks.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b. Etawah, November 23rd, 1868, and April 1st, 1869 (*W. G. Brooks*). *c, d.* Ajmere, November 4th and 30th, 1869 (*W. G. Brooks*).

E Mus. H. B. Tristram.

a. Berroughuia, Algeria, December 2nd, 1856 (*H. B. T.*). *b, c.* Engedi, January 22nd, 1864 (*H. B. T.*). *d, e.* Etawah, April 1st, 1869 (*W. G. Brooks*).

E Mus. Lord Lilford.

a, b. Engedi, January 23rd, 1864 (*H. B. Tristram*).



MEADOW BUNTING.
EMBERIZA CIA

EMBERIZA CIA.

(MEADOW-BUNTING.)

- Emberiza cia*, Linn. Syst. Nat. i. p. 310 (1766).
Emberiza barbata, Scop. Ann. i. H. N. p. 143 (1768).
Emberiza lotharingica, Gm. Syst. Nat. i. p. 882 (1788).
Cia cia, Kaup, Natürl. Syst. p. 193 (1829).
Euspiza cia, Blyth, Cat. B. Mus. As. Soc. Beng. p. 130 (1849).
Emberiza meridionalis, Cab. Mus. Hein. Th. i. p. 128 (1850).
Emberiza hordei, Brehm, Vogelf. p. 114 (1855).
Emberiza canigularis, id. op. cit. p. 114 (1855).
Buscarla cia, Bonap. Rev. et Mag. de Zool. ix. p. 163 (1857).
Hylæspiza cia, Blasius, List B. of Eur. p. 13 (1862).
Citrinella cia, Gray, Hand-l. of B. ii. p. 114 (1870).
Citrinella meridionalis, id. op. cit. p. 114 (1870).

Bruant fou, French; *Zigolo muciatto*, Italian; *Ave tonta*, Spanish (*H. Saunders*); *Triquero*, Portuguese; *Kanal salvay*, Maltese (*C. A. Wright*); *Zippammer*, German.

Figuræ notabiles.

Montb. Pl. Enl. 511. fig. 1; Werner, Atlas, *Granivores*, pl. 27; Roux, Orn. Prov. pls. 111, 112; Naum. Vög. Deutschl. Taf. 104. figs. 1, 2; Gould, B. of Eur. pl. 179; Fritsch, Vög. Eur. tab. 20. fig. 18, tab. 25. fig. 11; Bree, B. of Eur. iii. p. 47; Bettoni, Ucc. Lomb. i. tav. 97.

♂ *æstiv.* pileo medio cinereo, utrinque nigro, fasciam triplicem formante: supercilio lato albicanti-cinereo: fasciâ nigrâ per oculum ponè regionem paroticam ductâ: genis et regione paroticâ albicanti-cinereis: fasciâ mystacali nigrâ sub regionem paroticam productâ et ad fasciam ocularem vix conjunctâ: dorso rufescenti-brunneo, scapularibus cinnamomeo lavatis, plumis omnibus medialiter nigris, quasi striatis: dorso postico, uropygio et supracaudalibus clarè cinnamomeis: tectricibus alarum brunneis, minimis cinereo lavatis, medianis conspicuè albo terminatis, fasciam alarem formantibus, majoribus extùs fulvescenti-brunneo versùs apicem albicante lavatis, his intimis externè cinnamomeis; remigibus brunneis, primariis angustè albido limbatis, secundariis latiùs cinnamomeo marginatis: caudâ nigricanti-brunneâ, rectricibus duabus centralibus pallidioribus, rectricum duarum extimarum pogonio interno versùs apicem obliquè albo: gutture toto cinereo: corpore reliquo subtùs pallidè cinnamomeo, abdomine medio pallidiore, albicante; subalaribus albis: rostro plumbeo: pedibus flavicanti-brunneis: iride brunneâ.

♀ *æstiv.* mari similis sed sordidior: pileo medio obscurè cinereo, brunneo striato, fasciam verticalem vix formante: subtùs dilutior, gutture obscurè cinereo, pectore dilutè cinnamomino: pectore laterali angustè brunneo lineato.

Ptil. hiem. similis *ptilosi æstivæ*, sed obscurior et magis ochrascenti-fulva, plumis omnibus fulvescente marginatis.

♂ *hornot.* similis *feminæ adultæ*, sed gutture et pectore superiore punctulis triquetris indistinctis brunneis maculatis.

Adult Male in breeding-plumage. Crown of the head blue-grey, forming a vertical streak extending from the base of the bill to the nape, and slightly widening out on the latter; sides of the crown black; a very distinct whitish eyebrow; a line extending from the lores to above the ear-coverts, and enclosing the eye, black; sides of the face and ear-coverts greyish white; a black moustachial streak running behind the latter; throat and fore neck as well as the sides of the neck pale bluish grey; back fulvous-brown, washed with cinnamon on the scapulars, all the feathers very dark brown in the centre, giving the appearance of longitudinal stripes; lower part of the back, rump, and upper tail-coverts clear cinnamon; wing-coverts brown, the least ones conspicuously washed with bluish grey, the median ones tipped with white, forming a distinct alar bar, the greater coverts externally edged with pale brown, shading off into white towards the tips, the innermost ones inclining to cinnamon on their outer edges; primary coverts paler brown; quills brown, the primaries narrowly margined with whitish on their outer web, the secondaries more broadly edged with cinnamon, especially the innermost ones; tail dark brown, the two middle feathers paler brown, the two outermost ones obliquely marked with white towards the tip, this colour occupying the larger part of the external feather; breast and belly cinnamon, inclining to greyish white in the centre of the body; under wing-coverts white; bill dull lead-colour; feet yellowish brown, the toes darker; iris dark brown. Total length 6·3 inches, culmen 0·5, wing 3·1, tail 3·0, tarsus 0·5.

Male in winter plumage. As in other Buntings, the winter dress of the present bird makes it appear much duller than in summer; for all the feathers are edged with fulvous, which greatly obscures the general colours of the plumage. The centre of the crown is brownish, and the facial features are not nearly so distinct; on the other hand, the edgings to the wings are much plainer, and the white bars on the wing-coverts show with great distinctness. The lower mandible has a mixture of yellow. The summer plumage is gained by the gradual wearing off of the fulvous edgings to the feathers; and the period at which the bird begins to assume the spring dress varies apparently in different countries. For instance, at Blida, in Algeria, Mr. J. H. Gurney, jun., procured an example on the 15th of February, 1870, which is in full livery, more complete than any obtained by Dresser in the same month near Barcelona.

Female in breeding-plumage. By no means so bright as the male. The head is dull grey on the top, washed with brown, and streaked all over with dark brown like the back; the stripes on the side of the crown and on the face are quite obscured; the white edgings to the wing-coverts are not so plain; the throat is dull ashy, with scarcely any bluish shade; and the under surface of the body is dull rusty fulvous. Total length 6 inches, culmen 0·5, wing 3·0, tail 2·8, tarsus 0·85.

Female in winter plumage. Much duller than in summer, and having, like the male, all the feathers edged with fulvous. The head is brownish, with slight indications of the whitish eyebrow; but the grey crown, never very distinct in this sex, is in winter completely obscured, and becomes brownish like the rest of the head.

Nestlings. We have never seen the young in down of this species; but the nestlings are figured in Bettoni's great work on the birds of Lombardy, and are represented there as of a pale *café-au-lait* colour, with dark brown spots on the head, and streaked on the breast with minute lines of the same colour.

Young birds. In Canon Tristram's collection is a female shot by himself on Mount Carmel on the 15th of November 1863, which appears to us to be a young bird of the year in her first winter plumage. It is fulvous-brown on the head and back, thickly streaked with dark brown centres to the feathers, these stripes even extending on to the feathers of the rump; the edges to the wing-coverts and quills are rather broad, and of a distinct cinnamon colour, with the whitish band showing rather plainly; the sides of the face, throat, and upper breast are fulvescent, with numerous little triangular brown spots extending in longitudinal streaks along the sides of the body, where a slightly richer cinnamon tint prevails.

The young males appear to gain the adult plumage the first autumn (which can hardly be the case with the young females), but are very dusky in plumage, thus differing very little from the old hens; they have the throat thickly covered with indistinct little triangular spots.

Obs. At p. 114 of vol. ii. of the 'Hand-list,' the late Mr. G. R. Gray has given a list of the Buntings allied to *Emberiza cia*, which he places in the subgenus *Cia* of Kaup. A few remarks on these birds and their synonymy seem to be not out of place here.

7698. *cia*, L. The subject of the present article, at the head of which will be found the complete synonymy.

7699. *stracheyi*, Moore, P. Z. S. 1855, p. 215, pl. 112.

cia, p., Aliq.

Many ornithologists consider this bird identical with *E. cia*; and Mr. Blyth (*Ibis*, 1868, p. 354) remarks:—"Of *Emberiza cia*, I have compared two Himalayan specimens with a European one in the possession of Mr. Gould. The two former, *i.e.* the particular specimens in question, have the black streak on the head more strongly developed; but I have seen others from the Himálaya in which this certainly was not the case, and am of opinion that Mr. Gould's examples are simply particularly fine old males in full summer plumage, which might doubtless be paralleled in Europe. There is no other difference whatever; and the alleged *E. stracheyi*, Moore, I therefore consider to be inadmissible as a species sufficiently distinguished from *E. cia*." Dr. Jerdon, however, who calls *E. cia* the "White-browed Bunting," separates *E. stracheyi* as the "White-necked Bunting," and says that "the chief differences from *E. cia* are the whiter chin and throat." Neither of these good observers, however, appears to have seized upon the most striking point of distinction between the two species; nor does Mr. Moore, in his original description of the Indian bird, allude to what we consider the best specific character. Thanks to Lord Walden, we have been able to examine the fine series of *E. stracheyi* in his collection; and we notice that, beyond the much brighter colour and the uniform deep cinnamon breast, the white spots on the wing-coverts are absent; in winter the tips to these feathers are fulvous, but we have never seen any Indian examples with the white bars on the wing so conspicuous in the European bird. Any one who will compare Mr. Wolf's beautiful figure of *E. stracheyi* in the 'Proceedings' with the illustration which accompanies the present article, will at once perceive the points of difference to which we refer.

The female is very similar to that of *E. cia*; but the white bar on the wing-coverts renders the latter recognizable.

7699 *a. tristrami*, Swinhoe, P. Z. S. 1870, p. 441. This species has been lately described by Mr. Swinhoe as the representative of *E. stracheyi* in China.

7700. *pithyornus*, Pall. This species should stand as *E. leucocephala* (S. G. Gmelin), under which name it is fully described in the present work.

7701. *meridionalis*, Cab. Mus. Hein. Th. i. 128. The locality of this supposed species is Algeria, not Lebanon, as stated by Mr. Gray. The characters adduced by the original describer are insufficient to establish its distinctness from *E. cia*, with which we have not hesitated to unite it. Dr. Cabanis probably had before him a specimen in full summer plumage.

7702. *cioides*, Brandt, Bull. Ac. Imp. Sci. St. Pétersb. i. p. 363 (1843).

cia, Pall. Zoogr. Rosso-Asiat. ii. p. 39.

This bird is really very distinct from *E. cia*; and Bonaparte's remark that it is allied to *E. leucocephala* rather than to the last-named bird, is not inapt; it is distinguished, however, from both by its uniform chestnut head and white throat. The female may also be recognized by its chestnut ear-coverts.

7703. *castaneiceps*, Gould, P. Z. S. 1855, p. 215.

cioides, p., Aliq.

The type of this species appears to be in the Indian Museum; and Mr. Moore has given a full account of it in the catalogue of the collection therein contained (ii. p. 484). We can only say that this description perfectly agrees with a specimen of *E. cioides* in breeding-plumage lent us by Lord Walden, in every particular. The measurements, however, of the typical specimen are somewhat smaller, excepting the tarsus, which tallies with Lord Walden's bird. Notwithstanding this discrepancy, we believe that a comparison will prove the identity of *E. castaneiceps* with *E. cioides*.

7704. *ciopsis*, Bonap. Gen. Av. i. p. 466.

cioides, Temm. & Schl. Faun. Japon. p. 98, pl. 59.

This bird is the representative of *E. cia* and *E. cioides* in Japan. Lord Walden has lent us two specimens, both males, procured in this country by Mr. H. Whitely and Mr. Robert Bergman. They show that *E. ciopsis* is a clearly characterized species, distinguished at once from *E. cia* by its chestnut crown, while from *E. cioides* it differs in having the throat grey and the ear-coverts black, not chestnut as in the Siberian bird. There are also some brownish mottlings on the upper breast, which seem to be absent in the latter species.

7705. *giglioli*, Swinhoe, Ibis, 1867, p. 393.

This is now admitted by Mr. Swinhoe (P. Z. S. 1871, p. 388) to be identical with 7704.

7706. *stewarti*, Blyth, J. A. S. B. xxiii. p. 215.

caniceps, Gould, B. As. pt. vi.

For an examination of a fine series of this beautiful little Bunting we are again indebted to the kindness of Lord Walden, who has several specimens from Umballah in winter-plumage. There are also three specimens, from Cashmere, Chergaon, and Kokand, in full summer-dress, and revealing the curious fact that this species has an entirely different livery in winter and summer; for whereas in winter the plumage is obscured by dull-coloured margins to the feathers, and the back is streaked as in ordinary Buntings, in summer not only the hoary edgings to the feathers disappear, but even the streaks on the back vanish, and this latter part becomes uniform chestnut like the chest. We know of no other Bunting which goes through these curious and distinct changes of plumage.

7707. *albida*, Blyth, J. A. S. B. xviii. pt. 2, p. 1811.

pithyornis, p., Jerdon, B. of Ind. ii. p. 370.

Dr. Jerdon is doubtless right in referring this species to 7700.

WE have retained the name of Meadow-Bunting for this species, as the bird is well known by that appellation; but we must remark that, like many ornithological terms, this title is a decided misnomer; for this Bunting is by no means an inhabitant of meadow-land, as will be seen by the notes on its habits given below.

It is essentially an inhabitant of Southern Europe, never having occurred in Scandinavia or, as far as is known, in the British Islands. Our friend Mr. J. H. Gurney, jun., has, indeed, lent us a specimen said to have been procured at Dover in January 1859; but no authentic details as to its capture have ever been published, and there is every reason to doubt the authenticity of the specimen. In France MM. Degland and Gerbe write that it is common and sedentary in some parts of Provence and migratory in others. It passes through Lorraine and the north of France; some few individuals have been captured near Paris. MM. Jaubert and Barthélemy Lapommeraye record it as a regular and common migrant in Provence, where it is found in the autumn

and winter; but in Northern France it is rare. In Savoy, according to Bailly, it is found all the year round, but is most numerous during the breeding-season and in the autumn, being rare in winter. De la Fontaine says it has been only observed in the neighbourhood of Luxembourg, on the Moselle, and is not common. It is found on the plains between Schengen and Remich, at Nennig, and near Palzem, where it arrives from the 1st to the 15th April, and leaves from the 15th of October to the 15th November. Godron remarks that in Lorraine it is a rare bird of passage in the autumn.

Borggreve says it is found in the valley of the Rhine, from Bingen to Remagen, and inhabits there the rocky vineyards during the summer. Our friend Mr. Carl Sachse informs us that this species is tolerably numerous on the central Rhine between Irlich and Linz, on the right shore of the river, where it frequents the vineyards. Its nest is placed in the tangled growth on the vineyard walls, and contains four to five eggs, about the end of May. Mr. E. Schütt writes (*Journal für Orn.* 1861, p. 238) that it breeds in the higher mountain-valleys in the forests of Baden, and is not uncommon in the valleys facing the south-east. It is quiet and not easily observable, except during the breeding-season. It frequents the sides of narrow stony valleys where conifer and non-evergreen trees are scattered round, and towards the west, where *Alnus viridis* grows, but does not occur in the heights. Except during the nesting-season it is difficult to shoot, hiding in dense thickets, where its call-note, *zi zi*, may be heard. It does not appear to winter in Baden, but appears back in the valleys about the middle of March. According to Mr. von Kettner it occurs in the valleys of the Murg and Neckar. Ritter von Tschusi procured it at Arnsdorf, in Lower Austria, in September, and further states that he subsequently found it breeding there. Seidensacher states that during the autumn migration it occurs near Cilli, in Styria, and several have been caught near Tüffer. He does not know if it breeds there, but procured a nest containing four eggs near Hartberg in 1856.

In the countries bordering both sides of the Mediterranean the Meadow-Bunting is found. In his 'List of the Birds of Southern Spain,' Mr. Howard Saunders records it as "common among the vineyards on the hill-sides, where it breeds." Dresser found it numerous near Barcelona in the spring of 1866; and every day a few might be seen hanging up for sale in the market together with other small birds. Major Irby sends us the following note:—"Common in breeding-season on bleak exposed mountain-tops up to a great elevation, particularly at the tops of the Sierra del Niño, near Algeçiraz, about 2800 feet, where it breeds. In winter they descend to low ground, still keeping to bleak and bare rocky places, and then are always to be seen at the 'back of the rock' at Gibraltar. I have seldom, if ever, seen this Bunting perched on a bush, always on rocks or stones, or on the ground, and have several times shot them by mistake when looking for *Accentor alpinus*, in company with which bird I have occasionally noticed them feeding on the refuse heap at the signal station." Professor Barboza du Bocage says it is common in the northern provinces of Portugal; but the Rev. A. C. Smith observes that he never met with it in those parts. On the opposite shores of the Mediterranean, Loche writes that it is not common in Algeria, and that he only observed it in the province of Algiers, near Médéah. Dr. Taczanowski, however, informs us that he found it common in the mountains of Algeria, where, during the winter, it is met with in company with *Fringillaria striolata*, but always in small companies. Mr. J. H. Gurney, jun., during his recent visit to Algeria, observed that it was

“seen among the hills in the small valleys formed by every stream of water (oftenest in a road); not actually in flocks, but several in the same valley.”

Canon Tristram records it as “not uncommon, in small bands of from six to twelve, in the open country, from K’sour southwards, and also all through the oasis district of the Wed R’hir, south of Eastern Algeria. I have always observed the sexes apart in winter, and the males far more abundant than the females. It is only a winter visitant to the Sahara. In habits and general characteristics it in no way differs from our Yellow Bunting (*Emberiza citrinella*).”

Writing from Malta, Mr. Wright says:—“This is also a very rare bird. It visits the island occasionally, in the fall of the year and in winter. One was taken alive in January 1863, and appeared very lively in captivity, taking hemp and other seeds readily. It lived till the following August, when, like most pets, it came to an untimely end.” In Sardinia it is stated by Count Salvadori to be rare. In Modena, according to Doderlein, it is found during migration, affecting the cultivated ground. A few pairs remain to breed in the Apennines. In Sicily it is common during the winter, both in the hills and on the plains; but a good many remain to breed there. In his essay on the ornithology of the Ionian Islands, Lord Lilford remarks:—“I noticed this species only once in these parts. This was a single bird, seen near Paganía, in January 1857.” In Greece Linder Mayer found it common from November to March, frequenting desert stony localities, like *Emberiza caesia*. He believes that it breeds in the mountains of Greece. It is not found on the islands of the Archipelago. Dr. Krüper found it common in the conifer region in the Greek mountains, where it builds its nest on the ground amongst the grass. On Olympus it is common; but in Asia Minor it is rarer, and found in the pine-woods. Messrs. Elwes and Buckley state that it is plentiful in Macedonia. Professor Nordmann found it breeding near Laspi, on the south side of the Crimea, and common in Abasia and Ghouriel. Ménétríés, during his journey to the Caucasus, observed it on the mountains of Talyche, where it is not common. Radde, however, says that it is not rare on the Caucasian mountains. Mr. Keith Abbott procured it at Trebizond, and Messrs. Dickson and Ross near Erzeroom.

Canon Tristram gives the following account of the bird in the Holy Land:—“*Emberiza cia*, certainly not a Meadow-Bunting in Palestine, we found only on the tops of the hills and in the highest parts of Lebanon, both in summer and winter. Unlike the others, it does not seem to migrate. We several times found its nest among rocks in Lebanon towards the end of June. The eggs are clay-coloured, covered with fine lines, chiefly round the broad end, very distinct from any other Bunting’s I ever saw, and certainly different from the varieties of the Yellow Ammer’s, which do duty for the eggs of this bird in most collections. Its note is very like that of the Yellow Ammer, but more lugubrious and long-drawn, uttered generally from the top of a flat rock, its favourite perch.” In the Berlin Museum there is a specimen collected by Hemprich and Ehrenberg in Arabia; but Von Heuglin considers it a very rare straggler to North-eastern Africa, only visiting that part in winter.

We have no positive evidence that this Bunting goes to India, as all the specimens we have as yet examined from that country belong to *E. stracheyi*; at all events it can only occur in that country in the winter.

In its habits the Meadow-Bunting most resembles the Common Yellow Ammer; and its flight

is not unlike that of this bird. Dresser found it numerous in the neighbourhood of Barcelona, where it frequented the cactus hedges, flying, when disturbed, from plant to plant, and often perching on the very top of the cacti uttering its call-note, *zi zi zi*. It appears that here this species chiefly affects the hill-sides and barren dry places, where but few small stunted bushes are scattered about; but in some parts of Europe, as on the Rhine and in Southern Austria, it has been found frequenting the vineyards; and Naumann, in his notes on its habits, states that it inhabits the fertile valleys; this, however, is contrary to the experiences of Dresser and Major Irby in Spain. It feeds on various seeds, chiefly of wild plants, but probably also to some extent on insects, at least during the early part of the summer season.

Eggs of this Bunting in Dresser's collection are very easily distinguishable from those of other Emberizidæ by the continuous markings, which appear as if they were made with a pen, and all drawn without taking the pen from the surface of the egg. In colour they are pale grey, and are marked with continuous wavy irregular lines, chiefly at the larger end, of a blackish brown and a faint purple tinge, the former apparently overlying the latter. In size they measure $\frac{67}{80}$ by $\frac{50}{80}$ of an inch. In character they approach closest to the eggs of the Cirl Bunting; but the markings are, as above stated, different.

Dr. Rey writes to us that he has measured fourteen eggs of this species, from Southern France, Greece, Macedonia, and Asia Minor, which averaged 20·9 by 16·4, the largest measuring 22·5 by 16·5 and the smallest 20·5 by 15·25 millimetres respectively. According to Loche it breeds also in Algeria; to Brehm, in Spain; and to Brahts, on the Rhine.

The figures in the Plate represent an adult male and female, and a young male from Spain collected by Dresser: they are not in full summer plumage; and consequently brighter-looking specimens will often be met with. The adults described are a pair in full breeding-plumage in Lord Lilford's collection, obtained near Smyrna by Dr. Krüper.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, ♀. Mountains near Algeciraz (*L. H. Irby*). *b*, *c*, *d*, *e*, *f*. Barcelona, February 1866 (*H. E. Dresser*). *g*, ♂. Piedmont, November 1868 (*T. Salvadori*). *h*. Rustchuk, Turkey (*C. Farman*). *i*, ♂. Ortakeuy, Turkey, December 16th, 1869 (*T. Robson*). *j*, *k*, *l*, *m*. Mount Olympus, Macedonia, October and November 1869 (*Dr. Krüper*).

E Mus. Lord Walden.

a, ♂. Germany (*Fraser*). *b*. Genoa (*H. Saunders*). *c*, ♂. Ortakeuy, Turkey, November 3rd, 1865 (*T. Robson*). *d*, ♂. N. Africa (*Verreaux*).

E Mus. A. Basil Brooke.

a, ♂. Riviera, N. Italy, spring of 1869 (*Victor A. Brooke*). *b*, ♂. Granada (*H. Saunders*).

E Mus. H. B. Tristram.

a, ♀. Germany. *b*, ♂. K'sour, Algeria, January 28th, 1857 (*H. B. T.*). *c*, ♂. Pass of Afka, Lebanon, June 18th, 1864 (*H. B. T.*). *d*, ♀. Carmel, November 15th, 1863 (*H. B. T.*).

E Mus. J. H. Gurney, jun.

a, ♂. Near Dover, January 1859 (?). *b*, ♂. Blida, Algeria, February 15th, 1870 (*J. H. G.*).

E Mus. Lord Lilford.

a, *b*, ♂. Nice, 1858 (*L.*). *c*, *d*, ♂, ♀. Smyrna, May 27th, 1863, and May 9th, 1864 (*Dr. Krüper*).

E Mus. W. Schlüter.

a, *b*, *c*, ♂. Mount Olympus, Macedonia, October 9th and 16th, 1869 (*Dr. Krüper*).



1. EMBERIZA ORTULANA, JUV.
 2. ———— CAESIA, JUV.
 3. ———— CIRIUS, JUV.



EMBERIZA CÆSIA .

XL

EMBERIZA CÆSIA.

(CRETZSCHMAR'S BUNTING.)

Emberiza cæsia, Cretzschm. in Rüpp. Atlas, p. 15, t. 10. fig. *b* (1826).*Fringillaria cæsia*, Swains. Classif. of B. ii. p. 290 (1837).*Glycispina cæsia*, Cab. Mus. Hein. i. p. 120 (1850).*Hortulanus cæsius*, Bonap. Cat. Coll. Parzud. p. 4 (1856).*Bruant cendrillard*, French; *grauköpfige Ammer*, German; *rostbärtige Ammer*, German.

Mas pileo cum capitis lateribus et torque pectorali læte cinereis: dorso rufo, striga mediana saturate brunneo: dorso imo, uropygio et tectricibus supracaudalibus rufis, his anguste medialiter brunneo striatis: tectricibus alarum brunneis rufo marginatis, minoribus latius: remigibus brunneis, primariis anguste, secundariis late marginatis: cauda brunnea, rectricibus duabus mediis rufo marginatis, reliquis brunneis, duabus exterioribus pogonio interno versus apicem late albis: loris et regione oculari, striga malari et gula tota fulvescenti-rufis: corpore reliquo subtus læte castaneo: subalaribus grisescenti-albidis fulvo tinctis, exterioribusque nigro variegatis: rostro rubello: pedibus flavicantibus.

Fem. mari similis, sed sordidior: pileo cinereo anguste brunneo striato: gutture et regione orbitali pallide fulvescenti-rufis punctulis minutis sparsim notatis: torque pectorali indistincto sordide cinereo.

Adult Male. Head clear blue-grey, a narrow streak on each side of the throat joining the sides of the neck, and a band across the upper breast of the same colour; lores and a ring of feathers round the eye, a moustachial stripe and entire throat pale rufous; back rufous brown, greyish on the back of the neck; interscapulars and scapulars rufous, longitudinally streaked with brown down the centre of the feather; lower portion of the back, rump, and upper tail-coverts uniform dark rufous, the latter having a narrow brown shaft-stripe; wing-coverts brown, broadly margined with rufous, the lesser ones more broadly, the greater ones narrowly; quills brown, the primaries narrowly margined with rufous, the secondaries more broadly; tail dark brown, the two centre feathers narrowly edged with rufous, the rest almost entirely brown, except the two outermost, which are white towards the tip of the inner web; the entire breast rich chestnut; under wing-coverts greyish white, slightly tinged with rufous, and the small feathers on the edge of the wing varied with black. Total length 6·3 inches, culmen 0·4, wing 3·4, tail 2·4, tarsus 0·6.

Adult Female. In general colour like the male, but paler, the head and breast-band being conspicuously less bright, on the former the little brown shafts, which in the male are nearly obsolete, being more distinct; the sides of the face and throat pale rufous, the ear-coverts darker, and the whole of the throat marked with tiny brown specks; the breast not so deep chestnut as in the male. Total length 6 inches, culmen 0·4, wing 3·2, tail 2·3, tarsus 0·6.

Obs. A pair of birds collected by L. Schrader and Dr. Krüper in the neighbourhood of Smyrna, in the spring of 1863, and ticketed as an adult male and female, are very similar to the pair described above, but have a few fulvous edgings to the feathers of the breast, apparently the remains of the winter plumage. On the throat of the female the spots are very distinct and broad, and a very perfect malar

stripe is exhibited. The male has a little white on the inner web of the third tail-feather, which does not appear in the specimen described by us. These birds are in Lord Lilford's collection.

THE present bird has much in common with the Ortolan; but at the same time we cannot understand how, by many good naturalists, it has been considered to be only a variety of that species. Nor is it a *Fringillaria*, in which genus many authors have placed it; for it does not agree generically, and is different in its habits, as the following note of Dr. Tristram's will testify. In 'The Ibis' for 1859 (p. 34) he writes as follows concerning the present species:—"In its habits and actions it is very different from its Algerian congener, *Emberiza saharae*, which it so nearly resembles in form and plumage, avoiding buildings, and not, as far as I am aware, perching on stones or walls." *Emberiza saharae*, on the contrary, is a true *Fringillaria*, and belongs to the same group as *F. septemstriata*, *F. tahapisi*, &c. It is evident, therefore, that the true position of *Emberiza caesia* is among the true Buntings, in close proximity to *E. hortulana* and *E. huttoni*.

Cretzschmar's Bunting appears to have comparatively a limited range; and we have been unable clearly to define its exact line of migration; but its winter home is probably the interior of North-eastern Africa, while in Europe it is common during summer in the south-eastern portions, only occurring as a straggler in the countries to the westward bordering the Mediterranean basin. Jaubert and Barthélemy de la Pommeraye state that about six or seven instances of its occurrence near Marseilles have come under their notice, while as long ago as 1825 Roux had included it among the birds of Provence, mistaking it, however, for a variety of *E. cia*. Baron J. W. von Müller says that it does not come regularly in the Camargue, but appears sometimes in small numbers, always in spring. Malherbe quotes a single instance of its occurrence in Sicily, and refers at the same time to a notice by Temminck of a specimen killed near Vienna. Von der Mühle and Linder Mayer have included it in the avifauna of Greece, where it is not uncommon; and Dr. Krüper procured it on Naxos, where it "breeds in desert places on the mountains." Messrs. Schrader and Krüper have also sent numerous specimens from Smyrna. We have also seen examples from Bulgaria, whence also Dresser has received eggs of the present species, though it is not included by Messrs. Elwes and Buckley in their list of the 'Birds of Turkey.' In Palestine Dr. Tristram found it abundant. Throughout the whole of the above-mentioned localities *Emberiza caesia* is a summer visitant, and appears also as a straggler in Algeria, according to Loche.

With regard to its occurrence in North-eastern Africa, Dr. Th. von Heuglin writes as follows:—

"We observed this Bunting more particularly in small flocks in Lower Egypt in March or early in April. They generally frequent the borders of the desert and cultivated ground, and are particularly to be met with on dunes, heaps of rubbish, on hedges, &c., sometimes in company with *Emberiza hortulana*. They occasionally breed in the Delta, and near Cairo, in olive-gardens. From the beginning of September they are to be met with along the Nile and in Arabia and Abyssinia, generally in flocks. According to Brehm it is very common along the Blue Nile in November; and Mühle states that it is the commonest Bunting in Greece, where it arrives in April with Stonechats, Blue Thrushes, and Owls; it inhabits the most desolate rocky hills."

From Dr. Tristram's 'Notes on the Ornithology of Palestine,' we extract the following information :—

“*Emberiza cæsia* takes the place of the Yellow Ammer in Palestine. Its return is sudden and universal, and it peoples every part of the country from the banks of the Jordan to the high parts of Lebanon. It builds either on the ground under a tuft, or in a low bush. Its note is low, but cheery, often repeated, like the Ortolan's, from the top of a bush or low tree. The nest is very neat and compact, lined with fibres and horsehair; and the eggs, four in number, are sufficiently characteristic to render them distinct from those of any other Bunting. They are russet or reddish brown in their ground, covered with spots or blotches rather than with streaks, after the fashion of those of the Ortolan. While the Ortolan prefers the olive-trees and gardens, *Emberiza cæsia* confines itself to the bare hillsides and the scrub or the rocky Wadys.”

Dr. Tristram has also written for us the following particulars :—

“*Emberiza cæsia* returns about the beginning of March. The little flocks soon make their arrival known by their lively, twittering, though monotonous, note; and the call-note is like that of our Yellow Ammer. They do not separate or pair for a few days, but may be seen under the bushes or on the edge of scrub feeding in society, and hopping into the thicket on the approach of a stranger. If there were hedges, this Bunting would be a true hedge-row bird. The nest is similar in situation to our Yellow Ammer's, but much neater and more solid; sometimes I have taken it in the fork of a low bush, but generally in a bank-side under a good shelter of stone. The eggs are, I think, the prettiest of all the Bunting tribe, and thoroughly characteristic. The bird is of a familiar disposition; and if we camped in the neighbourhood of a pair, they soon found the advantage of having barley-fed animals close by.”

Dr. Lindermayer, whose description of the nest and eggs agrees with that of Dr. Tristram, states further, as to its habits in Greece :—

“Directly after its arrival it frequents hillocks and the dried-up shores of the mountain-streams close to the sea, where it seeks its food along with Stonechats, Larks, &c., which arrive at the same time. It generally sits on the ground; and is only occasionally seen for a few moments calling from a low bush. It leaves us very early; and I have never had the opportunity of seeing it in the summer or the beginning of the autumn in its migration southward.”

We have several eggs of this bird from Dresser's collection, received by him from Dr. Krüper, before us. They are dull white, with pale purplish black underlying and blackish brown overlying spots and scratches generally distributed over the surface of the egg; they measure $\frac{31}{40}$ by $\frac{24}{40}$ inch, and are slightly pointed at one end.

The Plate represents a pair of adult birds in our collection, the male being from Smyrna, the female from Palestine; and the descriptions are taken from the same birds.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a. ♂ ad. Smyrna, March 31st, 1863 (*L. Schrader and Dr. Krüper*). *b, c.* ♂, ♀. Palestine (*H. B. Tristram*).

E Mus. Lord Lilford.

a, b. ♂, ♀. Smyrna (*L. Schrader and Dr. Krüper*).

E Mus. H. B. Tristram.

a-g. Palestine (*H. B. T.*).

E Mus. Howard Saunders.

a. Smyrna (*Krüper*).



EMBERIZA LEUCOCEPHALA.
IV

EMBERIZA LEUCOCEPHALA.

(PINE BUNTING.)

Emberiza leucocephala, S. G. Gmelin, N. Comm. Acad. Sci. Imp. Petrop. xv. p. 480, tab. xxiii. fig. 3 (descr. orig.).

Emberiza pityornis, Pallas, Reise Russ. Reichs, ii. Anhang, p. 710, no. 22 (1773, descr. orig.).

Pine Bunting, Lath. Gen. Syn. ii. pt. 1. p. 203 (1782).

Emberiza sclavonica, Degl. Orn. Europ. i. p. 253 (1849, ex Briss.).

Emberiza albida, Blyth, J. A. S. B. xviii. pt. 2. p. 811 (1849, descr. orig.).

Buscarla pityornis, Bonap. Rev. et Mag. de Zool. 1857, p. 164.

Pine Bunting, English; *Bruant à couronne lactée*, French; *Fichtenammer*, German.

Mas pileo medio genisque albis: capitis lateribus, gutture toto et colli lateribus castaneis: dorso rufo, nigro striato et brunneo vario: dorso postico et uropygio læte ferrugineis: gutture imo albo: corpore subtus albido, pectore superiore et hypochondriis læte ferrugineo variis: alis brunneis, primariis anguste albido, tectricibus alarum et secundariis late ferrugineo marginatis: cauda brunnea, rectricibus mediis late fulvo marginatis, duabis extimis plerumque albis.

Fem. supra cinerascenti-brunnea, plumis nigro medialiter striatis: uropygio læte ferrugineo: subtus albescens, pectore superiore hypochondriisque rufo tinctis, plumis anguste brunneo striatis.

Male in summer plumage. Crown of the head white, more or less tinged with greyish brown, and streaked with small dark brown shaft-stripes on some of the feathers; forehead and sides of the crown as well as a small patch of feathers behind the ear dark brown, slightly tinged with grey; a broad line from the base of the bill, enclosing the eye and running backwards along the sides of the head, entire throat, cheeks, and sides of the neck rich chestnut; below the eye, extending from the base of the bill and enclosing the auricular region, a narrow line of white, becoming rather tinged with grey on the sides of the neck, forming a kind of interrupted collar, which meets on the underside of the body below the throat, where it forms a broad jugular patch of white; back rufous, mottled with dark brown, most of the feathers edged indistinctly with fulvous; lower portion of the back, rump, and upper tail-coverts rich bay, the latter streaked with brown, and faintly margined with fulvous; wing-coverts bay, dark brown at the base, and narrowly margined with fulvous, the brown predominating on the greater coverts, where also the fulvous edgings are broader; primary coverts and primaries greyish brown, very narrowly margined with whitish, secondaries darker brown, bordered on the outer web with bay, which in turn is edged with fulvous; tail dark greyish brown, the two centre feathers tinged with rufous, and edged with fulvous, the two outer feathers white, except at the base and towards the extremity of the outer web, the next feathers similarly coloured, but the brown predominating and extending further up the feather, all the other feathers greyish brown with narrow fulvous edgings; upper part of the breast and flanks rich bay, clouded with white; centre of the breast, abdomen, and under wing- and tail-coverts pure white; upper mandible dark horn-brown; lower mandible yellowish brown; feet pale yellowish; iris dark brown. Total length 6.6 inches, bill 0.5, wing 3.65, tail 3.2, tarsus 0.75.

Adult Female. Head greyish brown, streaked with black, the stripes taking the form of longitudinal lines;

lores dirty white; ear-coverts brown, marked with buff; cheeks dirty white, becoming clearer on the sides of the neck; back of the neck clear grey, somewhat marked with brown; middle of the back and scapulars brown, longitudinally marked with black and rufous brown; lower portion of the back, rump, and upper tail-coverts rich bay; wing-coverts brown, edged with rufous, which again shades off into fulvous; quills and tail as in the male; throat dirty white, marked with little spots of dark brown; chest and sides of the body rufous, with longitudinal streaks of dark reddish brown; centre of the body and under tail-coverts dull white; under wing-coverts white, slightly tinged with brown.

Young Male. Similar to the old female, but rather greyer in tint, especially down the centre of the crown; the throat and upper breast whitish, mottled with rufous, and having a few, small, dark brown markings on the upper part of the chest.

Male in winter plumage. Distribution of colours as in the summer plumage, but everywhere much more dingy; the white crown nearly altogether obscured by dark brown markings; the back and wing-coverts dull brown, with very little rufous; the rump and upper tail-coverts, as well as the throat and cheeks, edged with fulvous white; upper part of the breast, below the white gorget, marked with broad brown lines. The spring plumage is assumed not by a direct moult, but by the wearing off of the edgings to the feathers.

THERE can be no doubt that the synonymic name of *pityornis*, by which this Bunting is known in ornithological works, must give way to the older name bestowed by S. G. Gmelin in 1771. "The species was first described," Lord Walden kindly informs us from an examination of the works in question, "by the above-named author (*l. c.*); and Lepechin again described the bird in the same volume a few pages further on (p. 486), after Gmelin, with a figure (tab. 25. fig. 1), but gave no binomial title. Pallas (*Zoogr.* ii. p. 37) quotes Messerschmidt's title of *E. passerina* as a synonym; but Messerschmidt's work does not appear to have been published."

A great deal of confusion has been promulgated with regard to the various names referred by Prince Bonaparte and other writers to the present species. In an article by the last-named author in the 'Revue et Magasin de Zoologie' for 1857 (*l. c.*) some notes on the Buntings of Europe are given, with a figure (pl. 7) of a bird called "*Emberiza scotata*, Bonomi," which the Prince supposes to be the young male of *Emberiza leucocephala*, and which was captured near Brescia, in Lombardy, and sent to him by M. Parzudaki. A full description of this specimen is then given, which is faithfully reproduced by Dr. Bree (*B. of Eur.* iii. p. 36). We regret that we cannot coincide with the opinion of either of the above-named naturalists; for the description and figure differ in so many characteristic points from the Pine Bunting in any stage of plumage, that we believe some other species has been mistaken for it. At the conclusion of the description of the bird, Prince Bonaparte observes, "It is a known fact that this Bunting is also the *E. passerina* of Messerschmidt; *E. albida*, Blyth; *E. leucocephala* and *dalmatica*, Gm.; and *E. sclavonica*, Degland. It is probable that more adult males have formed the subjects of the nominal species which has been dedicated to me under the name of *E. bonaparti* by M. Barthélemy de la Pommeraiie from a specimen taken at Marseilles, where it was living in a cage in 1842." We may remark, with regard to these synonyms, that the name of *E. passerina* cannot be found to have ever been published; *E. albida* of Blyth refers to this species, and was named from a specimen sent to the last-named gentleman from the Himalayas, beyond Simla, by Captain

Hutton. *E. dalmatica* of Gmelin was never published as an *Emberiza*, but under the genus *Fringilla* (S. N. i. p. 920), and is founded on Latham's "Dalmatic Sparrow" (Ind. Orn. ii. part 1. p. 256), which, again, is taken from the *Moineau d'Esclavonie* (*Passer slavonicus*) of Brisson. From this also Degland takes his name of *Emberiza slavonica* for the Pine Bunting; but after a careful comparison we are unable to identify Brisson's species, and the name must be expunged from the list of synonyms of *Emberiza leucocephala*. As regards the MS. name of *E. bonapartei* no comments are necessary, as it was never published, but is referred to the present species in the later work of MM. Jaubert and Barthélemy-Lapommeraye, though no description is given.

The Pine Bunting is, strictly speaking, a denizen of the Eastern Palæarctic Region, but, like many other birds, migrates westward on the approach of winter, and occurs regularly at this season of the year within European limits. The first actual notice of its capture appears to have been in the autumn of 1824, when a specimen was procured near Vienna. Again, in the year 1842 M. Barthélemy-Lapommeraye obtained an example at Marseilles; and Count Gourcy Droit-aumont (Isis, 1848, pp. 493, 494) further records two specimens as captured near Vienna in 1848; since that time the Pine Bunting has regularly been included in the list of the "Birds of Europe."

The true summer residence of the present species appears to be Asiatic Russia, particularly on the Irkutsk and Amoor rivers, whence it proceeds southward in the winter. Pallas described his first specimens from birds obtained in the pine woods of Northern Siberia; and we have frequently received specimens from the neighbourhood of Lake Baikal. Mr. Swinhoe met with it at Peking in October; and Père Armand David speaks of it as abounding there in winter and early spring. It occurs in India, but only in the north-west Himalayas, according to Jerdon, who states that Captain Hutton and Dr. Adams obtained it on the Syree range, beyond Simla, and that it has also been procured near Peshawur. Specimens are also in the India Museum, collected by Griffiths in Cabul.

In Eastern Europe it appears as a winter visitant. Gmelin states that his typical example was obtained in Astrachan; while Messrs. Elwes and Buckley (Ibis, 1870, p. 194) obtained two specimens shot on the Bosphorus by Mr. T. Robson, of Ortakeny. We have also in our collection two specimens sent to us by Mr. Robson, and procured by him near Constantinople, one of them being shot as early as the 21st of October, in which month Mr. Swinhoe got an example at Peking, so that by this time the complete migration must have been nearly, if not fully, accomplished. Professor Burmeister states that in the Museum of Halle there is a specimen of the Pine Bunting from Hungary.

Three specimens have been taken near Vienna; and as regards its occurrence in Italy Count Salvadori writes:—

"This is a very rare bird in Italy. I only know of a few specimens caught here; and nearly all were procured near Bergamo, in autumn, when they appeared to come from the north in company with Buntings, Finches, and other small birds. One specimen has been caught near Genoa."

Lord Lilford has a specimen of this Bunting in his collection from Central Asia, but the exact locality is not stated. It is in beautiful summer plumage, agreeing with examples in our own collection from Siberia. Like its congeners, the Pine Bunting seems to be capricious in the

assumption of the winter plumage, as we have specimens from the same locality, Lake Baikal, in summer and winter dress, so that no fixed period can be assigned for the putting on of the hyemal dress.

Owing to the rarity of *Emberiza leucocephala* in Europe, but little is known of its habits or nidification, excepting through the medium of the Russian travellers in Siberia and the Amoor; and of these Radde alone enters into precise particulars. According to the observations of this naturalist, this Bunting was found to be abundant on the islands of the Schilka from the early part of May. In the morning the note of the male was heard incessantly in the birch woods, where the bird chose the tops of the trees as a resting-place. The song reminded him somewhat of that of *Fringilla cœlebs*, but exhibited the Bunting-like rhythm. The female chooses high lofty pine or larch trees for her nesting-place. Radde does not give any more details respecting the nidification, further than that the young were fledged on the 10th of July in the forests on Lake Baikal. Their plumage was then remarkable for the breadth of the black shaft-spots on the feathers on the underside of the body, these spots being larger towards the point of the feather; otherwise they resemble the old female; but the rust-red on the rump is paler and more yellowish, while on the other hand all the black shaft-stripes on the crown and back are broader and darker. In July Radde found the males still in full song on the island of Olchon, and observes that the food of the old birds then consisted chiefly of young grasshoppers and cicadas.

Of the nest we cannot give any details; but we are fortunate in being able to describe the eggs from specimens obtained by Dresser in exchange from the St.-Petersburg Museum, and taken near Irkutsk on the 25th of May. These are in size about equal to pale sparsely marked eggs of *E. citrinella*, measuring $\frac{3.1}{40}$ by $\frac{2.5}{40}$, or may be, perhaps, a trifle smaller. They have a pale greyish-white ground-colour, and are marked with faint underlying grey, scarcely perceptible shell-marblings, and blackish brown surface-markings, very sparsely distributed over the egg. All these characters are like those on the eggs of the Yellow Ammer, viz. hair-like lines, looking as if they were marked with a pen. According to Dybowsky and Parrex, who found this bird breeding in Dauria, the number of eggs is from five to six.

Von der Mühle observes:—

“I have several times procured this bird in Roumelia in the late autumn, but only females and young examples. They much resemble *Emberiza schœniclus*, and are, perhaps, not uncommon, but are mistaken for this species. I can therefore state nothing further respecting it.” Dr. Lindermayer, however, did not observe it in Greece.

Respecting its habits in confinement we may quote the following remarks of Victor Ritter von Tschusi (J. f. O. 1869, p. 217) respecting a male sold to him in the Vienna market as a Reed Bunting on the 27th of November, 1866:—

“I could only ascertain that this bird was caught a few days previously near Vienna; more the dealer could not tell me. When I placed the bird in a roomy cage he was very shy, and flew continually against the wires, so that I was obliged to cover him to avoid his injuring himself. In the spring he got much quieter, and is now quite tame. His call-note, which is often heard when he is singing, is exactly like that of a Yellowhammer. As I had both species in cages in my room in the winter of 1866, I could daily convince myself of this. His song has nothing Bunting-like in it, but, on the other hand, reminds me much of the song of the Goldfinch and

Redbreast, chiefly the latter, by the fine, lengthened, melancholy notes, which, however, are never so loud as in the song of this Warbler, but can best be compared to those of a young practising Redbreast. It is therefore incomprehensible to me how Radde, who had repeated opportunities of observing this Bunting, could say of it, 'The pleasant song reminds me somewhat of that of *Fr. cœlebs*, only it betrays the well-known Bunting-like rhythm.'

"I am certain that this Bunting is sometimes caught here amongst others, but generally falls into the hands of ignorant people, who, in its plain winter dress, overlook it or mistake it for the Reed Bunting, which, in this garb, it is not unlike."

Mr. Robson, of Ortakeny, Turkey, has favoured us with the following note:—

"This species is very rare in Turkey, Asia Minor, and Europe, and I have never seen more than two or three in a season; some seasons none occur. They feed and are taken amongst other species of *Emberizidæ* in the autumn migration; and amongst hundreds of other Buntings that are captured, only one or two of this species are met with. The female is a plain-coloured bird, much greyer than the male."

The Plate is drawn from a fine pair in breeding-plumage, procured by Radde at Turka, on Lake Baikal. The winter dress is described from a Turkish specimen sent to us by Mr. Robson.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b. Turka, Siberia, April 27, 1859 (*Gustaf Radde*). *c, d, e.* Lake Baikal, Siberia (*Dybowsky and Parrex*).
f, g. Near Constantinople (*T. Robson*).

E Mus. H. B. Tristram.

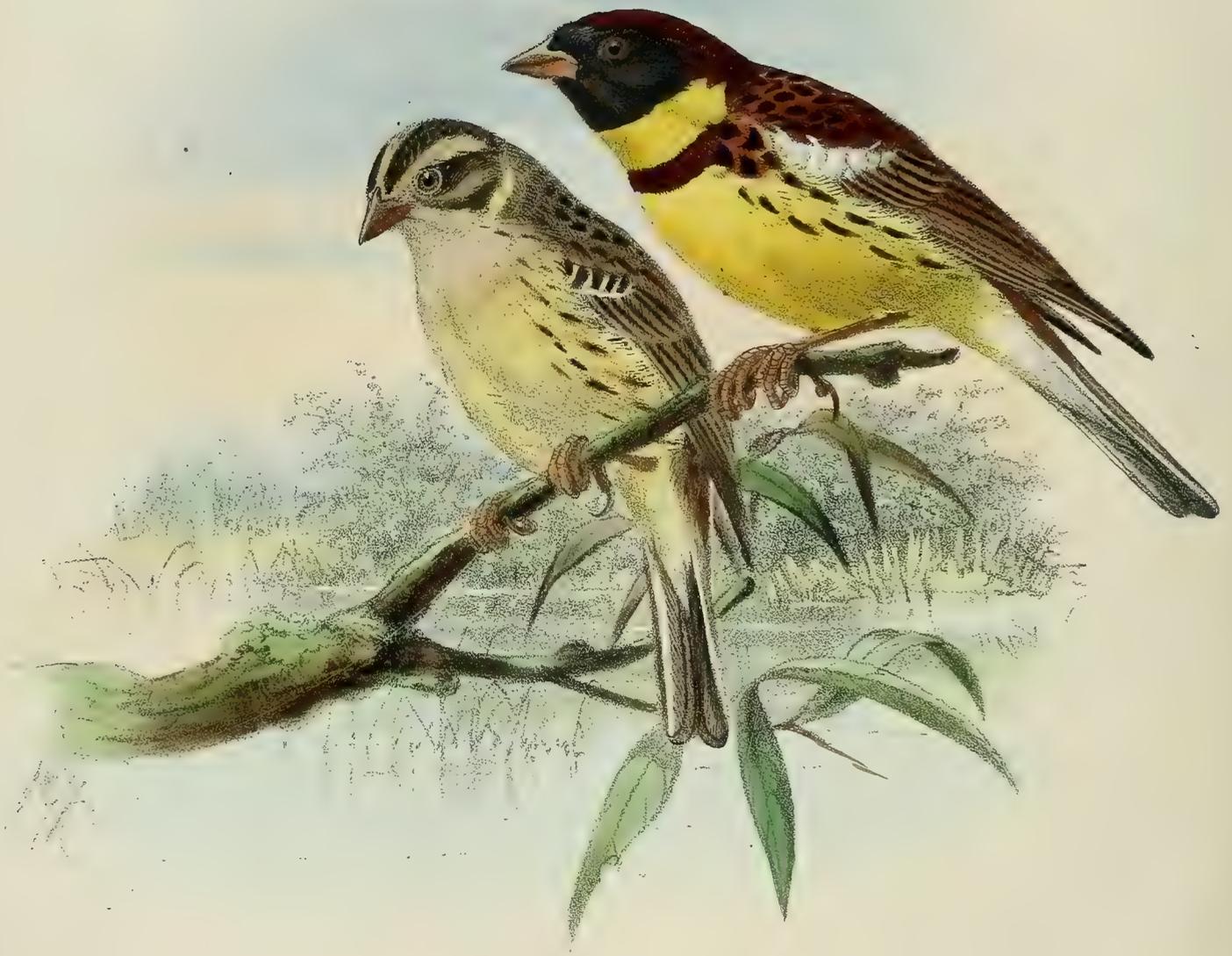
a. Constantinople (*T. Robson*). *b.* Lake Baikal, Siberia (*Dybowsky and Parrex*).

E Mus. Lord Walden.

a, b, c. Lake Baikal, Siberia (*Dybowsky and Parrex*). *d.* Central Asia (*Severtzow*). *e.* Ortakeny Hills, Turkey (*T. Robson*).

E Mus. Lord Lilford.

a. Central Asia (*Severtzow*).



EMBERIZA AUREOLA.
XXVII

EMBERIZA AUREOLA.

(YELLOW-BREASTED BUNTING.)

- Emberiza aureola*, Pall. Reise Russ. Reichs, Anhang, p. 711, no. 23 (1773, descr. orig.).
Passerina aureola, Vieill. Nouv. Dict. d'Hist. Nat. xxv. p. 6 (1817).
Passerina collaris, Vieill. Nouv. Dict. d'Hist. Nat. xxv. p. 9 (1817, descr. orig.).
Emberiza selysii, Verany, Act. du Congrès Scientif. de Naples (1845, teste Degland & Gerbe).
Emberiza dolichonica, Bonap. Atti della sett. adun. degli Scien. Ital. 1845, p. 715 (teste Degland & Gerbe).
Euspiza aureola, Bonap. Rev. Critiq. des Ois. d'Eur. de Degl. p. 166 (1850).
Hypocentor aureolus, Cab. Mus. Hein. i. p. 123 (1850).
Strenatka Tschernolitsaya, Russian.

Figuræ notabiles.

Gould, B. of Eur. iii. pl. 174 (♂, ♀); Radde, Reisen Süd. Ost-Sib. Taf. iv. figs. 2, *a-h* (♂, ♀ et juv.); Bree, B. of Eur. iii. p. 60 (♂); Fritsch, Vögel Eur. tab. 20 (♂).

♂ fronte, facie laterali et gulâ superiore nigris: dorso toto castaneo, plumis quibusdam angustissimè fulvo marginatis: tectricibus alarum minimis nigricantibus, mediis albis fasciam latam albam formantibus, majoribus medialiter brunneis, rufo tinctis et fulvo marginatis, exterioribus autem versus apicem albidis: remigibus brunneis, primariis fulvo marginatis, secundariis extus rufescentibus fulvo marginatis: caudâ brunneâ, vix fulvo marginatâ, rectrice extimâ plerumque albâ, proximâ ferè omninò brunneâ versus apicem pogonii interni paullò albo notatâ: corpore subtus latissimè citrino, torque pectorali cum colli lateribus castaneis: hypochondriis castaneo longitudinaliter striatis: subcaudalibus albidis citrino tinctis: subalaribus albidis: rostro corneo, mandibulâ pallidè carneâ: pedibus brunnescenti-carneis: iride brunneâ.

♂ *juv.* similis præcedenti, sed coloribus omninò sordidioribus et torque pectorali interruptâ distinguendus.

♀ omninò dissimilis: griseo brunnescens: capite centrali pallidiore, laterali saturatè brunneo: loris et strigâ superciliari distinctâ albidis: genis albicantibus: regione auriculari brunneâ: striâ mystacali indistinctâ brunneâ: collo postico immaculato: dorsi plumis medialiter saturatè brunneis, fulvo marginatis: dorso postico et uropygio rufescentibus, medialiter brunneis: alâ brunneâ, tectricibus alarum saturatoribus, fulvo marginatis et albo terminatis, fascias duas albas angustas formantibus: subtus pallidè citrina, gutture vix ochrascente: colli lateribus paullò rufescentibus: hypochondriis saturatè brunneo striolatis.

♀ *jun.* suprâ ochrascenti-brunnea: pileo summo saturatè brunneo longitudinaliter striato: capite centrali pallidiore vix cinnamomeo: superciliis latis fulvescentibus: collo postico cinerascenti-brunneo, plumis medialiter brunneo indistinctè lineatis: dorso brunneo latè striato, plumis fulvescenti-brunneo marginatis: dorso postico et uropygio ochrascenti-brunneis, lineis longitudinalibus parvis nigris striolatis: alâ ut in feminâ adultâ picturatâ sed magis fulvescenti tinctâ et marginibus latioribus: caudâ brevissimâ brunneâ, fulvescenti marginatâ, pennis duabus exterioribus pogonio interno plerumque albis:

regione auriculari brunneâ, cinerascenti lavatâ: corpore subtus citrino, pectore superiore paullò rufescente, gulâ indistinctè, pectore et hypochondriis distinctiùs brunneo striolatis.

Adult Male. General colour deep chestnut, the centre of the back distinguished by black markings in the middle of the feather, and here and there a fulvous margin to the plumage; forehead, sides of the face, and upper part of the throat jet-black; least wing-coverts greyish black, the median coverts white, forming a most conspicuous alar bar, and the greater coverts dark brown tinged with rufous, edged with fulvous, and tipped with whitish, forming a second alar bar, but not a very distinct one; primary-coverts brown, tinged with grey; quills brown, the secondaries strongly washed with rufous, and all the feathers edged with fulvous; tail-feathers brown, the feathers margined with fulvous, the outer one almost entirely white, excepting a small greyish-brown mark towards the tip of the outer web, the second feather also marked with white towards the tip; under surface of the body bright citron-yellow, the upper part of the chest crossed by a band of rich chestnut, which colour extends on to the sides of the neck; the flanks thickly marked with longitudinal stripes; thighs and under tail-coverts whitish, the latter dashed with yellow; under wing-coverts white; upper mandible horn-brown, lower mandible brownish flesh-colour; legs also of a brownish flesh-colour; iris brown. Total length 5·5 inches, culmen 0·45, wing 3·1, tail 2·2, tarsus 0·75.

Another male, in Messrs. Salvin and Godman's collection, is apparently not quite so adult, as, though coloured like the last, it has the upper tail-coverts plain brown, not chestnut, and a dash of fulvous brown on the lower part of the black throat-spot.

Another male in our own collection is less adult still, and has the colours distributed as in the old bird, but everywhere paler; the back is pale brown, the median stripes to the feathers very distinct, and very little tinged with chestnut; the white bars on the wings are not nearly so distinct; and the pectoral band across the chest is scarcely indicated by a few dull brown marks on the feathers.

Female. Greyish brown, like a hen Sparrow, above, with black centres to the feathers of the middle of the back; hinder part of the neck clear greyish brown, unmottled; sides of the head dark brown, and a central stripe greyish brown; lores and a broad eyebrow fulvous white; cheeks fulvous white, with an indistinct moustachial stripe of brown; ear-coverts darker brown; rump inclining to rufous; upper tail-coverts and upper wing-coverts greyish brown; median and greater coverts dark brown, edged with fulvous, slightly tinged with rufous and tipped with white, forming two narrow alar bars; quills and tail greyish brown, very narrowly edged with fulvous, the two outermost rectrices white for the greater part of their extent; underpart of the body pale citron-yellow, slightly tinged with ochre on the upper breast; the flanks thickly marked with longitudinal stripes of brown; under wing- and tail-coverts whitish. Total length 5·0 inches, culmen 0·45, wing 2·85, tail 2·1, tarsus 0·75.

A female example in Messrs. Salvin and Godman's collection differs in having a white throat, and being of a brighter yellow underneath; the flanks, however, are more narrowly striped than in the one above described.

Female Nestling. Clear brown inclining to ochre, the fulvous edgings to the back feathers very distinct, as are also the median stripes. All the markings of the adult female are distinctly indicated in this bird; but the whole plumage more inclines to ochre; the two bars on the wing are not white, but fulvous brown; the under surface of the body is ochre-yellow, brighter and inclining to citron in the centre of the breast, the upper part of which is tinged with brown and thickly striped with the latter colour; the flanks also are narrowly striped with brown.

Winter plumage. As in most Buntings, the winter plumage is duller and more obscure than the summer dress, owing to the appearance of very broad fulvous edgings to the feathers of the upper surface of the body. Thus the chestnut colour of the back is completely obscured, and appears fulvous brown. All the feathers of the rest of the body are equally dull, and on the breast the chestnut band across the chest and the stripes on the flanks are scarcely discernible.

THE Yellow-breasted Bunting is found in summer over the entire northern portion of the Palæarctic Region from Northern Russia to Kamschatka. In winter the bulk of the migrating birds seem to visit China; but at this season it is also found sparingly in the Himalayas and Nepal, more plentifully in the North-west Provinces of India; and thence its westward range extends to Southern Europe, where, however, it is very rare, only occurring in winter.

It has been obtained in Heligoland by Gätke, the time of year not being stated; but it doubtless only visits this locality on its return to its summer haunts. It has not yet been met with in Finland, but doubtless will occur there. In the north of Russia it breeds, as will be seen by the excellent accounts given below by our contributors. Dr. E. Eversmann observes that it is "common on the flooded meadows of the Kazan Government, and but rare in the damp grassy valleys of the southern slope of the Ural. It does not arrive from its migration until late, not before May." All across Siberia it is a common bird, breeding plentifully.

Commencing with its winter habitat, we find that in China Mr. Swinhoe has obtained it at most of his collecting-points. During his recent visit to Hainan, he says, "on the 29th of March, at Haosuy (West Hainan), we got a fine male of this species;" and in Formosa he records it as a "winter visitant, not common." Near Amoy he "met with it in flocks in winter, feeding on the ripening corn;" and in his essay on the Ornithology of Hong-Kong, Macao, and Canton, he says it is more or less common, and, he thinks, resident. In his list of birds found between Takao and Peking in Northern China, he observes that it was common "about the reedy herbage of the Yun-leang Canal." Near the latter city Père David says it is abundant at both seasons of migration.

According to Dr. Jerdon it "straggles sparingly in the winter into Nepal and the South-eastern Himalayas, but is more abundant in Assam, Tippera, and Burma. It avoids Bengal and the plains of India." Mr. Blanford procured it at Ava; and Mr. Gould has recorded it from Tavoy, in the Tenasserim provinces, whence it was sent by Captain Briggs; this is, we believe, the most extended range of the species in winter towards the south-east. Captain Marshall informs us that he found this bird in the North-western Provinces of India, near Lahore.

Dr. Tristram says:—" *Emberiza aureola* I once saw in Palestine, and do not think I could be mistaken, as I watched the bird for some time, but had no gun with me. An Italian gentleman also showed me a specimen he had shot north of the Lebanon."

Count Salvadori writes to us:—"I only know one instance of this bird having been taken in Italy; it was caught near Genoa, and lived two years in captivity." According to Jaubert and Barthélemy-Lapommeraye it is found in small numbers in Central France nearly every year, arriving in the autumn in winter dress.

Dr. Radde's notes are as follows:—

"I found the Willow-Bunting throughout the country I traversed. It is even found in the Sajan Alps to an altitude of 6000 feet; and here it chooses, as its favourite resort for

sitting and calling, the shores of a running spring which are generally overgrown with bushy willows and *Betula nana*. I found it common at an altitude of 5000 feet in company with some *Muscicapæ*; but it does not go as far as the boundary of tree vegetation. Flat, light, thickly overgrown places, islands, and sunny birch knolls it inhabits in preference, but does not visit conifer-woods. I found it breeding in Mongolia, where low willow bushes were scattered round. If no willows are to be found near its abode, it takes its perch for singing on the top of last year's dry plants. The song of the Willow-Bunting is pleasing, and consists, as long as the male calls, of three different changes. Besides these, the birds often utter the short 'zipp' note."

Dr. L. von Schrenck (p. 278) writes:—

"*E. aureola* is perhaps the commonest Bunting in the Amoor country, and frequents green woods where the underbrush is thick, and particularly the dense extensive willow-thickets on the islands of the Amoor river. They appear to affect the latter localities more especially, as Pallas speaks of them particularly as found on the willow-covered islands of the Irtisch and other rivers of Siberia. I shot the first specimen of the year on the 19th (31st) of May 1855, near the mouth of the Chaselach, on the Lower Amoor; but it probably arrives at the mouth of the Amoor early in May."

Dr. v. Schrenck further remarks that he often procured it at various localities on the Lower Amoor in June and July, and that Dr. von Maack brought back several females from near Albasin and the mouth of the Oldoi, on the Upper Amoor, procured on the 6th and 7th of June. According to Middendorff it is common in South-eastern Siberia. He first observed it on the 10th of May, and from that time all over the Stanowoj Mountains up to the crest, as also near the Uda river and on the southern coast of the sea of Ochotsk. He found a nest on the 17th of June, and another on the 6th of July with eggs, which was probably a second brood.

We are indebted to our friend Dr. L. Taczanowski for the following notes from Dr. Dybowski:—

"It is one of our commonest birds in Eastern Siberia, and always frequents the valleys or low-lying places, particularly on the plains and amongst the bushes, both where it is marshy and quite dry. It also inhabits the Steppes, where it penetrates further than all the other small birds, and is met with where nothing else but Larks are found. It generally perches on the top of a plant or bush (on the Steppes, generally on the *Polygona*), and there sings continually. Its song is short, and often interrupted, but is sweet. The peasants look on it as the best songster in Dauria; but that is according to their taste, for there are many other birds here which sing better. They arrive about the middle of May, and commence building their nests early in June; still most of them only commence breeding late in this month. Their nests are placed on the ground at the foot of a little bush, often at the base of a tussock of *Spiræa* amongst high grass, or else in the grass only. The nest is constructed of dry bents, and well lined with horsehair, is about 65 millims. in diameter, and 50 millims. in depth. They lay four or five, rarely six, eggs.

"The female sits hard, and will permit any one to approach quite close to her; when driven off her eggs she keeps flying about with the male close in attendance, perching every now and then on the neighbouring bushes, and uttering a note of lamentation which resembles that of *Pratincola rubetra*."

Professor Liljeborg published in 1852 the accompanying observations, which we transcribe from his paper in 'Naumannia':—

“Observed at Kargopol and Archangel, here and there very abundant. The old male, described by Pallas and Temminck, is certainly more beautiful than all its congeners; the female, however, is not so richly coloured. The latter is, by the way, much harder to find, partly because it keeps hidden in the dense brushwood, whence it now and again utters a call-note something resembling that of a Robin (*Sylvia rubecula*), partly because it does not betray its whereabouts by its song.

“In the stomachs of those I shot I found remains of insects. At the end of July the young were fledged. They frequented open marshy meadows which were overgrown with brushwood, chiefly willows. In some places before I reached the Dwina, they were not rare, as for instance at one place on the Onega river. Their short but pleasing and melodious song is uttered from the top of a tree or shrub. Generally they were not shy. During migration they are said to occur at Moscow.”

Mr. Meves, who has lately travelled and collected in North Russia, has kindly sent us the following note:—

“I found this lovely Bunting near Wosnesenskôi, on the south-western portion of Lake Onega, therefore far to the west of where it has before been recorded from. Here a few pair frequented a very swampy place overgrown with willows, *Iris germanica*, &c. Its loud but pleasing song was generally uttered as it was sitting in some exposed place, and reminded me of that of the Ortolan, as well as the Reed-Bunting. Later on I observed it at Wuitegra, Kargopol, along the river Onega, near Archangel, and several other places, often numerous, and always in swampy meadows or marshes overgrown with birches and willows. Although I shot a female on the 24th of June, in which was an egg almost ready for exclusion, I did not succeed in finding a nest before the 17th of July, which contained four half-grown young. It was placed on the ground near some small bushes, was rather neatly constructed of grass stems, which in the interior were somewhat finer, and was lined with a few horsehairs. It measured in diameter, outside, about $2\frac{3}{4}$ inches, and inside 2 inches. The young, which could not fly, tried to hide in the grass, whilst the parent birds flew close round me, uttering their anxious call-note, *zitt, zitt*.”

The nest is described by Naumann from specimens procured by Henke on the 16th of June, as follows:—

“The position of the nest is, as with most Buntings, on the ground, or not high from it, in grass or brushwork. The foundation is of dry grasses, leaves, or small roots, &c., and lined with a few hairs and feathers. The eggs, from five to six in number, are 10 to $10\frac{1}{2}$ lines long, and 7 to $7\frac{1}{2}$ broad.”

The eggs of this Bunting vary to a great extent, and some of the varieties are very beautiful. We have before us a large series from Dresser's collection, obtained from Darasun, in Dauria, Irkutsk, and Archangel, and a number belonging to our friend M. Jules Verreaux, also collected in Dauria by Messrs. Dybowski and Parrex—together about fifty specimens, scarcely any two of which agree in markings. The general type appears to resemble those of the Reed-Bunting; but the ground-colour is tinged with greenish, and the washings are not so bold and large; some varieties are pale greenish grey, slightly clouded with a darker colour, and with only one or two

indistinct scratches of brown, resembling eggs of the Grey Wagtail; others have the ground-colour pale greenish, clouded with purplish grey, and scratched all over with the peculiar dark markings so general among all Buntings' eggs. In size they measure from $\frac{2.9}{40}$ of an inch by $\frac{2.3}{40}$ to $\frac{3.1}{40}$ by $\frac{2.4}{40}$.

The title credited to Lepechin by Gmelin, namely that of *E. sibirica*, was never given to the species in the volume of the St.-Petersburg Transactions quoted. Only a detailed description and no title was given; and Lepechin's name of *pinetorum*, published in the second volume of his 'Itinera,' was also never properly recorded. The original descriptions of *Emberiza selysii* and *E. dolichonica* we have been obliged to quote from Degland and Gerbe, not being able to find the works in which they were first characterized. Dr. Bree quotes as a synonym *Emberiza sibirica*, Eversmann (*Ulege Erman*), a name we cannot find in any of the works we have examined of this author. Again, Dr. Cabanis gives "*E. sibirica*, Erman, Reise, Atlas, tab. 6;" but on referring to this plate the bird seems to be properly designated *E. aureola*, both in the letterpress and on the plate.

The descriptions and figures of the adult birds are from birds in our own collection; the variations in plumage are described from specimens in the fine collection of Messrs. Salvin and Godman, while the nestling is also in our own cabinet. The winter plumage is described from Chinese specimens in Canon Tristram's collection. An excellent series of figures is given by Radde (Reise, Süd. Ost-Sibir. Taf. iv.), showing the different stages of plumage assumed by this bird.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

- a.* ♀. Siberia (*Dode*). *b.* ♀ *jun.* Siberia, June 23rd (*Dode*). *c.* ♀. Lake Baikal, July 7th, 1855 (*G. Radde*).
d. Pianowa, Irkutsk, June 12th (*G. Radde*). *e.* Porog, on the river Onega, July 10th, 1869 (*Meves*).

E Mus. Salvin and Godman.

- a.* ♂. Archangel (*Moeschler*). *b.* ♀. Porog, river Onega, July 10th, 1869 (*Meves*).

E Mus. H. B. Tristram.

- a, b.* Canton, October 1861 (*R. Swinhoe*).

E Mus. Lord Lilford.

- a.* Northern Russia (*Parzudaki*).

E Mus. Howard Saunders.

- a.* ♂. Amoor Land (*Frank*). *b.* ♀. Archangel (*Moeschler*). *c.* ♂ ♀. N. Russia (*Meves*).



RUSTIC BUNTING.
EMBERIZA RUSTICA

EMBERIZA RUSTICA.

(RUSTIC BUNTING.)

Emberiza rustica, Pall. Reis. Russ. Reichs, iii. p. 698 (1776).*Le Mitilène de Provence*, Montb. Hist. Nat. Ois. iv. p. 322 (1778).*Emberiza lesbia*, Gmel. Syst. Nat. i. p. 882 (1788, ex Montb.).*Emberiza borealis*, Zetterstedt, Resa Sver. och Norr. Lappm. i. p. 107 (1822).*Spina*, Kaup (*Emb. lesbia*, Gm.), Natürl. Syst. p. 153 (1829).*Hypocentor rusticus* (Pall.), Cab. Mus. Hein. i. p. 131, footnote (1850-51).*Cynchramus rusticus* (Pall.), Degl. & Gerbe, Orn. Eur. i. p. 329 (1867).*Cynchrame rustique*, French; *Zigolo boschereccio*, Italian; *Wald-Ammer*, German; *Videsparf*, Swedish.*Figuræ notabiles.*

D'Aubenton, Pl. Enl. 656. fig. 2; Werner, Atlas, *Granivores*, pl. 25; Kjærb. Orn. Dan. Suppl. taf. 3; Naumann, Vög. Deutschl. taf. 382. figs. 3, 4; Sundevall, Svensk. Fogl. pl. 65. figs. 3, 4; Gould, B. of Eur. pl. 177; id. B. of G. Brit. iii. pl. 24; Temm. & Schl. Fauna Japon. pl. 58; Pall. Zoogr. Rosso-As. pl. 47. fig. 2.

♂ *ad.* capitis lateribus et pileo nigris, striâ magnâ superciliari et plagâ nuchali albis: collo imo castaneo cincto: dorso et tectricibus alarum rufescenti-fuscis nigro notatis, plumis cervino marginatis: uropygio et supra-caudalibus castaneis: remigibus nigricantibus cervino marginatis: tectricibus alarum majoribus et medianis albo apicatis fascias duas formantibus: caudâ nigro-fuscâ, rectricibus duabus externis obliquè albo notatis: corpore subtùs, mento et gulâ albis, hypochondriis castaneo striatis: rostro flavicante, maxillâ fuscâ: pedibus flavo-carneis: iride fuscâ.

♀ *ad.* sordidior nec capite nigro sed saturatè fusco cervino notato.

Ad. ptil. hiem. ubique sordidior, plumis in capite et in corpore suprâ conspicuè cervino marginatis: striâ superciliari et plagâ nuchali cervino-albidis.

Adult Male (Ural, 13th June). Crown and sides of the head black, an indistinct greyish white streak passing through the centre of the crown, and a broad white stripe over the eye to the nape; a large white patch on the nape; lower neck encircled by a bright bay collar; back and wing-coverts reddish brown, marked with black, the feathers broadly edged with warm buff; rump and upper tail-coverts rich bay; quills blackish brown, margined with buff; the larger and middle wing-coverts tipped with white, forming two distinct bars across the wing; tail blackish brown, the outermost feathers on each side having a large oblique white patch, and the next a similar but smaller one; underparts, except the band across the breast, white, the flanks broadly streaked with deep bay; bill greyish yellow, the upper mandible browner; legs yellowish flesh; iris deep brown. Total length about 5.5 inches, culmen 0.45, wing 3.1, tail 2.4, tarsus 0.8.

Adult Female (Archangel, June). Differs from the male in being duller in coloration, in having the head,

instead of black, dark brown, marked with buff, and the stripe over the eye and the patch on the nape smaller, the bay collar being narrower.

Adult Male in winter (Yedo, Japan). Feathers on the upper parts broadly margined with buff, so as to hide the rich nuptial tint, the black on the head being nearly hidden; the streak on the eye and the nuchal patch buffy white; the bay band across the breast and the streaks on the flanks obscured by buff.

Young Female (Turkey, October). Resembles the young Reed-Bunting, but is readily distinguishable by the more rufous tone of plumage, by the bay on the breast, flanks, and rump being just visible; the superciliary stripe and nuchal patch are visible, but are deep buff in colour; and there is also a dark buff stripe through the centre of the crown.

Nestling (Ural, 13th June). Upper parts as in the young bird above described, but rather more clearly marked with blackish brown, the rump deeper bay; the inner secondaries broadly margined with warm rufous buff; underparts white, delicately marked with elongated black spots, the band across the breast rufous buff. This bird has the tail quite short, and was probably taken out of the nest.

NORTH-EASTERN EUROPE and Northern Asia is the home of the present species; and it is only as a rare straggler that it visits any other part of Europe. It has, however, on one occasion been met with as far west as Great Britain, and is therefore included in our British list. The specimen in question was, as recorded by Mr. Gould (*Ibis*, 1869, p. 128), caught near Brighton on the 23rd October, 1867, and was shown alive to Mr. G. Dawson Rowley, and is now in the collection of Mr. Monk, of Lewes.

On the continent of Europe it has been met with here and there, but only as a straggler. Mr. Collett informs me that there is no authentic instance of its occurrence in Norway; and though Schrader stated that it had been seen on the Varanger fjord, yet, like many of this gentleman's statements, it has not been confirmed by any subsequent observer, and there is every reason to treat it with doubt. It has been recorded from Sweden, and occurs now regularly in Finland, and would thus appear, like several other Asiatic species, to be gradually extending its range westward. According to Professor Sundevall a pair were shot by Mr. B. Fries on the 20th of May, 1821, in the yard of the post-station at Haparanda; a young bird was shot by Mr. J. Wahlberg on the 6th September, 1835, at Långsjön, about three or four Swedish miles from the town of Luleå; and Nilsson says that Dr. Sahlberg obtained it previous to 1835. Von Wright says (*Finl. Fogl.* i. p. 208) that his brother Julius shot one at Haminanlaks on the 10th September, 1848, and that Mr. Arthur Nordmann obtained an old male in East Finland in 1856. In a letter received from Professor Malmgren, of Helsingfors, in 1872, this gentleman writes to me as follows:—"This Bunting is now thoroughly naturalized near Kuopio and Kajana, in lat. 63°-64° N., and of late years has been met with there annually during the breeding-season. This year (1872) nests and eggs were sent to the University Museum at Helsingfors from Sotkamo, near Kajana (64° N. lat.), by Mr. A. G. Holmerus." In the north of Russia it is by no means uncommon; and I have from time to time received many specimens from near Archangel, where it is reported to breed regularly; but I never received its eggs until this season. Mr. Piottuch, who has for several seasons collected for me at Archangel, to whom I wrote for information respecting this bird, answered last season as follows:—"I do not know very much

about this bird, and could much more easily provide you with notes on some of our game-birds, if you want any. This Bunting arrives here (near Archangel) about the 20th of April (O. S.) in small flocks of about twenty individuals. It is usually met with in the thick bushy portions of our woods, especially in spots which are clear of snow; and when on the ground its colour assimilates so closely with that of the soil that it is not easily observed. It is very local, being found in numbers in some places, and wanting altogether in others. Being exceedingly shy and wary, and frequenting the wet and densely bush-covered portions of the forest, it is most difficult to procure, especially as it is restless and active in its movements, and is continually flitting from tree to tree or hiding in the dense underbrush. So cautious is it that I have been about in the woods for days without getting within range of one, and the last one I shot and sent to you I shot at long range off the top of a high birch tree. So far as I can ascertain, it does not remain very long with us, but leaves early." Messrs. Alston and Harvie-Brown observed it near Archangel; and Mr. Meves met with it in July near Selo, on the Onega river, his attention being attracted by its sharp call-note, which he compares to that of the Redwing. In some localities he found it, he adds, by no means rare.

Mr. Sabanäeff informs me that in the Ural it is rare on the eastern slope in the Ekaterinburg district, but to the northward, and to some extent on the western slope, it is common. Teplouhoff says that it nests on the banks of the Obva river, in the Perm Government. Bogdanoff states that it is found in the Kazan Government; but Sabanäeff did not meet with it in the Jaroslaf Government. Dr. Severtzoff informs me that he had a specimen, which was sent to Professor Rouiller, of Moscow, in May 1853, from the Kaluga Government, south-west of Moscow, where it was shot on a meadow skirting the Oka river, and was either on passage or possibly breeding. It is not recorded by Dr. Taczanowski from Poland; and it is of very rare occurrence in Germany. Mr. E. F. von Homeyer states (J. f. O. 1872, p. 309) that there is a specimen in the Berlin Museum from Voigtland; but Borggreve cites no instance of its occurrence in North Germany. It has, however, on several occasions, been obtained by Mr. Gätke on Heligoland.

It is stated by the French authors to occur in small numbers, at irregular intervals, in the south of France, especially in Provence, always in the autumn; and Baron J. W. von Müller states that immature specimens visit Provence almost regularly about the end of October. I may also add that M. Adrien Lacroix says that he received a specimen on the 21st March 1869 from near Rivesaltes, in the Pyrénées orientales. In Italy, as in France, it is only known as a rare autumn visitant; and Count Salvadori remarks that he does not know of its occurrence beyond the northern provinces and Liguria, where several specimens have been obtained from time to time. It is stated to have occurred in Austria; and the Ritter von Tschusi-Schmidhofen informs me that there is a specimen in the Vienna Museum which is said to have been obtained in Austria. I find no record of its occurrence in Turkey, though Temminck states that it has been met with in the Crimea; but I possess a young female obtained by Mr. Robson at Buyukdere in October, and sent to me by him as an immature Reed-Bunting.

In Asia it has been met with as far east as Japan, whence I have received several specimens. Dr. Severtzoff does not include it in his work on the fauna of Turkestan; but he writes to me that it is found there, though rarely, in winter, a few being seen every season in the gardens

around Chimkent and Tashkend; and he adds that he shot specimens on the Ural river (where it occurs regularly on passage) in September 1860. It does not occur in Persia or India; but in Siberia it is not uncommon, though none of the travellers in that country have found its nest. Von Middendorff says that he believes he saw one at Starzowo, seventeen versts from Jeneseisk, in January, and expresses his surprise that it should winter so far north. In the Stanowoi Mountains he first observed it on the 26th of April (O. S.); on the 3rd of May they were paired, and on the 12th they appeared to be nesting. The male bird was seen on pines and larches, and was easily recognizable from other Buntings by its rich, melodious song. Pallas observed it in the Transbaikal region in March, and in Kamtschatka in May; and Von Schrenck first met with it in the spring of 1855, on the 23rd of April (5th of May, N. S.), in flocks, in the open conifer-woods, near the Nikolaieffsk Post, on the Amoor. In the previous autumn he saw the first flocks on the 28th September, and observed one bird as late as the 12th (24th) October, when snow had already fallen. Dr. G. Radde gives some interesting details respecting this Bunting, which I translate as follows:—"Of all the Buntings *E. rustica* arrives the earliest in East Siberia; but I have never found it wintering. The first stragglers arrived on the Tarei-nor on 26th March. They frequented vegetable-gardens and places sheltered from the wind. Up to the 12th April but few were observed. In spite of the continuous north storm which raged on the 11th and 12th, and the low temperature (on the 12th, at 6 A.M., $2\cdot25^{\circ}$ R.), the fatigued birds continued their journey, but arrived so tired out that we could catch them or knock them down with stones. On examination, the stomachs of these fresh-arriving travellers were chiefly empty and loose, and I only found in them a lot of small quartz stones—which is seldom observable in songsters during migration; on the other hand, they are found to such a degree in those of the Grallatores and Natatores that the stomach appears quite full of them. Westward of these Mongolian much-frequented migration-paths over the Dalai and Tarei-nor, *E. rustica* appears later, viz. in the first weeks of April. When, on the 13th April 1859, I went on the post-road over the Baikal Mountains to the middle of the Irkut, I found *E. rustica* and *E. pithyornis* in large flocks (forty to fifty) on this road, even where it passed through the wildest forests. However, *E. rustica* occurs here only on passage, and I never observed it on the Lake Baikal in summer. In the Selenga valley I saw many large flocks on 5th April 1857 as I travelled from Selenginsk to Kjachta. Here some of the males sang already. In the Bureja Mountains it does not breed. During the autumn migration *E. rustica*, and chiefly young birds, visit the central Onon valley from the beginning to the 24th September. After the severe snow-storm on the 24th September, *E. rustica* had gone away entirely. In the Bureja Mountains this Bunting was observed on 27th September 1858, and lived in company with the Bullfinches, which were then migrating past there." According to Dr. Dybowski, it is quite common in Dauria on the spring passage, appearing about the middle of April and remaining until early in May. In the autumn it arrives again in September and remains until about the 23rd of October.

Père David says that it is abundant in Mongolia on passage; but Colonel Prjevalsky does not appear to have met with it in the localities visited by him. It occurs in Japan; and Temminck and Schlegel, who give an excellent figure of it in the 'Fauna Japonica,' say that the Dutch collectors brought back a good series from there. Captain Blakiston (*Ibis*, 1862, p. 328)

procured a male at Hakodadi in October; and in a collection made for me by Mr. Colin M'Vean at Yedo, there are several fine specimens.

Beyond the few details given above, I find no record of the habits of the present species; and but little is known respecting its nidification. I am, however, fortunate in possessing its nest and eggs, of which, so far as I can ascertain, no reliable description has hitherto been published. Piottuch was unable to find its nest, though he observed the birds during the whole of the breeding-season; so Mr. F. C. Craemers got a peasant collector, who is an excellent bird-nester, to hunt after the nest of this and other rare species which breed near Archangel. Last season he succeeded in finding the nest of *Loxia bifasciata*, but was altogether unsuccessful in his search after the eggs of this species; but a couple of months ago I received notice that he had found the nest, which he had taken, securing the parent bird for identification; and a week ago I received a box in which I found, besides many other specimens, a nest, five eggs, and a specimen of the Rustic Bunting. Unfortunately the eggs were sent unblown; but as they were fresh when taken, I have succeeded in blowing two, and have made tolerably good museum specimens of the other three. The nest is constructed entirely of fine wiry yellow grass-bents, and is tolerably though not very carefully built; and the eggs are quite distinct from those of any other species of European Bunting. In general character, and especially in markings, they have great affinity with those of the Reed-Bunting; but the ground-colour is quite different, being white with a warm, almost reddish tinge, as if placed in a reddish light, whereas the ground-colour of the eggs of the Reed-Bunting is greenish grey. The markings are similar in character to those of the Reed-Bunting, but are more red in tinge of colour, being deep red; and they are, as a rule, bolder, and are collected chiefly round the larger end, forming a wreath. The underlying shell-markings are light purplish, or violet-purplish, and are tolerably large. In size the five eggs I have before me do not vary much, and are about as large as those of the Reed-Bunting.

The specimens figured are an adult male, from the Ural, in full breeding-dress, and a young female from Turkey, both of which specimens are in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀ *jun.* Cholmogory, N. Russia, August 6th, 1869 (*W. Meves*). *b*, *juv.* Jurus, Archangel, September 15th, 1873 (*Piottuch*). *c*, ♂, *d*, ♀. Archangel, June 1875 (*F. C. Craemers*). *e*. Archangel, June 1877, sent with nest and five eggs (*Craemers*). *f*, ♂ *ad.* Ural, June 13th, 1872 (*L. Sabanäeff*). *g*, *h* (nestlings). Ekaterinburg, Ural, June 15th, 1872 (*Sabanäeff*). *i*, ♀ *juv.* Buyukdere, Turkey, October 24th, 1871 (*T. Robson*). *k*, ♀ *juv.* Amoor, September 22nd, 1856 (*G. Radde*). *l*, ♂ *jun.* Amoor, April 11th, 1858 (*Radde*). *m*, ♂, *n*, ♀ *ad.* Lake Baikal, March 26th, 1869 (*Dr. Dybowski*). *o*, ♂. Lake Baikal, April 21st (*Dr. Dybowski*). *p*, ♂. Lake Baikal, April 24th (*Dr. Dybowski*). *q*, ♂, *r*, ♀. Yedo, Japan (*C. M'Vean*).

E Mus. Howard Saunders.

a, ♂ *juv.* Dvina, August 9th (*Meves*). *b*, ♂, *c*, ♀. Lake Baikal, April 19th, 1869 (*Dr. Dybowski*).



LITTLE BUNTING.
EMBERIZA PUSILLA.

EMBERIZA PUSILLA.

(LITTLE BUNTING.)

Emberiza pusilla, Pall. Reis. Russ. Reichs, iii. p. 697 (1776).*Emberiza schoeniclus*, var. *minor*, Nilss. Orn. Svec. i. p. 170 (1817).*Emberiza durazzi*, Bp. Icon. Faun. Ital. Ucc. pl. 36. fig. 1 (1832-41).*Buscarla pusilla* (Pall.), Bp. Rev. et Mag. de Zool. ix. p. 163 (1857).*Cynchramus pusillus* (Pall.), Degl. et Gerbe, Orn. Eur. i. p. 327 (1867).*Cynchrame nain*, French; *Zigolo minore*, Italian; *Zwerg-Ammer*, German; *Dwerggors*, Dutch; *Dvergsparf*, Swedish.*Figuræ notabiles.*Naumann, Vög. Deutschl. taf. 382. figs. 1, 2; Sundevall, Svensk. Fogl. pl. 65. fig. 5; Gould, B. of G. Brit. iii. pl. 25; Schlegel, Vog. Nederl. pl. 157; Pall. Zoogr. Rosso-As. ii. pl. 47. fig. 1; Bp. *l. c.*

♂ *ad.* pileo nigro, tæniâ longitudinali ferrugineâ a fronte ad nucham ductâ: capitis lateribus ferrugineis fasciâ circa aures nigrâ: jugulo albo fasciâ albâ versus nucham ductâ: suprâ nigro-fuscus, plumis rufescenti et fulvido marginatis: remigibus nigro-fuscis, extûs pallidè fusco marginatis: tectricibus alarum majoribus et medianis fusco-cervino terminatis: caudâ nigro-fuscâ, rectricibus duabus externis obliquè albo terminatis: gulâ rufescenti-albâ: corpore subtûs albo, pectore nigro guttato et hypochondriis eodem colore striatis: rostro fusco-corneo, mandibulâ pallidiore: iride fuscâ: pedibus brunneis.

♀ *ad.* mari similis, sed sordidior.

Juv. feminae similis, sed pileo et capitis lateribus ferrugineo-fuscis irregulariter nigro et cervino-fusco notatis: dorsi plumis magis, et remigibus secundariis intimis conspicuè ferrugineo marginatis: mento, gulâ et pectore cervino-albis, hâc profusè nigro guttato; hypochondriis nigro-striatis et cervino lavatis: corpore reliquo subtûs albo.

Adult Male (Onega, N. Russia, 14th July). Crown and sides of the head chestnut-red; a broad black streak covering each side of the crown passes from the base of the bill over the eye to the nape, where it broadens somewhat; upper parts generally blackish brown, the feathers broadly bordered with light brown and dull chestnut; quills blackish brown, externally margined with light brown; wing-coverts blackish brown, the lesser ones margined like the back, the larger and median coverts tipped with light buffy brown, forming two alar bars; tail blackish brown, the two outer feathers with an elongated white patch on the inner web; chin chestnut-buff, becoming white on the throat; sides of the head behind the ear-coverts marked with a black streak, below which they are dull white, almost forming a collar; underparts white; the breast thickly spotted with black, and the flanks streaked with the same colour; bill dark horn-brown, lighter on the lower mandible; iris dark brown; legs brown. Total length about 5 inches, culmen 0·35, wing 2·8, tail 2·35, tarsus 0·75.

Adult Female (Ijma, Archangel, 4th July). Resembles the male, but is everywhere duller in colour.

Young (Waldooski, 15th July). Crown and sides of the head chestnut-brown, irregularly marked with black and buffy brown; otherwise it resembles the female, but the upper parts are much more broadly margined with dull foxy rufous, and the inner quills are broadly margined with chestnut-red; chin, throat, and chest buffy white, the two latter profusely and closely marked with black; rest of the underparts white, the flanks streaked with blackish and tinged with buff.

Adult in winter dress (Archangel, 16th August). All the feathers on the upper parts broadly margined with wood-brown, and on the head with reddish wood-brown, these margins almost hiding the dark streaks on the head and the dark markings on the upper parts; underparts tinged with warm buff, especially on the breast and flanks.

THIS, the smallest of our European Buntings, inhabits North-eastern Europe during the summer season, ranging eastward across the continent of Asia to Eastern Siberia. In the winter it migrates southward, and has been met with in Asia Minor and Syria in the Western Palæ-arctic Region, and the Bay of Bengal in India. As a rare straggler it has been observed in various parts of Europe, and even in great Britain, and occurs nearly every year in Heligoland. The single specimen which has been obtained in Great Britain was taken in a clap-net near Brighton on the 2nd November, 1864, and is now in the collection of Mr. Monk. In Scandinavia this Bunting appears to have been only once noticed in Sweden; and I find no record of its having been observed in Norway. Professor Nilsson says that in April 1815 a female was shot in a willow-hedge at Lund in company with Reed-Sparrows. In Finland it does not appear to have been obtained, though it is so common in many parts of the north of Russia, especially near Archangel. Meves first observed it near Onega; and I have figured one shot there by him. Professor Lilljeborg, who met with it on his excursion to the Dvina in 1848, says, "At Wajmugan this bird was already not uncommon, but by no means so numerous as it was on the islands of the Dvina, between Archangel and the mouth of the river. I found a nest containing newly hatched young on the 28th June in a damp place in a bush surrounded by reeds. It was not on the ground, but just above it amongst some bent-down reeds. I also met with fledged young near Archangel on the 8th of July." Messrs. Alston and Harvie-Brown also speak of it as being very common on the Lower Dvina, but apparently somewhat locally distributed. The latter gentleman and Mr. Seeböhm observed it on the Petchora, and write (*Ibis*, 1876, p. 116) as follows:—"We obtained the first example of the Little Bunting on the 31st May; and we found them afterwards common all the way down the river. They even reach the willow-swamps of the delta around Alexievka, where, however, they are decidedly rare. We never had any of their eggs brought in by the Zyriani. The Little Bunting is fond of frequenting the mossy and marshy open hollows in the forests around Habariki and elsewhere in search of insects in company with Wagtails (*Budytes viridis* and *Motacilla alba*), Temminck's Stints, Fieldfares, Blue-throated Warblers, and other species. They paired shortly after arrival, as we found them mated on the 10th June." Mr. Sabanäeff does not include this Bunting in his list of the birds found in Central Russia and the Ural; but I found an immature specimen amongst some skins he sent me obtained by himself in the Southern Ural. It has not been met with in Poland, and is a very rare visitant to Germany; but Mr. Gätke obtains one or two examples on Heligoland almost every season in September or October. It appears to have occurred in Holland more

frequently than elsewhere in Western Europe; for, according to Professor Schlegel, a hen was captured near Leyden on the 18th November, 1842; and Mr. Keulemans, the artist who is illustrating the present work, informed Professor Newton of three other occurrences in Holland:—the first, one bought at Rotterdam in September 1862, which, after living about three months in confinement, died, and is now in the Leyden Museum; the second was caught by Mr. Keulemans himself in October 1862; and the third was found by him in a cage, but the owner refused to part with it. The last record of its occurrence there was of one obtained by Mr. H. M. Labouchere in 1874. This gentleman writes to me as follows:—"In the autumn of 1874 I was fortunate enough to capture a Little Bunting near Haarlem in a net set for Chaffinches; and not being a collector, I presented it to Heer van Wickevoort Crommelin, of Haarlem, who told me that it was a young male." It has not been observed in Belgium or Northern France, but is stated to occur almost every autumn in Provence and along the Riviera; and M. Adrien Lacroix says that a specimen in his collection was obtained near Montpellier in October. From Nice, Northern Italy, and Liguria several specimens are recorded by Salvadori; and Benoit asserts that it has been obtained in Sicily; but Doderlein has not hitherto succeeded in finding it there. It has been met with in Austria; for a pair, now in the Vienna Museum, were captured by Zelebor at Ottakring, near Vienna; and Messrs. Elwes and Buckley state (*Ibis*, 1870, p. 194) that it is a rare winter visitant to the Bosphorus. It has also been met with in Asia Minor and Syria; for Dr. Krüper writes (*J. f. O.* 1875, p. 270) that Mr. von Gonzenbach obtained one near Smyrna, and a collector brought one from Beyrout which had been taken near there by a bird-catcher. Malherbe stated some time ago that it had been met with at Bona, in Algeria; and this statement is confirmed by Loche's record of one example captured in that country.

In Asia the Little Bunting is found throughout Siberia. Von Middendorff says that he first observed it in the Stanowoi Mountains on the 3rd of May, and on the 5th (O. S.) they were paired. In the following season they were observed on passage at Udskoj-Ostrog on the 1st (13th) May. In the Taimyr country this species was found nesting on the Boganida, where, however, it was very rare. Dr. Radde observed the first straggler at the Tarei-nor on the 23rd April, 1856; but the main body passed on the 3rd May. In the autumn they remained latest of any migrants, the last being at Kulussutajeffsk on the 13 (25th) September. Von Schrenck found it breeding on the Lower Amoor, and describes its nest and eggs. Mr. Swinhoe says that it is abundant in the north of China, spreading southward in winter. Père David records it as being abundant on passage in Mongolia; and it is found in India in the winter season, when, Dr. Jerdon states (*B. of India*, ii. p. 377), it is found throughout the whole extent of the Himalayas, and probably occurs also on the plains of Northern India. He procured it at Darjeeling, Hodgson in Nepal, and Dr. Adams in the North-west Provinces. It has also occurred as far south as Port Blair, in the Andaman Islands; for Mr. A. O. Hume writes (*Stray Feathers*, ii. p. 497):—"Lieutenant Wardlaw Ramsay shot a female of this species on the 28th March below Mr. De Roepstorff's house on Mount Harriet. Davison saw and noted it; but I did not include it in our list, not being sure that he had correctly identified it."

In habits the present species has much in common with the Reed-Bunting; for it appears to affect damp bush-covered localities, though it is also found in the larch-woods. Pallas says that

in Dauria it frequents the mountain-torrents, the more elevated larch-woods, and also the willow-beds; and Professor Lilljeborg, who observed it near Archangel, says:—"It is a very lively bird and not shy; it is always moving about, gliding and creeping amongst the bushes, reeds, and other growth, where it finds shelter. In some places *Veratrum album* grew high and dense; and amongst these and the high *Spirææ* it found excellent shelter, and, unless one remained quietly waiting for some time until it came out, it was impossible to catch sight of it there. Its song is varied and sweet, more so than is the case with most of the Buntings, resembling more that of a Warbler, being closest to that of the Redbreast. When singing it was usually perched on the top of a bush, and could then, of course, be easiest seen. When once one heard the clear loud note of this bird it was easily discoverable. It appeared to feed chiefly on insects; and I discovered only remains of these in those I examined." Meves, who met with it near Onega, and on the islands of the Dvina, near Archangel, and Cholmogory, says that he heard its song frequently, and that it somewhat resembles that of the Reed-Bunting.

According to Messrs. Alston and Harvie-Brown (*l. c.*), "it frequents both pine-woods of large growth and thickets of underwood, but seems to prefer young woods with a mixture of pine, fir, alder, and birch. These birds were exceedingly tame at all times, but more especially so when their young were in the vicinity. We often heard their sweet, low song (more resembling the warbling of some *Sylvia* than of an *Emberiza*), which was generally poured forth from the top of a tree; they had also a low cry of alarm, which may be expressed by the words *tick, tick, tick* repeated at intervals of about a second. We did not find any nests, but obtained the young in several stages." In India, Dr. Jerdon says (*l. c.*), "it frequents bare spots of ground with low bushes in small flocks. Adams states that it has the habits of a Redpoll. Quite recently I shot one near Kolassee, in the Purneah district, frequenting grass and bushes near a small river; and as it is not a bird likely to be remarked, it will probably be found in similar places throughout the plains in the north of India during the cold weather." Both Von Middendorff and Dr. von Schrenck found it breeding in Siberia.

Two nests with eggs were taken by Von Middendorff—the first on the 20th June (O. S.) containing five eggs, which, he says, were stout in shape, measuring $17\frac{1}{2}$ by 14 millims., spotted with brown, chiefly on the centre of the egg, on a greyish white ground. The second nest, taken on the 29th June, contained four eggs, which were more elongated in shape, measuring 20 by 14 millims., and were marked (chiefly at the larger end) with violet-brown dots, streaks, and washed-out spots on a yellowish white ground. Von Schrenck, writing respecting its breeding-habits, says, "I found a nest of this Bunting on the Lower Amoor in an open place in the fir-woods between Lake Kidsi and the sea-coast. It was placed on the ground between moss tussocks, and was unartistically built of grass-straws entwined with the spines of larch and fir. The eggs, five in number, were in size and form as figured by Middendorff, viz. elongated, 17.5 millims. long, and 14 millims. broad, marked all over on a dirty white ground with numerous violet-brown spots and markings. On the 5th (17th) June they were still quite fresh. I may remark that here and there between the tussocks in the woods remains of snow were still lying."

There is no doubt that this bird breeds not uncommonly near Archangel; but, in spite of every endeavour, my collectors have failed to procure me well-authenticated eggs, though I still hope to receive them from there.

Mr. H. Seebohm, who has just arrived from his long journey to Northern Siberia, has, amongst other rarities, obtained the eggs of this species, and has given me for insertion in the present article the following notes on its nesting-habits:—

“The arrival of migratory birds in the Arctic regions is dependent to a large extent upon the arrival of summer, which comes suddenly with the breaking-up of the ice on the rivers and the general melting of the snow. This year (1877) summer was unusually late in Northern Asia. On the Arctic circle, in the valley of the Yenesei, the ice on the river began to break up on the 1st June, and migratory birds arrived in great numbers. On the 1st, 2nd, and 3rd June I added half a dozen new birds to my list. On the 4th I added a second half dozen, on the 5th a third half dozen, and on the 6th ten more. On the 7th the Little Bunting arrived, in company with the Golden Plover and the Pallid Thrush, nearly in the middle of the spring migration. The next ten days added about three new birds a day to my list, after which I only picked up stragglers that had escaped my notice before.

“Before the snow, which was lying upon the ground to the depth of five or six feet up to the 1st June, had sufficiently melted to make the forests penetrable, the Little Bunting was extremely abundant, and its unobtrusive song was constantly heard. On the 23rd June I found the first nest. I was on the south bank of the Kureika, and was scrambling through the forest down the hill towards my boat, amongst tangled underwood and fallen tree-trunks, rotten and moss-grown, when a Little Bunting started up out of the grass at my feet. It did not fly away, but flitted from branch to branch within six feet of me. I knew at once that it must have a nest; and in a quarter of a minute I found it half hidden in the grass and moss. It contained five eggs. The bird was still close to me, and I was obliged to leave the nest in order to get far enough off the bird, so as to avoid blowing it all to pieces. It seemed a shame to shoot the poor little thing; but as the five eggs in the nest were the only authentic eggs of this species hitherto obtained, it was absolutely necessary for their complete identification. The nest was nothing but a hole made in the dead leaves, moss, and grass, copiously and carefully lined with fine dead grass. The eggs were very handsome, almost exact miniatures of the eggs of the Corn-Bunting. The ground-colour is pale grey with bold twisted blotches and irregular round spots of very dark grey, and equally large underlying shell-markings of paler grey. They measure $\frac{31}{40}$ by $\frac{22}{40}$ of an inch.

“I took the second nest in the forest on the opposite bank of the Kureika, on the 29th June, containing three eggs. These eggs are somewhat less, measuring $\frac{28}{40}$ by $\frac{21}{40}$ of an inch. The colour is somewhat redder, being brown rather than grey; but the markings are similar. The nest was in a similar position, and the behaviour of the bird precisely the same.

“The third nest was taken in lat. 67° on the 30th June. The eggs, five in number, were slightly incubated. The nest was lined with reindeer-hair.

“The fourth nest contained six eggs, and was similar in character to the last, but more sparingly lined with reindeer-hair. The tameness of the bird was the same in every instance.

“The Little Bunting was common in the forest from the Arctic circle northwards, and afterwards on the tundra up to lat. 71°; but I did not observe it at Golcheeka, in lat. 71½°, nor upon the Brekhoffsky islands.”

The specimens figured are the adult male in full breeding-dress and the young bird above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *ad.* Onega, N. Russia, July 14th, 1872 (*Meves*). *b*, ♂, *c*, ♀. Ijma, near Archangel, July 4th, 1872 (*E. R. Alston*). *d*, *pull.* Archangel, July 1st, 1872 (*E. R. A.*). *e*, *juv.* Waldooshki, Archangel, July 15th, 1872 (*J. A. Harvie-Brown*). *f*, ♂. Seozma, Archangel, August 6th, 1872 (*Piottuch*). *g*, ♂. Habariki, Petchora, June 4th (*Seebohm and H.-Brown*). *h*, *juv.* Ural (*Sabanäeff*). *i*, ♂. Lake Baikal, Siberia (*Dybowski*). *h*, ♂. East Siberia, May 2nd, 1844 (*V. Middendorff*).

E Mus. Howard Saunders.

a, ♂ *ad.*, *b*, ♂ *juv.* Onega, July 14th and 20th. *c*, ♂, *d*, ♀. Archangel district, July (*Alston and Harvie-Brown*).



J.G. Keulemans lith.

Hanhart imp

EMBERIZA SCHÆNICLUS.

1. ♂ IN WINTER.

2. ADULT FEMALE



Hans Bth

Hansart 1897

1. REED BUNTING.
 EMBERIZA SCHÖNICLUS
 23. LARGE BILLED REED BUNTING
 EMBERIZA PYRRHULOIDES

EMBERIZA SCHÆNICLUS.

(REED-BUNTING.)

- Emberiza hortulanus arundinaceus*, Briss. Orn. iii. p. 274 (1760).
Emberiza schæniclus, Linn. Syst. Nat. i. p. 311 (1766).
Emberiza arundinacea, S. G. Gmelin, Reise Russl. ii. p. 175 (1774).
Ortolan des roseaux, Montb. Hist. Nat. Ois. iv. p. 315 (1778).
Cynchramus schæniclus (L.), Boie, Isis, 1826, p. 974.
Emberiza palustris, Savi, Orn. Tosc. ii. p. 91 (1829).
Emberiza schæniclus, var., Mich. Isis, 1830, p. 810.
Cynchramus stagnatilis, C. L. Brehm, Vög. Deutschl. p. 301 (1831).
Cynchramus septentrionalis, C. L. Brehm, op. cit. p. 302 (1831).
Cynchramus pyrrhuloides, Cab. Mus. Hein. i. p. 130 (1850-51, nec Pall.).
Schænicola arundinacea (Gm.), Bp. Rev. Crit. p. 164 (1850).
Emberiza intermedia, Michahelles (ubi?), fide Bp. Consp. Gen. Av. i. p. 463 (1850).
Schænicola intermedia (Mich.), Bp. ut suprâ (1850).
Cynchramus palustris (Savi), C. L. Brehm, Vögelfang, p. 115 (1855).
Cynchramus canneti, C. L. Brehm, ut suprâ (1855).
Cynchramus pseudo-pyrrhuloides, C. L. Brehm, ut suprâ (1855).
Cynchramus riparius, C. L. Brehm, ut suprâ (1855).
Cynchramus limicola, C. L. Brehm, op. cit. p. 116 (1855).
Cynchramus phragmitis, C. L. Brehm, ut suprâ (1855).
Cynchramus lacustris, C. L. Brehm, ut suprâ (1855).
 "Cynchramus intermedius, Mich.," Heugl. Orn. N.O.-Afr. i. p. 668 (1869).
Schæniclus pyrrhulinus, Swinhoe, Ibis, 1876, p. 333, pl. viii. fig. 2.

Bruant des roseaux, French; *Migliarino di palude*, Italian; *Rohrammer*, *Rohrsperling*, *Rohrspatz*, German; *Rietgors*, Dutch; *Rörverling*, *Rörspurv*, Danish; *Sivspurv*, *Rörspurv*, Norwegian; *Säfsparf*, Swedish; *Kaislasirkku*, Finnish; *Kamichowäia-Owsiannka*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 247. fig. 2, 497. fig. 2; Werner, Atlas, *Granivores*, pl. 21; Kjærbo. Orn. Dan. taf. 25, Suppl. taf. 9; Frisch, Vög. Deutschl. taf. 7; Fritsch, Vög. Eur. taf. 20. figs. 2, 5, 12; Naumann, Vög. Deutschl. taf. 105; Gould, B. of Eur. pl. 183; id. B. of G. Brit. iii. pl. 29; Schlegel, Vog. Nederl. pl. 158; Roux, Orn. Prov. pls. 113, 114; Bp. Ucc. Ital. pl. 35.

♂ *ad. ptil. æst.* capite, gulâ et collo antico nigris: ab angulo rostri utrinque decurrit fascia alba: collo albo cincto: dorso et scapulæ pennis nigris ferrugineo et ochraceo marginatis: uropygio et supracaudalibus cinereis nigricanti-cinereo notatis: rectricibus nigricantibus, centralibus pallidioribus et ochraceo

marginatis, duabus extimis dimidio apicali obliquè albis: remigibus nigro-fuscis, primariis extùs angustè, secundariis latiùs ferrugineo marginatis: tectricibus alarum minoribus saturatè ferrugineis: corpore subtùs albo, hypochondriis fusco striatis: rostro nigricante: iride fuscâ: pedibus fuscis.

♀ *ad. ptil. aest.* minor mari valde dissimilis: capite rufescente, fusco-nigro maculato: supra oculos lineâ albidâ: collo antico albido, striâ nigro-fuscâ utrinque decurrente juxta gulam et jugulum: pectore et hypochondriis fusco striatis: corpore suprâ pallidiore.

♂ *ad. ptil. hiem.* plumis nigris in capite et collo valde rufescente fusco marginatis, collo postico albo ochraceo cinereo-lavato, pectore et hypochondriis cervino lavatis, et plumis in corpore suprâ conspicuè griseo-ochraceo marginatis: rostro saturatè corneo, mandibulâ flavicante.

Adult Male in summer (Archangel, 19th May). Entire head deep black; a white collar passes round the hind neck joining the white on the breast; a broad white stripe passes down from the base of the lower mandible enclosing the black throat; hind neck below the collar deep grey, marked with blackish; back blackish, the feathers bordered with ochreous and bay; rump and upper tail-coverts iron-grey, marked with blackish grey; quills blackish, externally margined with ochreous bay, the wing-coverts more broadly margined with richer grey, the lesser wing-coverts almost entirely rich deep bay; underparts white, the flanks striped with dark grey, the black on the throat descending low, and forming a pointed gorget on the breast; tail blackish, the central rectrices lighter and bordered with dull ochreous, the two outer feathers on each side obliquely marked with white on the terminal half; bill blackish brown; iris brown; legs dull brown. Total length about 6 inches, culmen 0·4, height of bill at base 0·2, wing 3·3, tail 2·9, tarsus 0·8.

Adult Female in summer (Smyrna, 27th March). Rather smaller than the male; crown and ear-coverts reddish brown, varied with dark brown; a white patch below the ear-coverts and a dull white line over the eye; throat dull white, the lower throat and upper breast striped with reddish brown and blackish; a broad black line passes from the base of the bill down each side of the throat; flanks striped with reddish brown; upper parts paler than in the male.

Adult Male in winter (Ismid, November). The black on the head is almost entirely obscured by broad reddish brown margins to the feathers, and those on the throat by dull white; the white collar is obscured by ochreous grey; the breast and flanks are washed with creamy grey; and the feathers on the upper parts of the body have broad greyish ochreous margins, giving it a very pale appearance; bill dull horn, the lower mandible yellowish.

Young in first autumn. Resemble the female, but are paler and duller in colour, and have the throat and breast marked with dark stripes, the line over the eye is yellowish, and the sides of the neck are dull ochreous, marked with brown.

THROUGHOUT Europe generally the present species is widely distributed, breeding very far north; and in most parts of Europe, except in the central and southern districts, it migrates southward at the approach of winter. At this season it visits North Africa, but does not range far into that continent; and in Asia it is met with as far east as Japan, and as far south as India. In Great Britain it is very generally distributed and resident, and is found in every county where there are suitable localities throughout England, Wales, and Scotland, being rather more numerous in the last-named country in winter, its numbers being increased by arrivals, probably

from Scandinavia. Mr. Robert Gray writes (B. of W. of Scotl. p. 129) that it is "widely distributed over Scotland. It is found in Shetland occasionally, and is known to have bred in Orkney; it likewise extends to the Outer Hebrides, where a few pairs breed every year. The nest has been taken in North Uist and Harris; and on some of the inner islands it is resident all the year. On the mainland of Western Scotland it is also a permanent resident in many localities, although of restless habits, during the winter season leaving its sedgy haunts for the more substantial attractions of the farm-yard." He further says, speaking of its numbers in winter (p. 130), that "there appears to be a large accession in winter to the numbers of this Bunting in the north of Scotland, probably the migratory flocks retiring from Norway and Sweden. These flocks mix with those of the common Bunting, and are commonly met with in the north of Aberdeenshire. From that county my friend Mr. Thomas Ferguson has obtained numbers of specimens (several of which are now before me) that were shot on the Kinmundy estate, near Peterhead, out of flights which could scarcely have been composed of native birds." It is said to be not uncommon in Orkney, and has bred there; but it is very rare in Shetland. Dr. Saxby writes (B. of Shetland, p. 96) that "it doubtless occurs in various parts of Shetland; but hitherto no instances have been recorded, except three by myself, and all of them at Halligarth. First, a female was observed on the 12th February 1863, feeding in a ditch with some common Buntings, and afterwards on the 12th April a male, also in company with Buntings. These two remained for a short time; but the third, a female, took up its abode among some little willows on the 15th of May 1866, and seemed inclined to remain. It was killed by a Halligarth cat as soon as it became a little familiar."

It is common and resident throughout Ireland, being probably more numerous there than in other parts of the United Kingdom. In Scandinavia it is also common. In Norway, Mr. Collett informs me, it breeds commonly in the willow region on the fells, but is seldom seen in summer below the subalpine region. It is found nesting up to the Russian frontier, and in some parts of the coast, as for instance, on the Hvaløer. It is only met with near Christiania in the spring and autumn. Throughout Sweden it is widely distributed from the extreme south far up into Lapland, breeding in suitable localities throughout the country. In the winter it moves further south. In Finland it is also very generally distributed, breeding commonly in the north, but, according to Von Wright, not in the southern districts. I found it breeding near Uleåborg, in North Finland. It is found numerously in the north of Russia. I have received many specimens from the Archangel Government; and Messrs. Seebohm and Harvie-Brown, who met with it on the Petchora, write (Ibis, 1876, p. 117) as follows:—"On the 15th May we got the first Reed-Buntings; and on the 19th we found them abundant, frequenting the low alder- and birch-forests on the banks of the river opposite Ust Zylma. At Habariki they are less abundant, haunting the skirts of the pine-woods and edges of the marshy lakes and overflows from the river. Eggs were procured in the beginning of June at the latter locality; and we afterwards found them common down the river, beyond the Arctic circle; beyond this, however, they became scarce. We traced them as far north as Alexievka, where the Zyriani got eggs for us. Seebohm found a nest of this bird built inside an old Fieldfare's nest, in an alder-swamp, nine feet from the surface of the water. The bright clean plumage of these birds is worthy of passing notice. They are much *mealier* than those found further west."

According to Sabanäeff it is found throughout Central Russia, but becomes rare towards the south, being only an occasional visitant to the Charkoff Government, and occurring in the Orloff Government only on passage. In the Ural he met with it everywhere, especially on the lakes and rivers of the eastern slope. Mr. Taczanowski states that in summer it is common in all suitable localities in Poland, arriving early in March and leaving about the end of October, a few being occasionally met with in winter. Borggreve says that it is found in summer throughout North Germany in suitable localities, and it has been known to winter there; and, according to Naumann, it is both a migrant and a wanderer, in the latter case not a true migrant, but merely changes its habitat at various seasons, and does not leave the country. Sometimes a few small flocks remain over the winter, these being probably individuals which have passed the summer in the high north. They migrate in September and October, and in March, generally travelling in the night time or early in the morning and late in the evening, in flocks in the autumn, but singly in the spring. According to Collin it is common throughout Denmark, and it is also common in the countries bordering the German Ocean. Schlegel says that in Holland it is one of the commonest of the summer residents, arriving in March and April, and leaving again in the autumn. In Belgium and the north of France, as in Holland, it is common in the summer, moving southward in the winter; but it is said to be rare in Portugal. In Spain, however, it is common, and resident in suitable localities. Colonel Irby says (*Orn. Str. Gibr.* p. 117), "these birds are most abundant near Gibraltar from December to February; and I have seen them on passage as late as the 7th of April. They do not remain to nest in the sotos at Casa Vieja; but near Seville, where they are often sold in cages under the name of *Hortolano*, have seen them in May, and have no doubt that they there remain during the breeding-season."

In Italy the present species is found both in the summer season and the winter, and breeds in suitable localities; but in Sardinia it is said to be a winter visitant; and Mr. A. B. Brooke states (*Ibis*, 1873, p. 246) that at that season it is "not uncommon along the banks of the 'stagnos' at Cagliari and Oristano." In Corsica it would appear to be rare, as Mr. C. Bygrave Wharton says (*Ibis*, 1876, p. 25) that he only saw one (which he shot), on the 17th March, at Biguglia; and Mr. C. A. Wright states (*Ibis*, 1864, p. 55) that it only visits Malta at long and irregular intervals. Lord Lilford met with it in the Ionian Islands in winter; and Dr. Krüper writes that it is only seen in Greece at that season of the year, leaving for the north as soon as the warm spring weather sets in. In Southern Germany it is common in most districts where suitable localities are found; and Dr. Fritsch speaks of it as being numerous in Bohemia, arriving early in April and not leaving before December, and sometimes remaining over winter. In Transylvania and most parts of Austria, as well as in the other countries bordering the Danube, it is common; and Messrs. Elwes and Buckley say the same respecting its occurrence in Turkey. Von Nordmann found it very common in all the marshy places covered with tall aquatic plants, throughout Bessarabia and New Russia. In spring and autumn small flocks of these birds frequent the large gardens near Odessa; and large numbers appear to remain over the winter in the above-named countries.

It is a winter visitant to Asia Minor; Dr. Krüper obtained several near Smyrna; and Mr. Danford also met with it when collecting in Asia Minor; but Canon Tristram does not record it from Palestine.

It is a very rare straggler to North-east Africa. Baron de Selys Longchamps records it as occurring in Egypt; and Captain Shelley shot one near Damietta, on the 22nd March; but Von Heuglin never met with it there. In North-west Africa it is commoner, and Loche states that it inhabits all three provinces of Algeria, but it does not appear to be numerous anywhere. According to Favier it is rare near Tangier, where he met with it in December.

In Asia it is found as far east as Japan. I have received examples from Turkestan, collected by Dr. Severtzoff; and Mr. Scully writes (*Stray Feathers*, iv. p. 166), "this species was common near Yarkand in winter; and four specimens were preserved in January and February. It frequented hedges and small trees, and was said by the Yarkandis to be a permanent resident; but I never observed it in summer. The Turki name for this bird is *Cha kuchkach*." Mr. Blanford obtained it near Tehran; and Mr. A. O. Hume states (*Ibis*, 1869, p. 355) that he received it from near Badlee, thirty miles south of Delhi. In Siberia the present species was met with by Mr. Seebohm on the Yennesei river, where, he says, it arrived on the Arctic circle on the 13th of June, and soon became common; but he lost sight of it before he quite reached the limit of forest-growth. He took a sitting of eggs in $70\frac{1}{2}^{\circ}$ N. lat.

In the Amoor country it appears to be replaced by an allied but specifically distinct form, *Emberiza passerina*, Pall., which also is found in China; but I possess an example of the present species, received from the late M. J. Verreaux, and said to have come from Lake Baikal; it is also found in Japan, and, Messrs. Blakiston and Pryer say, is "very common in the Yokohama game-market, brought from Koshin in winter."

The Reed-Bunting is a lively, active bird, companionable; and generally several are found together. During the breeding-season, however, the male is jealous and irritable, and often attacks others of its own species as well as other small birds which may be passing near its nest. It is generally bold, and keeps itself by no means concealed, but sits free on the top of some high reed or bush near where its mate is occupied with the cares of incubation, uttering its loud, clear call-note. The female, on the other hand, is shy, and during the breeding-season is comparatively rarely seen. This species generally, if not always, frequents, during the breeding-season, river-sides where the reed-beds are dense and the reeds high, or damp marshy places overgrown with water-plants and rushes. During the autumn, however, they leave these localities and are often seen in the fields, at some distance from any water, or amongst the bushes in low woods; for they seldom or never appear to frequent localities covered with high trees.

Its flight is quick and light, but rather jerky; when settling down on a bush or reed it spreads its tail, moves its wings, and erects the feathers on its crown. Its call-note is clear and loud, and may be reproduced by the word *tscheeh*. The male has a loud but peculiar and stammering song, which Naumann very well describes by the syllables *zja til tai zississ, tai zier zississ*, and which appears to be uttered almost with difficulty. It sings continually, and may be heard from early in April until late in the summer, at all hours of the day, and often during the night also.

The food of this species consists in the summer season of insects, which it seeks amongst the reeds; and during the autumn and winter season only does it appear to subsist chiefly on seeds, chiefly of rushes and various wild plants and weeds. It is said to be very fond of millet, and is often to be found where that plant is growing. During hard weather it is not unfrequently

found far distant from water, in stack-yards, and near barns, in company with Finches and other Buntings.

The nest of the Reed-Bunting is usually placed on the ground, amongst willows or osiers, or in long grass or aquatic herbage, almost always in a damp locality, but seldom in a low bush near the ground. Jardine says that he has frequently found it in a young spruce-fir, from one to three yards above the ground; and Mr. Collett informs me that he took a nest in Tromsö in a perfectly dry place, at the root of a tree in a group of tall birches. The nest is constructed of grass and moss lined with finer grasses and a few hairs, or not unfrequently with the feathery tops of reeds. The eggs are deposited from March to June or July; and two, or perhaps three, broods are reared in one season. The eggs, from four to five (occasionally even as many as seven) in number, are purplish clay-coloured, marked with spots and streaks of a dark purplish brown or black colour; and those in my collection vary in size from $\frac{2.9}{40}$ by $\frac{2.2}{40}$ to $\frac{3.2}{40}$ by $\frac{2.4}{40}$ inch. Dr. E. Rey informs me that thirty-seven eggs in his collection average 19.3 by 14.3 millims., the two largest measuring 22 by 15 and 19.5 by 15.5, and the two smallest 17.75 by 13.75 and 18.0 by 13.5 millimetres.

Amongst peculiar varieties of the eggs of this species I may name one sent to me for inspection by Mr. Cecil Smith, of Taunton, who informs me that all the eggs in the same nest were similar, but that he only took this one and left the rest, which the old bird hatched out. The egg in question is dull bluish white with very minute brownish markings, and one or two irregular brown scratches at the larger end.

The young birds are fed almost solely on insects of various kinds. Mr. Collett, who dissected several obtained in Tromsö, Norway, writes to me that "insects were chiefly found in the stomachs and gullets of the nestlings, which was also the case with an old female, killed on that island; the brownish eggs ($\frac{1}{2}$ millim. in length) of a parasitic insect, seemingly difficult of digestion, were found in large numbers in the stomach of this individual. These eggs are found likewise in the stomachs of other species that devour the larvæ of insects infesting birch-woods."

The variation in size, and especially in the form and size of the bill, in this species is extremely perplexing; and it is with no little hesitation that I have at last decided to unite all under the name of *Emberiza schœniclus*; but as the gradations between the large and small specimens are so gradual and regular, I cannot do otherwise, especially as there is no difference whatever in coloration and markings. My friend Mr. Seebohm, to whom I am indebted for great assistance in writing the present article, agrees with me in giving specific rank to *Emberiza pyrrhuloides*; but in the present species he evades the difficulty by making the large-billed form a subspecies, or, in other words, a species still under the process of differentiation; but having hitherto refused to follow this plan, I cannot now do so. This large-billed form is found in Southern Europe from Spain to the far east of Europe, in Asia Minor, and in Asia as far east as Japan, and is the *Emberiza palustris* of Savi and *Emberiza intermedia* of Bonaparte, who states that this name was given by Michahelles; but where this latter author published it (if he ever did so) I have been quite unable to ascertain. It is somewhat remarkable that, so far as we have been able to ascertain, the large-billed form alone, and not the small-billed form, is found in Japan, where, likewise, a perfectly distinct species, *Emberiza passerina*,

Pall. (Zoogr. Ross.-As. ii. p. 49, 1811), also occurs. Elsewhere the large-billed and small-billed birds are found together. However, the following list of measurements of specimens from various localities will best show the variations to which this species is subject:—

- Great Britain: wing 2·9 to 3·15, tail 2·6 to 2·8, height of bill at base 0·2 to 0·22.
 Sweden and Norway: wing 3·0 to 3·4, tail 2·62 to 2·9, height of bill at base 0·2 to 0·21.
 Central Europe: wing 3·0 to 3·1, tail 2·6 to 2·75, height of bill at base 0·2 to 0·22.
 Spain: wing 3·0 to 3·25, tail 2·6 to 2·75, height of bill at base 0·2 to 0·28.
 Italy: wing 3·1 to 3·5, tail 2·9 to 3·2, height of bill at base 0·28 to 0·3.
 Russia: wing 3·1 to 3·25, tail 2·65 to 2·9, height of bill at base 0·2 to 0·21.
 Asia Minor: wing 3·0 to 3·31, tail 2·65 to 3·1, height of bill at base 0·2 to 0·25.
 Turkestan: wing 3·1 to 3·45, tail 2·85 to 3·1, height of bill at base 0·2 to 0·25.
 Siberia (Yennesei): wing 3·18 to 3·22, tail 2·55 to 3·0, height of bill at base 0·2 to 0·25.
 Japan: wing 3·0 to 3·1, tail 2·6, height of bill at base 0·23 to 0·24.

From the above it will be seen that the largest-billed specimens are those from Italy; and, in fact, they almost equal examples of *Emberiza pyrrhuloides* in measurements, though they differ from those in being dark-coloured. *Emberiza passerina* differs from the present species in being considerably smaller, and the feathers on the upper parts are margined with blue-grey and white, these margins being especially noticeable on the lesser wing-coverts.

In the form of the bill the small-billed form of the present species varies greatly; and I possess several the bill of which, though small, measuring only 0·2 in height at the base, yet is shaped almost as in *Emberiza pyrrhuloides*.

The specimens figured are, on the same Plate with *Emberiza pyrrhuloides*, an adult male in full breeding-dress, of the small-billed form, from North Russia, and, on the second Plate, an adult female in summer and an old male in winter dress, from Asia Minor, of the large-billed form.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, c, d, ♂, ♀. Pagham, May, June, July 1870–1872 (*R. B. Sharpe*). *e*, ♂. Hampstead, April. *f*. Hampstead, June 1870 (*Sharpe*). *g*, ♂. Highgate, November 1869 (*Sharpe*). *h*, ♂. London, June 1870 (*Davy*). *i, k*. Cookham, June 18th, 1867 (*W. Briggs*). *l*, ♂. Stockholm, October 4th, 1860 (*Meves*). *m*, ♂ *ad.* Jemtland, May 17th, 1857. *n*, ♀ *juv.* Jemtland, August 5th, 1859 (*Meves*). *o*, ♂. Archangel, May 17th, 1876. *p*, ♂. Ural, April 1869. *q*, ♀. Ural, May 1872 (*Sabanüeff*). *r*, ♂. Lake Baikal, April 22nd, 1869 (*Verreaux*). *s*, ♀. Crimea, spring (*Schlüter*). *t, u*, ♂. Taschkend, November, December (*Severtzoff*). *v, w*, ♂. Chinkent, January and November 1866. *x*, ♂. Petchora, 1875 (*Seeböhm and Brown*). *y, z*, ♂, *aa*, ♀. France (*Fairmaire*). *bb*, ♂. Malta, November 1861 (*C. A. Wright*). *cc*, ♂. Crimea (*Schlüter*). *dd*. Lisistrou, Archangel, May 19th, 1876 (*Piottuch*).

E Mus. Howard Saunders.

a, ♀. Catalá, Valencia, February 7th, 1872 (*H. Saunders*). *b*, ♂. Silla, Valencia, February 7th, 1872 (*Saunders*). *c*, ♂. Malaga, January 12th, 1873 (*Saunders*). *d*, ♀. Malaga, January 16th, 1875 (*Saunders*). *e*, ♂. Sicily (*Doderlein*).

E Mus. Lugd.

a, ♂, *b*, ♀, *c*, *juv.* Italy.

E Mus. H. Seebohm.

a, ♀. Heligoland, October 2nd (*H. S.*). *b*. Valkenswaard, Holland, May 24th (*H. S.*). *c*, ♀. Malta, October (*C. A. Wright*). *d*, *e*, ♂, *f*, ♀. Petchora, May. *g*, *h*, ♂, *i*, ♀. Petchora, July (*H. S.*). *k*, *l*, *m*, *n*, ♂, *o*, *p*, ♀. Yennesei, Siberia, June (*H. S.*). *r*, *s*, ♂, *t*, *u*, *v*, *w*, *x*, *y*, ♀. Asia Minor, November (*Danford*). *z*, *aa*, *bb*, *cc*. Asia Minor, December (*Danford*). *dd*, *ee*, ♂, *ff*, ♀. Japan (*Blakiston*).

EMBERIZA PYRRHULOIDES.

(LARGE-BILLED REED-BUNTING.)

Emberiza pyrrhuloides, Pall. Zoogr. Rosso-As. ii. p. 49 (1811).*Emberiza caspia*, Ménétr. Cat. Raisonné, p. 41 (1832).*Schœnicola pyrrhuloides* (Pall.), Bp. Consp. Gen. Av. i. p. 463 (1850).*Cynchramus pyrrhuloides* (Pall.), C. L. Brehm, Vogelfang, p. 115 (1855).*Emberiza aquatica*, Savi, fide C. L. Brehm, Vogelfang, p. 115 (1855).*Figura nulla.*

Ad. Emberiza schœniclo similis sed major, rostro conspicuè majore et robustiore: coloribus pallidioribus: dorsi plumis conspicuè albido marginatis, uropygio fere albo.

Adult Male (Astrachan). Resembles *Emberiza schœniclus*, but is much larger, and has a large, stout, Finch-like bill; upper parts much paler than in *Emberiza schœniclus*, the feathers on the back with broad whitish margins; rump nearly white; quills with nearly white margins; central tail-feathers with nearly white very broad margins; underparts as in *Emberiza schœniclus*. Total length about 7 to 7·25 inches, culmen 0·5, height of bill at base 0·32, wing 3·6, tail 3·32, tarsus 0·85.

Adult Female. Resembles the female of *Emberiza schœniclus*; but is much larger, has a much stouter bill, and is paler in coloration.

Adult Male in winter (Astrachan). The black on the head and neck is obscured by creamy ochreous edgings; the underparts are slightly washed with yellowish; and the feathers on the upper parts are margined with creamy ochreous, the dark colours being obscured.

THE Reed-Buntings vary so greatly *inter se*, that it is, to say the least of it, extremely difficult to know where to draw the line, and to determine what constitutes a species and what a local form or race. Any one who has worked hard at ornithology will be well aware that difficulties of this nature occasionally present themselves; and there are few species that tend to show this difficulty more than does *Emberiza schœniclus*. After a careful examination of what material is at hand, I find that I cannot do otherwise than treat the present species as distinct; for not only is it clearly distinguishable by its larger size and large, stout bill, but also by its pale coloration and nearly white rump. At the same time I may add that there is a large and large-billed form in Italy, but it is smaller than the present species, and is, moreover, dark in colour like the common Reed-Bunting. I need not enter into a comparison of this form here, as in the article on *Emberiza schœniclus* I go fully into that matter. So far as I can ascertain, the range of the present species is very limited, as it appears to be found only in the countries skirting the Caspian, Lake Aral, the mouths of the Volga and Ural rivers, and eastward to Yarkand. I have at different times seen a tolerable number of specimens from near Astrachan,

but only possess two from there. Dr. Eversmann writes (J. f. O. 1853, p. 291) that it "not only occurs at the mouths of the Ural and Volga, as well as on the shores of the Caspian, in reed-covered localities, but also on the lakes Aral and Syr Darya." Dr. Severtzoff records it from Turkestan, where it is resident, he says, in some localities; but he doubts if it is resident on the Issik-kul. Mr. J. Scully also, in his article on the avifauna of Eastern Turkestan (Stray Feathers, iv. p. 166), writes respecting the present species as follows:—"The first specimen of this species was shot at Beshkant, in the beginning of February, on waste ground overgrown with small bushes; three other specimens were obtained near Yarkand in April. This bird frequents the edges of marshy ground and rice-fields, breeds in Káshgharia, and is probably a permanent resident. The Turki name for this Bunting is *Karabash kuchkach*, 'the black-headed bird.' The Yarkandi Shikaris say that the nest of this species is always placed in 'Yekan, i. e. reed-beds.

There can be no doubt, judging from the careful measurements given by Mr. Scully, that the specimens obtained by him were really referable to the present species.

Dr. Otto Finsch also states (Ibis, 1877, p. 53) that he met with the present species along the Kara or Black Irtisch.

About the habits of this species I find nothing on record; but it affects the same localities, and probably differs but little, if at all, in habits from the common Reed-Bunting. I have seen eggs from Astrachan stated to be those of this bird, which were rather larger, but did not otherwise differ from those of *Emberiza schœniclus*.

The specimen figured is one in my own collection from Astrachan.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Astrachan. *b*, ♂ winter dress. Astrachan (*Möschler*).

E Mus. Lugd.

a, ♂. Gourieff, Caspian.

E Mus. Howard Saunders.

a, ♂. Astrachan, June 1872 (*Möschler*). *b*, ♂. Syr Darya, Turkestan, November 15th, 1866 (*Severtzoff*).

Genus PLECTROPHANES.

Emberiza apud Linnæus, Syst. Nat. i. p. 308 (1766).

Plectrophanes, Meyer, Taschenb. deutsch. Vogelk. i. p. 187 (1810).

Passer apud Pallas, Zoogr. Rosso-As. ii. p. 18 (1811).

Hortulanus apud Leach, Syst. Cat. M. & B. Brit. Mus. p. 16 (1816).

Passerina apud Vieillot, Nouv. Dict. xxv. p. 8 (1817).

Centhrophanes apud Kaup, Natürl. Syst. p. 158 (1829).

THE species included in this group, though closely allied to the true Buntings, differ so far in the form of the wing, in having a nearly straight elongated hind claw, and in their habits, that they are fully deserving of generic rank. The genus *Plectrophanes*, which leads off from the Buntings to the Larks, is represented in the Palæarctic and Nearctic Regions, two species inhabiting the Western Palæarctic Region.

In habits they differ from the true Buntings, inasmuch as they perch on trees and bushes much less frequently than those birds do, but frequent open places, not groves or gardens, running about like Larks, not hopping like true Buntings. In their flight, also, they resemble the Larks, and are tolerably good songsters, uttering their song when in the air, hovering on the wing. They feed on seeds of various kinds, and insects, but chiefly on the former. They build a somewhat carelessly constructed cup-shaped nest of straws and grass-bents, which they line with feathers, and sometimes with hair, and deposit either dull white eggs blotched and splashed with lilac and deep brownish red, or else resembling those of the Meadow-Pipit or Reed-Bunting.

Plectrophanes nivalis, the type of the genus, has the bill short, strong, conical, the upper mandible narrower than the lower, the gape-line ascending obliquely, then direct; palate furnished with a small hard knob; nostrils oval, basal, nearly hidden by projecting feathers; wings long, pointed, the first quill obsolete, the second longest; tail moderate, slightly forked; legs short, the tarsus covered in front with four large and three inferior scutellæ; claws long, slightly arched, laterally grooved, acute, the hind claw longer than the toe; plumage blended.



LAPLAND BUNTING.
PLECTROPHANES LAPPONICA
(Summer Plumage)
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PLECTROPHANES LAPPONICUS.

(LAPLAND BUNTING.)

Fringilla lapponica, Linn. Syst. Nat. i. p. 317. no. 1 (1766).

Fringilla calcarata, Pallas, Reise Russ. Reichs, ii. p. 710. no. 20, pl. E (1773).

Plectrophanes calcaratus (Pall.), Meyer, Taschenb. Deutsch. Vogelk. i. p. 176 (1810).

Hortulanus montanus, Leach, Syst. Cat. p. 16 (1816).

Passerina lapponica (Linn.), Vieillot, N. Dict. xxv. p. 12 (1817).

Emberiza calcarata (Pall.), Temm. Man. d'Orn. i. p. 322 (1820).

Plectrophanes lapponicus (L.), Selby, Trans. Linn. Soc. xv. p. 156 (1827).

Centrophanes lapponicus (Linn.), Kaup, Entw.-Gesch. eur. Thierw. pp. 158, 192 (1829).

Passer calcaratus, Pallas, Zoogr. Ross.-As. ii. p. 18. no. 189, pl. 39 (1831).

Plectrophanes grælandicus, Brehm, Vög. Deutschl. p. 307 (1831).

Narksarmiutak, Greenlandic (*Benzon*); *Solskrikia*, Icelandic (*Benzon*); *Lapspuro*, Norwegian; *Lappsparfven*, Swedish; *Lapinsirkku*, Finnish; *Lerchen-Spornammer*, German; *de Ijsvors*, Dutch.

Figuræ notabiles.

Richardson, Faun. Bor. Amer. 48; Audubon, Birds Amer. 365; Naum. Vögel Deutschl. 108; Gould, Birds of Europe, 169; id. Birds of Great Britain, pt. xii.

♂ *ad.* pileo undique nigro, nuchæ maculis paucis et fasciâ supraauriculari ab oculo postico ductâ ochrascenti-albis: collo postico lætè castaneo: dorso brunneo, plumis medialiter nigris, rufo lavatis et fulvescenti-brunneo utrinque limbatis, supracaudalibus latiùs marginatis: tectricibus alarum minimis cineraceis, medianis nigricantibus extùs fulvo limbatis, majoribus latè rufo marginatis et albo terminatis: remigibus brunneis, primariis extùs fulvescente limbatis, secundariis latiùs rufescente marginatis et albo terminatis: rectricibus brunneis angustè fulvo limbatis, penultimâ versùs apicem albo notatâ, ultimâ conspicuè et obliquè albo fasciatâ: gutture nigro: corpore reliquo subtùs albo, pectore nigro notato, hypochondriis nigro striatis: rostro flavicante, versùs apicem nigro: pedibus nigris: iride brunneâ.

♀ *ad.* mari similis, sed magis fulvescens: collo postico dilutè castaneo: pileo nigricanti-brunneo, fulvo medialiter vario: supercilio lato pallidè ochrascente: regione oculari albidâ, regione paroticâ pallidè brunneâ, posticè nigricante: gulâ albâ: corpore reliquo subtùs albo, gutture imo et pectore superiore nigricantibus, lateribus distinctè brunneo striolatis.

Ptil. hiem. similis ptilosi æstivæ sed fulvescentior: plumis omnibus fulvescente marginatis: tectricibus alarum latiùs rufescente marginatis: collo postico castaneo et gutture nigro marginibus fulvescentibus obscuratis.

Av. hornot. fulvescenti-brunnea, dorsi totius et verticis lateralis plumis nigricantibus, fulvo marginatis, hęc cum supercilio ochrascenti-fulvis: collo postico dilutè castaneo, fulvescente obscurato: alâ ut in adultis

coloratâ sed pennis latiùs rufo limbatis et albido terminatis: subtùs fulvescenti-alba, gulâ laterali et gutture antico nigricante notatis, lateribus fulvescenti-brunneo lavatis et brunneo distinctè striolatis.

Juv. ochrascenti-brunneus, dorsi plumis medialiter nigris vix rufescente lavatis: vertice medio, supercilio et collo postico clariùs ochrascentibus: facie laterali ochrascenti-brunneâ, regione paroticâ nigricante, genis albicantibus: alâ ut in ptilosi adultâ hiemali coloratâ: subtùs fulvescenti-albus, pectore superiore et corporis lateribus brunnescente lavatis, medialiter brunneo striolatis.

Adult Male (Dovre, Norway, June). Head glossy black; from behind the eye to the lower part of the neck a broad white streak which passes down and joins the white on the breast; lower part of the neck and fore part of the back rich chestnut-red, forming a broad collar; back black, streaked with yellowish brown, each feather being edged with that colour, those on the rump and the upper tail-coverts being more broadly edged with dull buff; quills blackish brown, edged with buff on the outer web, the secondaries edged with rufous and tipped with dull white; the wing-coverts broadly edged with rufous; tail blackish brown, edged with buff, the outermost feather on each side, with the outer web, and a large mark on the inner web towards the tip, pure white, the next feather being marked with white at the tip of the inner web; throat, lores, sides of the head below the eye and to fore part of the breast, glossy black, some of the feathers, however, having white edges; sides of the breast white, this colour joining the streak which passes from behind the eye; flanks marked with black, rest of the underparts pure white, the under wing-coverts being slightly marked with grey; bill yellow, black at the tip; legs black; iris brown. Total length 6.2 inches, culmen 0.5, wing 3.75, tail 2.6, tarsus 0.85, hind toe with claw 0.85.

Adult Female (Dovre, Norway, June). Back, wings, and tail the same as in the male, but more broadly edged with light brown, the rufous edgings on the secondaries and wing-coverts being much lighter and broader; crown black, marked with sandy yellow, a broad mark from the eye to the edge of the chestnut collar dirty buff, throat and sides of head dull buff, marked with black; lower part of the throat and chest black, marked with buff, each feather being tipped with that colour; flanks streaked with blackish brown and rufous; underparts otherwise as in the male; the chestnut collar duller in colour than in the male, and marked here and there with black; beak dull yellowish horn, tip blackish; legs black; iris brown.

Adult Male in autumn. Head blackish brown, marked with dull rufous, the chestnut collar very obscure, the feathers being edged with buff; back and wings having the feathers also broadly margined with rufous; throat and fore part of the chest, which in the summer plumage are black, having the feathers margined with buff, those on the throat so much so as almost to hide the black; sides of the head dull pale rufous; underparts generally dull white, the flanks being streaked with blackish brown and rufous, each feather having a dark centre, and being broadly margined with buff and rufous.

Young of the year (Plaistow Marshes, 4th October, 1871). Head, back, and upper parts generally similar to the male in autumn, but paler, especially on the head and back; and the only trace of the chestnut collar is that the feathers are there somewhat lighter and inclined to rufous; throat, sides of head, and underparts generally dull white, the auriculars and region round the eye marked with dull brown; on each side of the throat an indistinct blackish streak, and on the lower part of the throat a few rufous markings, and the black bases of the feathers showing through here and there; bill deep ruddy flesh-colour, black at tip.

A still younger bird, a female, procured at Fort Simpson, Arctic America, on the 10th of September, 1860, and sent to us by Dr. Elliott Coues, is lighter-coloured than the British specimen, has the feathers on

the head and fore part of the back broadly margined with pale rufous, and those on the chest and lower part of the throat washed with buff and marked here and there with pale rufous.

THE Lapland Bunting is a circumpolar bird, inhabiting, during the summer, only the high northern regions; but on the approach of winter it migrates southward, and is often met with in very low latitudes. In Great Britain it is occasionally found as a straggler, though it has perhaps occurred more often than is generally supposed, having been doubtless overlooked or confounded in many instances with the immature Reed-Bunting. Mr. Rowe does not name it in his list of the birds of Devon; and it appears rarely to have been met with in the south of England. We possess one specimen procured near London; and Yarrell records the capture of two near London and three near Brighton. Mr. Stevenson refers to two occurrences only in Norfolk—one at Postwick, near Norwich, the other at Crostwick, also near Norwich; and Mr. J. H. Gurney, jun., writes to us as follows:—"A male Lapland Bunting in my collection, at present unrecorded, was netted in the Californian Gardens, at Yarmouth, in the winter of 1868. It was observed in the market, along with some live Skylarks, by the person of whom I obtained it (and who gave me the account), the day before Christmas. It was a beautiful song-bird, and he kept it alive three years. In summer its beak turned yellow. This makes the second specimen which has occurred since the publication of the 'Birds of Norfolk' (*cf.* Trans. Norwich Nat. Soc. 1871-1872, p. 65)." Yarrell refers to one as having been procured near Preston, in Lancashire, and states that it is now preserved in the Manchester Museum. In Scotland it has, according to Mr. R. Gray, only been procured once, near Caithness, many years ago.

It is tolerably numerous in Greenland, and we have received many specimens from there. Professor Newton says that it is "very seldom observed in Iceland. Faber saw a single example in the south in the spring of 1821. I do not know of any other unquestionable instance of its occurrence." In the Færoes it has not hitherto been met with, but occurs throughout Scandinavia as far as the North Cape, though not straggling as far north as Spitzbergen.

According to Collett it breeds in the interior of Finmark, especially near the Varangerfiord, more rarely on the islands, as on Vesteraalen. Mr. Godman found it breeding at Bodö in 1857. In the summer of 1861 Mr. Siebke shot this bird in the willow-region on the Dovre, in 62° N. lat.; and Mr. Barth found it breeding there in July 1864. On the lowlands only stragglers are found in the spring—as at Christiania in 1834 and 1839, in Nedernæs in 1846, on Hedemarken in 1861, in Aaseral (Christiansand) in 1865, and in Æsterdalen in 1856 and 1857.

In Sweden, Dr. C. R. Sundström writes us, "it is found during the summer season in the fell-mosses covered with grass and willow scrub, situated just below the snow-region, and it breeds there. It does not occur on the high snow-fells, where the Snow-Bunting has its home; nor is it found in the upper birch-region. In its habits it reminds one much of the Larks, and like those runs and does not hop along the ground. The song resembles that of the Linnet. It arrives at its summer quarters in May and leaves again in September and October. During migration it occurs in Southern Lapland and Norrland, but very seldom in Central or Southern Sweden. It has only once been found with certainty to occur in Central Sweden, at Nerike, on the 9th of May, 1857. The specimen in question was winged, and kept for some time alive in a cage, and sang in confinement. Both when migrating and also in the summer season the Lapland Bunting frequents open places; the bird procured in Nerike was shot when running in a field, and

was not at all shy. The fact that it is so rare south of Norrland, in Sweden, goes far to confirm Professor Nilsson's opinion that they migrate southward through Finland and Russia; for they are numerous in Finland in the autumn and spring." According to Meves this species is numerous at Archangel during the spring; and Von Wright writes that it breeds in Northern Finland, appearing in the southern districts in large flocks in the autumn and again in the spring, but then more scattered. In Central and Southern Russia it is, as we are informed by our friend Mr. L. Sabanäeff, exceedingly rare, and only accidentally met with. In the Governments of Moscow and Jaroslaf a few are met with in the spring and autumn, but not every season. Meshakoff records it from Vologda. It is, however, said to be exceptionally numerous in the districts of Ekaterinburg and Schadrinsk, and may breed there. According to Eversmann it is very common on the Kirghis steppes. It occurs but seldom in the Baltic provinces; and Mr. Taczanowski informs us that it is one of the rarest stragglers to Poland. He only knows of one instance of its occurrence, that of an adult male, captured in 1856 near Warsaw, and now in the Museum there.

In North Germany, according to Borggreve, it occurs during winter; in Silesia it is often seen (*Gloger*), also in Anhalt (*Naumann*), once it has occurred in Lausitz (*Tobias*), once in Westphalia (*Bolsmann*), several times at Thorn, and once at Danzig (*Boeck*). It is a rare straggler to Denmark, occurring during the winter season only; and the same may be said regarding its occurrences in Holland. According to Degland and Gerbe, it appears irregularly during the autumn migration in France and Belgium, and is taken from time to time in nets near Dunkerque and Antwerp, the specimens captured being always young birds in their first winter's plumage. Accidental in Luxembourg, according to De la Fontaine, occurring during severe winters. In the autumn of 1824 it was observed near Thionville, and at Metz in 1788; and in September 1833, Jaubert and Barthélemy-Lapommeraye record two captures in Southern France. It very rarely visits Southern Europe, and has hitherto not been met with in Spain or Portugal. During severe winters it visits Italy, but its occurrences are extremely rare. Bailly writes that it visits the smaller valleys of Savoy during the winter; Savi says it is found in Piedmont; and Salvadori only records specimens from the north of that country—the central and southern portions, as well as Sicily, being as yet unvisited by it. It has occurred in Austria; and there is, as we are informed by Herr von Pelzeln, a specimen in the Vienna Museum, which was purchased in the Vienna market in December 1820. It does not appear ever to have straggled south of the Mediterranean; but to the eastward it ranges throughout Siberia down into China. Dr. Gustav Radde only once met with this species in Southern Siberia, on the 8th (20th) of May, 1856, when he saw a flock of about fifty individuals on the Tarei-nor, and procured a pair. Schrenck procured an old male on the 1st of September at the mouth of the Urutschi, on the Upper Amoor; and Von Middendorff writes that the first arrived on the Boganida on the 27th of May, and a few remained there to breed. On the 17th of June a nest containing five eggs was found there; and a month later fledged young were observed. On the Taimyr they appeared in flocks on the 4th of June, but soon scattered and commenced breeding, and on the 25th of June feathered young were found in a nest. Von Middendorff states that he found one nest which appeared to be a second brood. In the south-east he shot this species at Aldan, on the 27th of April, during migration.

Mr. Swinhoe first observed the Lapland Bunting near Tientsin, in China, in November, and on arrival at Tientsin he found thousands on sale, plucked and trussed like Larks. The natives there, he states, call them *Teay cheo* (iron bird), and catch them in springes baited with the small maggots found in decaying millet-stalks.

It is found throughout the high northern parts of North America; and we are indebted to our friend Dr. Elliott Coues for the following excellent notes respecting its geographical distribution in the Nearctic Region:—"I have sometimes wondered how much the similarity (amounting almost to identity) in the geographical distribution, migrations, and general habits of this species and the Snow-Bunting has had to do with their association in the genus *Plectrophanes*. *P. nivalis* certainly stands alone in the ruff of antrorse plumules covering the nostrils, so characteristic of many boreal Conirostres; its bill is differently shaped, and its *pictura* is wholly unique; in fact, about the only prominent character it shares with *P. lapponicus* and the rest is the lengthened and little-curved hind claw. This is simply an accompaniment of terrestrial life, and, moreover, is only an approximation towards the condition of the hind claw and its digit, as to length and straightness, that *P. lapponicus* shows. In these genus-peddling days, however, when the market is glutted, and the articles a long way below par, any two or three birds may consider themselves lucky if they can hang together by the same name; and I only alluded to the subject to show what a fine chance there is here to determine the difference between the north and north-west side of a hair.

"It is a much pleasanter thing to speak of the real natural history of the Lapland Longspur; and in this respect the sentence with which I began a paragraph that ended ill-humouredly gives more than a hint. It may be taken as a rule that in the United States local lists giving *P. nivalis* as 'common,' the next entry will be *P. lapponicus*, with the remark 'occasional,' or 'rare,' or 'very rare,' or else, 'may be expected to occur in winter.' If I were asked to give in a word the difference between the habitats of *P. nivalis* and *P. lapponicus*, I might be at a loss for a satisfactory reply, but might say that with the same *general* circumpolar distribution, and the same dispersion in British America, the Lapland Longspur is in the United States more *restricted*, both in latitude and longitude. For it has not been found west of the Missouri, where it appears to be replaced (more truly than *P. nivalis* can be said to be) by *P. pictus*, *P. ornatus*, *P. melanomus* (if different from *P. ornatus*, which I doubt), and the singular *P. maccownii*; while as to its southward distribution, I can hardly say whether its seeming absence from the extremes that *P. nivalis* attains is due to its actually not coming as far south, or to its being overlooked, in consequence of its comparative scarcity. I strongly suspect that in the end we shall hear of it from all the localities whence *P. nivalis* is quoted; but the southermost record I have now at hand for the Atlantic States is that of Mr. Lawrence, who places it in his New-York list without comment (Ann. Lyc. Nat. Hist. N. Y. viii. 1866, p. 288), and, for the interior, the Ohio quotation of Mr. J. M. Wheaton's (Ohio Agric. Rep. for 1860). The New-England authorities give it, and are unanimous concerning the infrequency or irregularity of its occurrence. We must place it among the rarer northern visitors of the United States, where it has never been known to breed, and where, probably, it has never once been taken in the perfect beauty of its nuptial plumage.

"But you will not too hastily conclude that we have nothing more than the meagre records on file. Large series of specimens that have reached our museums, illustrating all the changes

of plumage, with sex and age and season, attest its abundance in different parts of British America; and of late our knowledge of its range has steadily progressed westwards, till at length we have it (Trans. Chicago Acad. i. p. 283), in those high latitudes, on the very shores of the Pacific. 'By far the most abundant of the land-birds which are found on the Island of St. Michael,' writes Mr. Bannister. 'It appeared there about the 6th of May, and from that time until the middle or latter part of September was observed in great numbers over the island. I did not find the nest, although the birds were started up by the hundred on every walk over the island; and I therefore think it must be very carefully concealed.' With the records you, of course, have from your side of the water, this completes the evidence of circumpolar distribution."

In its habits the present species bears resemblance both to the Larks and the Buntings. It runs with celerity, with body and head stretched forward like a Lark, and will proceed for some time before taking wing; it is restless, but not shy, and by no means quarrelsome, living in perfect harmony with other small birds. When frightened, or at the approach of any bird of prey, it squats and hides in any suitable depression in the ground; its flight is rapid and light, with a wave-like rise and fall, varying in long distances in the shortness or length of its dips. It perches not unfrequently on a fence, bush, or tree, though it is more commonly found on the ground. It is, Pastor Sommerfeldt states, an "excellent songster, and lets its clear full note be heard when it rises, fluttering, high in the air, and gently descends; but the song discontinues when the bird has descended and with closed wings drops in a slanting line on to some small elevation on the ground."

Its call-note, according to Naumann, "closely resembles that of the Snow-Bunting, but is not so strong, and higher in tone, but also with an 'itirrr.' It has a pleasant high note 'twui,' not unlike that of a Siskin, but much stronger." The male has a pleasing but peculiar song, which seems to be composed of that of the Common Lark and Linnet together, that of the former appearing as the basis. It consists of several strophes, which, as in the Lark, follow each other quickly, and some are repeated again and again. If one were not to see the songster, one would be inclined to believe that it was a species of Lark or a Sky-Lark shortening its song. It is an unwearied songster. The female twitters, but only indistinctly, and has no connected song.

Its range during the breeding-season extends throughout the whole of the upper portion of the Palæarctic and Neartic regions. It breeds not uncommonly in Greenland, Northern Iceland (for Mr. Benzon informs us that he has the eggs from Husevig), Scandinavia, Northern Russia, and Siberia, and the high north of America, from the Pacific to the Atlantic. Our friend Mr. R. Collett, of Christiania, who has taken the nest of this species in Norway, writes to us that "it is principally distributed in Finmark, as well in the west as in the eastern parts towards Russian Lapland. Southwards it breeds (in less numbers) down at least to the Arctic circle, also on the islands, as Lofoden. One little colony inhabits the dry and bush-grown parts of the moors by Jokstuen, on the Dovre-fjeld (62°); and this is probably the most southern place in Europe where it is found breeding. This colony I visited in 1870, 1871, and 1872, shot several birds, and on the 9th of June, 1871, found a nest containing six fresh eggs. It was placed under a dwarf birch (*Betula nana*), and composed of fine grass (principally *Festuca ovina*), the inside being covered with feathers of the Wild Duck. By these feathers, which are never

wanting, the nest of this bird may always be readily distinguished from those of other birds which breed in the same locality, such as *Anthus pratensis*, *A. cervinus*, and *Emberiza schæniclus*. The eggs measured from 21 to 23 millimetres in length, by $15\frac{1}{2}$ millimetres in breadth. One of the eggs wanted the black spiral lines that were found on all the others.

“In June and July of 1872 I had good opportunities of observing these birds in West Finmark, where I found them abundant on the shores of the Porsangerfiord and on the island of Store Tamsö, which, ornithologically, is one of the most interesting places in the country. Here the Lapland Bunting was by far the commonest of all the small birds, and inhabited every part of the island that was overgrown with heather or covered with turf. It had a peculiar habit of making itself observed, settling without any appearance of shyness within a few steps of me, on all the small knolls overgrown with *Rubus chamæmorus* and *Empetrium*, where its bright colours made it all the more conspicuous. The eggs were just hatched, and the young feeding. In all my excursions I was incessantly accompanied by one pair after another, each pair following me a hundred yards or so; thus I had their society all the day over the whole island.

“Its very melodious song is uttered by the male while ascending from the top of some dwarf birch or willow, and descending again with trembling wings to its former perch, after the manner of *Anthus arboreus*. All song, however, ceases as soon as the young are hatched. In their stomachs I only found small insects and gravel.

“As is doubtless the case with most of the smaller birds inhabiting Finmark, the Lapland Bunting migrates to and from this province through Russian Lapland and Sweden, and never passes the western parts of Scandinavia. Therefore in the southern parts of the country very few individuals are observed, and, moreover, most, if not all, of these probably belong to the above-mentioned colony on the Dovre-fjeld.”

The late Mr. Wheelwright found numbers breeding in Quickjock, Lapland, on a low flat, about 2000 feet above Quickjock, at the foot of one of the highest snow fells, and gives in his ‘Spring and Summer in Lapland’ full particulars as to its breeding-habits, which agree with what we state above. Mr. Benzon writes to us that “its nest appears, like that of the Yellow Ammer, to be placed sometimes on the ground, sometimes on low bushes; and in Greenland it generally appears to choose the latter position. The nest is constructed of dried grass mixed with moss, and is lined with grass, straws, and feathers; and it is generally less in size than that of the Snow-Bunting, measuring outside 100 and 40 and inside 50 and 20 to outside 120 and 60 and inside 50 and 25 millimetres respectively.” The eggs, from four to six in number, have a more or less dark olive-brown ground-colour, in some light varieties, however, greyish green, and are covered with large brown shell-spots and dark brown surface-markings. Some varieties are without scratches, but are covered with dark reddish brown blotches, which give the egg a uniform appearance. The light-coloured eggs closely resemble those of *Emberiza aureola*; and others are much like eggs of *Emb. schæniclus*. One variety in Mr. Benzon’s collection is uniform olive-brown with a few scratches, and another, a dwarf egg from Greenland, measuring 16 by $11\frac{1}{2}$ millimetres, is dark brown. In size they vary from 19 by 14 to $21\frac{1}{2}$ by 16 millimetres. Pastor Sommerfeldt writes that “its eggs vary greatly, but when new laid have usually a greenish tinge, and some are light green with dark brown spots, chiefly at the larger end. These eggs, like those of *Anthus pratensis* and *A. cervinus*, get darker as they become incubated, or, in other

words, as the veins in the eggs become developed ; thus one finds in the same nest eggs of a light green, olive-green, and yellowish brown colour." In Dresser's collection is a large series of eggs of almost all the above varieties, obtained from Greenland and Lapland, which in size vary from $\frac{3.1}{4.0}$ by $\frac{2.4}{4.0}$ to $\frac{3.5}{4.0}$ by $\frac{2.6}{4.0}$ inch respectively.

The specimens figured in summer plumage were obtained in Norway, and are those we have also described ; on the same Plate, in the foreground, we have figured the young bird of the year ; these, as well as the specimens described, are in Dresser's collection. On the same Plate as the winter plumage of *Plectrophanes nivalis* we figure the winter plumage of the present species.

In the preparation of the above article we have examined the following specimens :—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. Dovre, Norway, June (*R. Collett*). *c*, ♀. Europe (*Gardner*). *d*, *juv.* Plaistow, Kent, October 4th, 1871 (*Davy*). *e*, ♂. Greenland (*Erichsen*). *f*, ♂. Fort Liards, Hudson's Bay (*Coues*). *g*, ♂. Davies Straits (*P. Henderson*). *h*, *i*, ♂. N. America (*Krider*). *j*, ♂. Koshkonong Prairie, Dane County, Wisconsin, May 6th (*Dr. Brewer*). *k*, ♀. Fort Simpson, May 26th (*B. R. Ross*). *l*, *juv.* Fort Simpson, Arctic America, September 10th, 1860 (*Coues*).

E Mus. H. B. Tristram.

a, *b*. ——. *c*, *d*, *e*. Tientsin, November (*R. Swinhoe*).

E Mus. T. E. Buckley.

a, ♂. Lapland, July 24th (*T. E. B.*). *b*, ♀. Lapland, July 27th (*T. E. B.*).



SNOW BUNTING.
PECTROPHANES NIVALIS
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LAPLAND AND SNOW BUNTINGS.

(Autumn Plumage)

PLECTROPHANES NIVALIS.

(SNOW-BUNTING.)

- Emberiza nivalis*, Linn. Syst. Nat. i. p. 308, no. 1 (1766).
L'Ortolan de Lorraine ♀, Montb. Hist. Nat. Ois. iv. p. 323.
Emberiza notata, P. L. S. Müller, Nat. Syst. Suppl. p. 157. no. 28 (1776).
Emberiza lotharingica, Gm., partim, Syst. Nat. i. p. 882. no. 61 (1788).
Emberiza mustelina, Gm. tom. cit. p. 867. no. 7 (1788).
Emberiza montana, Gm. tom. cit. p. 867. no. 25 (1788).
Emberiza glacialis, Lath. Ind. Orn. i. p. 398. no. 2 (1790).
Plectrophanes nivalis (Linn.), Meyer, Taschenb. deutsch. Vögelk. i. p. 187 (1810).
Passerina borealis, Vieillot, N. Dict. xxv. p. 8 (1817).
Passerina nivalis (Linn.). Vieillot, Faun. Franç. p. 86 (1820 ?).
Plectrophanes hiemalis, Brehm, Vög. Deutschl. p. 304 (1831).
Plectrophanes borealis, Brehm, op. cit. p. 305 (1831).
Emberiza borealis (Vieill.), Degland, Ornith. Europ. i. p. 273. no. 115 (1849).

(The above by Lord Walden.)

Snow-Bunting, *Snowflake*, *Snowbird*, English; *Ortolan de neige*, French; *Schneeammer*, *Schnee Spornammer*, German; *De Sneeuwvors*, Dutch; *Snespurv*, *Snekok*, *Snefinke*, *Snefugl*, *Vinterfugl*, Danish; *Snojoufuglur*, Færoese; *Koparnauarsuk*, Greenlandic; *Sniotitlingr*, *Solskrikia*, Icelandic; *Snespurv*, Norwegian; *Snösparf*, Swedish; *Lumisirkku*, Finnish; *Podoroschnik*, Russian; *Śnieguta*, Polish.

Figuræ notabiles.

Albin, Nat. Hist. Birds, iii. pl. 71; Edwards, Nat. Hist. Birds, iii. pl. 126; D'Aubenton, Pl. Enl. pl. 497. fig. 1, and pl. 511. fig. 2; Wilson, Amer. Ornith. pl. 21. fig. 2; Audubon, Birds of Amer. pl. 365; Naum. Vögel. Deutschl. pls. 106, 107; Gould, Birds of Europe, pl. 170.

♂ *ad. ptil. æst.* albus: dorso, scapularibus et rectricibus centralibus nigris; primariis nigris, ad basin albis: secundariis albis: tectricibus alarum albis: alulâ spuriâ nigrâ: rostro et pedibus nigris: iride brunneâ.

♀ *ad. ptil. æst.* capite et nuchâ nigris, plumis omnibus conspicuè griseo-albo marginatis: dorsi plumis saturatè nigris, vix griseo-albo marginatis: tectricibus alarum minimis nigris, albo marginatis: primariis fulvescenti-nigris, vix albido marginatis: secundariis albis: caudâ ut in mari picturatâ sed pallidiore et griseo adumbratâ: subtùs alba: rostro et pedibus brunnescenti-nigris.

♂ *ad. ptil. hiem.* capite suprâ saturatè rufescenti-brunneo, suprâ oculos grisescenti-cervino: nuchâ saturatè albâ ochrascente brunneo adumbratâ: dorsi plumis et scapularibus nigris, conspicuè rufescente brunneo marginatis: uropygio rufescenti-brunneo: remigibus brunnescenti-nigris, vix albido marginatis et

apicatis : secundariis albis, externis versùs apicem nigricante notatis : tectricibus alarum minimis albis : rectricibus ut in ptilosi æstivâ picturatis sed saturatoribus et albido marginatis : facie laterali albidâ, vittâ ferrugineâ per oculos ductâ, regione paroticâ saturatè ferrugineâ : subtùs albus : pectore summo rufescente ochraceo lavato, hypochondriis eodem colore adumbratis : rostro saturatè flavo, versùs apicem brunneo : pedibus nigris.

♀ *ptil. hiem.* mari similis, sed suprâ grisescentior : tectricibus alarum minimis nigris, conspicuè albido terminatis.

Adult Male in summer (Greenland). Head, neck, and entire underparts pure white; back and scapulars jet-black, here and there imperceptibly edged with brownish white; primaries white at the base, otherwise jet-black; secondaries pure white; wing-coverts pure white, excepting the spurious wing, which is black; the three outer rectrices on each side white, with a small elongated apical black spot; central rectrices black, tipped with white; rump and upper tail-coverts white; bill and feet black; iris dark brown. Total length 6·5 inches, culmen 0·45, wing 4·2, tail 2·5, tarsus 0·9, middle toe with claw 0·55.

Adult Female (Greenland). The adult female in breeding-plumage differs from the male in having the head, neck, and back black, with broad grey edgings to the feathers, which on the head and neck are so broad as to give the appearance of being entirely grey; lesser wing-coverts black, broadly tipped with white; underparts white; bill and legs dark brown; the black portions of the plumage are much duller than in the male, being greyish black rather than black. In size it is rather smaller, measuring—wing 3·9 inches, tail 2·4, tarsus 0·85.

Adult Male in winter (Glen Tanar, Aberdeenshire). Centre of forehead and crown dark rusty brown, bordered on each side by dirty creamy grey; nape dirty white, washed with yellowish brown; back and scapulars black, broadly margined with dull reddish brown; rump dull reddish brown; quills dull black, edged and tipped with dirty white; secondaries white, the outer ones marked towards the tip on both webs with blackish brown, the inner ones thus marked on the outer web only; wing-coverts white; rectrices as in the summer plumage, but duller, and margined with white; sides of face dirty white; an irregular broad line through the eye and auriculars dull rusty yellow; underparts white; a broad band across the chest rusty yellow; flanks washed with pale rusty yellow; bill dull yellowish, darker towards the point; legs black.

Adult Female in winter (Hampstead, 17th March). Similar to the male, but much paler and greyer on the back, and having the wing-coverts black, broadly tipped with white.

Young, fresh fledged (fide Nilsson). Head, nape, and back greyish black, with irregular black spots, and washed with yellowish brown; lesser wing-coverts blackish, broadly edged with white; the larger coverts black, broadly tipped with rusty yellow; primaries black, secondaries white; chin white; neck and breast grey, washed with rusty yellow; abdomen white; the two outer tail-feathers whitish, with the outer web blackish, the next in order with blackish tip, and edged with rusty grey on the outer web.

Obs. The female in the winter plumage may be easily distinguished by having the lesser wing-coverts black, edged with white, and the feathers on the crown black, edged with reddish brown, these latter being in the male white, edged with reddish brown, though black at the root.

THE SNOW-BUNTING, like its near relative the Lapland Bunting, is an inhabitant of the high boreal regions of both continents; and only during the winter season, when food is scarce or

difficult of access, does it migrate southward, and is then met with in larger or smaller flocks in Central Europe, Asia, and the temperate portions of North America.

In Great Britain it is more generally met with during the winter season, especially during severe weather; but there is little doubt as to its occasionally breeding in Scotland, and I deferred the publication of this article in deference to the wish of one of my friends in Scotland, who felt certain of finding the nest this season: unfortunately he did not succeed in so doing. Macgillivray expressed his firm belief that it breeds in the Grampians, though he could not find the nest; and Mr. A. G. More states that Dr. Saxby has discovered the nest of this species in Unst, Shetland, and he tells Mr. More that he has upon many occasions observed pairs of them during summer, but in parts of the cliffs almost always inaccessible. Dr. Saxby considers that the Snow-Bunting breeds regularly in the cliffs below Saxavord.

Mr. Gray writes that "it is a very common species over the whole of Western Scotland, arriving in October and leaving in April. It undoubtedly does breed in Scotland in small numbers. Macgillivray states that both old and young have been seen on the Grampians late in August; and Pennant writes that a few breed on the summits of the highest mountains. Mr. William Hamilton observed two pairs on Scur Ouran, in Ross-shire, on the 12th of July, 1868." In England it occurs during the winter. Mr. Stevenson records it as a regular winter visitant to Norfolk; and it is included in most of the local lists of birds occurring in various parts of England. Mr. J. H. Gurney, jun., writes that he has "repeatedly shot Snow-Buntings at the mouth of the Tees, at a place called Seaton Snook, and I hardly ever got two that were exactly alike. I never shot but one really adult male; and that was in a meadow where I had never seen any before. These 'Tawny' and 'Mountain' Buntings vary nearly as much in size as in plumage, as I know from a number of measurements which I took from birds in the flesh. I have known them to occasionally associate with Bramblings and Linnets; but generally they go by themselves in flocks of about a score. I cannot remember having seen any before October; but my father has seen them on September 25th in Suffolk (Zool. p. 2849). In Norfolk Mr. Frere records one on the 23rd, near Blakeney (Zool. p. 1191), and Mr. Clark Kennedy on the 14th, at Hunstanton (Zool. p. 559), which, it must be confessed, is very early. I should think they are as plentiful on the coast of this county as anywhere in England. I have seen them at Lynn, Heacham, &c.; and both this winter and last I saw large cages full of these birds which had been netted at Yarmouth and sent up to London. I was informed that some had been seen at sea off there about the 3rd of this month (November 1872), by a gentleman who knows them well." It occurs also in the south of England, and is, according to Mr. J. Brooking Rowe, "not uncommon in the winter and autumn on Dartmoor." It occasionally appears early in the autumn, in confirmation of which Mr. J. H. Gurney, jun., sends the following extract from Dillwyn's 'Fauna and Flora of Swansea,' p. 5, where it is stated that "two were seen near the Infirmary on August 30, 1840; and one of them, an adult female, which was shot by Mr. Mogg-ridge, is preserved in the Museum of our Institution."

It is a common summer resident in Greenland, and Professor Newton writes that it is perhaps the commonest of Icelandic small birds; according to Faber, most of them pass the winter in that country. Captain Feilden says that "the Snow-Bunting is an abundant species throughout Færoe in the winter time, and a considerable number remain to breed in suitable

localities." Wolley mentions that it "breeds very scantily near the tops of the mountains, but in the northernmost islands of the group, on the lower grounds, and in small colonies. A neatly made nest, placed under a large stone, had young almost fully fledged at the beginning of July." Müller has noticed the young ones flying in August. I visited the mountain, Losingafjald, near Westmanshavn, where Wolley found the nest and young in 1849; and though I searched carefully for hours, I was not fortunate enough even to cross a bird. During my stay in Færoe the weather was as a rule so bad that the tops of the hills and likely resorts of the Snow-Bunting were generally shrouded in mist. Only on the top of the island of Skuoe did we come across them. On the 7th of June, 1872, about 8 o'clock in the evening, as we were resting, my friend called my attention to the note of a bird which we did not recognize: the song was simple, but plaintive. We soon found that it came from a male Snow-Bunting, which I shot; the female was not far off, and soon made her appearance on the stones, where she twittered for her mate: she was probably nesting close by. We commenced a search for the nest, but almost immediately dense volumes of mist stole up the sides of the mountain and enveloped us. We had to give up the search, and follow our guide in Indian file to the sea-shore. Two or three pairs of Snow-Buntings nest yearly on Kirkeboe Rein, near Thorshavn; I made one or two attempts to find their nests about the middle of June; but the rain and mist in every instance prevented me.

It is common in Northern Scandinavia; and Mr. R. Collett writes to me that "this Arctic bird is found breeding throughout Norway, on the snow-clad mountain-ranges, in the interior, to the frontiers of Russia, and on the islands of the western coast. It is especially numerous within the Polar circle; but it breeds in considerable numbers on the southern ranges, such as the Dovre, Filefjeld, Ronderne, Jotunfjeldene, Langfjeldene, and as far south as the Thelemark and Nordfjeld, in latitude 60°.

"When travelling in summer over the upper slopes of the Norwegian mountains, where only here and there a few lichens and stunted blades of grass crop up from amidst the stones and snow, and where, with the exception of a few Rock-Ptarmigan (*Lagopus alpina*), no other species of birds is to be seen, this pretty Bunting is always to be found, living close to the borders of the eternal snow. Perched on a weather-worn rock it utters its single but melodious note; but when it has young ones to provide for, it is usually busily engaged in catching flies and small insects for their support.

"In Finmark, where the greater portion of the country consists of sterile mountain plateaux, the true home of the Snow-Bunting is to be found; but even in the vicinity of the Polar Sea I have discovered it breeding on small holms and islands. Throughout all these solitary and deserted regions the Snow-Bunting gives a character to the scenery, in as complete accord with the surroundings of nature as the most highly coloured birds in tropical zones; clad in its summer garb of coal-black and pure white, it is a marked object when flitting over the snow-fields or dark moorlands, against which it forms a striking contrast.

"The nest, containing five or six eggs, is placed amongst stones, or in a cleft of the rock. I found a nest in July 1872 on a little holm close to the North Cape. The male bird appeared to feed the young ones with even greater eagerness than his mate, and showed considerable anxiety as long as I remained in the neighbourhood of the nest. The young ones appeared to be fed

entirely with insect-larvæ, and they greeted the arrival of each fresh instalment of food with a chorus of tiny voices.

“In autumn the Snow-Bunting flocks in prodigious numbers, especially in the western provinces of Norway, and in November and December along the line of coast, where the flocks alighting remind one of snow-flakes falling on a field. These flocks do not remain long in the same locality, but are constantly shifting their quarters, the ground when vacated being taken up by fresh arrivals; this continues till the spring, but as soon as the sun’s rays become powerful enough to melt the snow in patches on the mountain-sides, they betake themselves again to their summer haunts, and once more enliven these dreary regions with their presence.” Messrs. Harvie Brown and Alston also write that “nowhere on the fjelds did we meet with this species at all abundantly; but scattered pairs were observed from an elevation of from 3500 to 5600 feet; and one nest, containing five fresh eggs, was procured by a man in our employ at an elevation of about 4000 feet, on the 22nd of June. When crossing the fjelds earlier in the season (on the 17th of May), when they were still deeply covered with snow, the Snow-Buntings were going in small flocks. When we returned in the beginning of June they had dispersed, and were all at their breeding-stations. The above-mentioned nest, which is now before us, is composed of thin wiry grass, warmly lined with feathers of the Fjeld-rype (*Lagopus vulgaris*) and a quantity of Reindeer’s hair; and our informant told us it was placed under the shelter of a large stone on the mountain-side.” Dr. Sundström, of Stockholm, writes to me that “it is found during the summer season in numbers on all the Swedish snow-fells, where it frequents places where the snow still remains, or else stony places or puddles formed by the melting of the snow. It never occurs amongst the trees or bushes, not even in the juniper region, and inhabits higher altitudes than the Lapland Bunting. Here it hatches its young, and resides during about half the year. It feeds chiefly on larvæ of gnats and other insects, and to some extent on the insects themselves. When food of this nature becomes scarcer, in the autumn, it migrates southward, at first not going far; but when the cold weather sets in it wanders further south, and then is met with in large flocks in Central and Southern Sweden down to Gottland and Skåne, often wandering further south, into Germany. On the 27th of November, 1861, I met with Snow-Buntings in flocks with Shore-Larks on the coast near Alnarps School of Agriculture, close to Malmö, in Skåne; and on the 22nd of April following a few were observed, also in company with Shore-Larks, at the same place. Generally, however, they return in March or April, according to the season, to their summer haunts. When wandering it is not shy; it feeds then on grain and seed which it picks up on the fields and roads, which places it frequents, and not places where trees or bushes grow.”

In Finland it occurs in flocks during the seasons of migration, and may possibly breed in the northern portion of that country. I had eggs sent to me from Ijä and Kajana, said to belong to this species, which certainly agree very closely with authentic eggs from Greenland. In Northern Russia it is common, and I have received numerous skins from Archangel. Mr. G. Gillett records it as very common on Novaya Zemlia; and regarding its occurrence in Spitzbergen, Professor Newton writes that “I have already mentioned the discovery of two nests of this species beneath the Alkenhorn, and that a family party were observed on Russö. Dr. Malmgren states that when at sea in the latitude of Bear Island, on the 19th of May, on his first voyage,

the rigging of the vessel was suddenly covered by a flock of Snow-Buntings, which did not stay to rest very long, but continued their course towards Spitzbergen, against a stormy wind. This bird appears to extend its range to the extreme north of the country, he having found a brood of newly fledged young in Brandywine Bay (lat. 80° 24' N.). The specimens I obtained seemed to be of the Old-World type; that is to say, they are not quite so large or so stoutly built as those I have from Greenland and America. If the *Fringilla flammea* or *F. linaria* of Scoresby is not this species, I am at a loss what to make of it; for certainly it is extremely unlikely that a species of Redpoll should resort to a country so entirely destitute of any thing that can be called a tree or shrub as Spitzbergen is." Regarding its general distribution in Russia, Mr. Sabanäeff writes that it "occurs regularly throughout the country, usually appearing early in the winter and leaving in March. In the south it remains over the winter, and frequents the plains and fields covered with snow; but near Moscow and Jaroslaf it is a migrant, remaining only a few days, and then moving further north, being common in the northern portions of the Archangel Government." Rickbeil has not observed it near Sarepta; and Eversmann states that it only occurs to the south of the Uralsk during exceptionally severe winters. Sabanäeff met with it in the open country of the Ural in thousands in the early spring and autumn; and he considers that it breeds on the eastern slope of the Ural, as he procured a female in May 1869 near Karakuz, in the district of Ekaterinburg, which was in full breeding-plumage, and evidently nesting.

It occurs in the Baltic Provinces in winter; and Mr. Taczanowski writes that "it arrives annually in Poland in the winter, but in very unequal numbers; during severe winters they are numerous, but rare during mild seasons. They remain a very short time, usually arriving late in December, and leave in February or early in March as the snow begins to melt." In North Germany large flocks appear in severe winters in the eastern portion, but in the western part they are only seen at great intervals. Dr. E. Rey writes that, as stated by Nitsch, large numbers appeared at Halle in the winters of 1819 and 1830. On the 20th of November, 1863, he saw a small flock during a snow-storm in a field near Rathmansdorf. In Denmark it appears in the winter, earlier or later according to the severity of the season. On the Dutch coast, Professor Schlegel writes, numbers are sometimes seen during cold seasons, and spread inland. De la Fontaine records it as rare in Luxemburg; but Degland and Gerbe state that it occurs annually in the north of France. In Southern France, however, it is extremely rare, and has not been recorded from Spain or Portugal. Dr. Girtanner informs me that it "is extremely rare in Switzerland. Last winter (1871-72) a specimen was shot in the Rheinthal (valley of the Rhine); but years may elapse ere another is found. I only remember two instances of its occurrence; and I believe I hear of every rare bird that is procured in Switzerland." Salvadori states that he has seen specimens obtained in Liguria and Lombardy in severe winters; and it appears to be occasionally obtained in other parts of Italy; but statements of Italian naturalists respecting this species must be received with caution, as they have constantly confounded it with *Montifringilla nivalis*. Doderlein includes it in his list on the strength of a specimen killed near Modena, now in the Palermo Museum. Schembri records two occurrences on Malta in 1840. In Austria, the Ritter von Tschusi-Schmidhofen writes, small flocks of this Bunting occur during severe winters, and they consort with Buntings and Finches. In Bohemia, Mähren (Moravia), and

Galicia they occur oftener than in other portions of the empire. I can find no record of its occurrence in Greece or Turkey; but Von Nordmann saw it in Southern Russia in the winter of 1835, and again in 1836 and 1857, in the last season as far down as the Crimea, and several were killed on the steppes between Pérékop and Simphéropol. There is but one record of its occurrence in Africa, that of a male, which, according to Mr. Tyrwhitt Drake, was picked up dead near Cape Spartel: but it has been met with on the Azores; for Mr. Godman, in his 'Natural History of the Azores,' writes as follows:—"A flock of about twenty of these birds appeared during the winter of 1864-65 on the island of Corvo. They were said to be much exhausted when they arrived, and several were caught and kept in cages. At the time I was there I believe there was but one living; and this was a female. The owner had such an exalted notion of its value that I did not procure it. After I returned to England, Mr. J. P. Dabney kindly sent me a skin of a bird of this species which was killed in Fayal."

To the eastward the Snow-Bunting occurs throughout Siberia to China and possibly Japan. Radde says that they winter both above and below the Bureja mountains, and that he saw them often during the winter of 1858-59 in the large Mantchurian villages above and below the town of Aigun, and also met with them on all the large roads in Siberia during the winter. The first arrivals of large flocks in the Bureja mountains were observed on the 10th (22nd) of October, 1857. Middendorff saw large flocks on the Baraba steppe in January, but lost sight of them then until he arrived on the Boganida, in 71° N. lat., where he found them on the 11th of May, still in flocks, but partly in summer plumage; and on the 19th of May they moved further north. On the 2nd of June he observed them in full summer dress, in pairs, on the Taimyr river, busy preparing their nests; and on the 17th of June (in about $73\frac{1}{2}^{\circ}$ N. lat.) he found eggs in all the nests, though none contained their full complement.

Mr. Swinhoe writes that it visits North China in the cold weather; Captain Blakiston thinks that it may be met with in Northern Japan; and a live specimen sent to the Zoological Gardens was said to have come from there.

Regarding its occurrence in America I am indebted to Dr. Elliott Coues for the following excellent note:—"The Snow-Bunting is conspicuous in the gatherings of boreal Fringillidæ that enter the United States at the approach of cold weather, partly in obedience to the mysterious law of migration, partly in the face of a more obvious necessity; for, like most of its family, it is a true migrant, possessed at the equinoxes by the restless, nameless spirit that impels it onward, be the skies never so fair, and food never so abundant. And yet this periodicity of its nature is not always asserted: the migratory impulse is often held in abeyance; and then we have accounts of the bird in midwinter in latitudes as high as those in which it breeds; and, again, the regularity of its movement suffers such interference from vicissitudes of the weather that it is hardly left perceptible, and the little birds, becoming veritable harbingers of cold and storm, are borne upon the breath of boreal winds like the snow-flakes they foretell. On they come swirling in aimless troops, and not alone; for in their ranks the Lapland Longspurs take place, and flocks of the Redpolls join the restless march; the Crossbills and Pine-Linnets accompany them in search of pineries for shelter and food; the Pine-Grosbeaks come a good part of the way before they refuse to keep on; the Shore-Larks feed with them in the open grounds; and occasionally, in some parts of the country, the Buntings have no less distinguished fellow-travellers than the

Bohemian Waxwings themselves. It is 'hail fellow well met' with the whole of this jolly arctic crew, and the world may wag as it will.

"The roving disposition that never lets the Buntings rest, except for the short time that they overcome it when busy thinking of the coming generation, stands somewhat in the way of our finding out exactly how far the birds press south in winter. Or, rather, these Bohemians make us hesitate to declare how far they may *not* go; for the first cold snap or severe snow-storm may upset our most careful estimates, and turn the laugh against what we have written in soberest mood. On one occasion (Proc. Bost. Soc. Nat. Hist. 1868, p. 114) when looking up the birds of South Carolina, I judged it prudent to make a memorandum that I am still satisfied with. 'We have no record,' I said, 'of the occurrence of either Snow-Buntings, Crossbills, or Redpolls so far south; but they may possibly occasionally stray to the Carolinas in severe winters, as even the Snowy Owl is known to do.' But, to have done with surmise, and turn to the records, the southernmost quotation that I know of for the Atlantic States, and probably for the whole Union, is that given by Coues and Prentiss (Smithsonian Report, 1861, p. 411), who say it is 'a rare visitant in the depth of winter' at Washington, D. C.* Across the continent, in corresponding latitudes on the Pacific slope, we find it as one of the Californian species that is to be (Cooper, Orn. Cal. i. p. 171). The bird is unnoticed as a species of our western territories in the Pacific-Railroad Reports, not having been found even in Washington and Oregon; perhaps it has simply been overlooked; but perhaps, like some others that could be named, it comes south more particularly in the eastern parts of our country. Certain it is, that our winter advices, which it is unnecessary to quote in detail, are pretty full for the Atlantic and interior States down to (let us say) about 40° N.; so that the bird may be held to occur generally, or not unfrequently (but *not* regularly), over about half of the United States east of the Mississippi and Missouri. Moving a little above the limit of its migration, and particularly on entering New England, we happen upon the bird *regularly* in winter; and along our northern frontier the usual expression in the record is 'common.'

"The Snow-Bunting is known to enter the United States as early as September (Calais, Me., *Boardman*, Pr. B. S. N. H. ix. 1862, p. 126), and to remain until April or May (*Putman*, Proc. Essex Inst. i. p. 210) in some cases, at least as far south as Massachusetts. But these dates, you will see at once, are the extremes of its visits, and probably they would only hold true towards our northern frontier. For localities south of New England I could only give you winter advices. For us the name of this Bunting is a suggestive one; the bird is associated with *snow* as intimately almost as it is with its own cousins the Lapland Longspurs, or its friend the *Eremophila cornuta*. It is as truly gregarious a Bunting as any we have, delighting in the society of its kind, and doubtless proving as pleasant company for the two birds just mentioned, and for the rosy little *Ægiothi*, as they could deserve. As you would expect, it is very rarely, if ever, seen in its full dress in the United States. I never saw or heard of any in the

* "But I should not omit, in this connexion, the very remarkable occurrence of the Snow-Bunting in Bermuda, about lat. 32° N. (*Bland*, in Smithsonian Report for 1858). This is, I believe, the southernmost American record, and is as noteworthy as the finding of the Snowy Owl (*Bland*, l. c.) and the Hawk-Owl (*Jardine*) in the same island. It is also singular that Bermuda has given us two European birds never yet found in North America, viz. *Alauda arvensis* and *Gallinago media*."

beautiful black-and-white plumage of some spring Arctic specimens on my table as I write, the white being always smirched with rusty brown; and the bill, at least of birds of the year, is flesh-coloured instead of jet. I presume that the nuptial livery is worn but a short time, and think it very likely that the purest colours may not be reached the first spring. But doubtless your own information upon this point is precise.

“After what I quoted just now of April and May birds in Massachusetts, you might be surprised at some of the dates of Arctic specimens before me, which are the same as these from New England. We have April advices, indeed, at various places in British America, some of them very high up in latitude; Greenland quotations to like effect; and, in fact, every thing goes to show how imperfect and spasmodic, so to speak, the autumnal migration is; and we must conclude that our United-States troops are but a little sprinkling of the whole. The winter records confirm what these others indicate of the bird’s ability to endure the rigours of that season far to the north. I will only give one: ‘obtained many of these birds at Nulato,’ writes Mr. Dall (Trans. Chicago Acad. i. p. 283).

“Any well-regulated ornithologist might well be excused for getting excited over what I must call the ‘pure cussedness’ of this little creature. What perversity appears on setting this winter Alaska record of Mr. Dall’s over against the information furnished by Mr. Allen that ‘Mr. C. W. Bennett tells me that a pair spent the summer of 1862, and reared their young, in Springfield’ (Cat. Birds Massachusetts, Proc. Essex Inst. iv. 1864, p. 70). The Snow-Bunting hardly ever breeds south of Labrador, and often passes still further north before its restless spirit is satisfied; and this exceptional case is the more particularly noteworthy since it is, so far as I am informed, the one solitary recorded instance of the breeding of the Snow-Bunting in the United States.”

In its habits the Snow-Bunting has far more affinity to the Larks than to the true Bunting. It runs with celerity in a similar manner to a Lark. Its flight is well described by Audubon, from whose long and exhaustive account I extract the following particulars:—“The flight of this bird has considerable resemblance to that of the Shore-Lark, being rapid, elevated, and greatly protracted. It glides, as it were, through the air in long and easy undulations, repeating a soft whistling call-note at each of these curves. While on the ground they run nimbly, and, if wounded, make off with great celerity, hiding in the grass, where it is difficult to find them, as they lie close and silent until danger is over. They arrive in flocks, alight, disperse, run nimbly in masses from the foot of one corn-stalk to the next, scratch the ground here, pick up a dormant insect there, or nibble the small seeds of the withered grass, mixing them with a portion of gravel. They now and then alight on trees, frequently on fences, and sometimes on the roofs of low buildings, in such compact bodies or continued lines as to render it easy for the sportsman who may be inclined to shoot them to procure a great number at once.”

It feeds on seeds of various descriptions, insects, and larvæ—the former during the winter, and the latter during the spring and summer.

Respecting the habits of this species in Spitsbergen, I translate the following from Dr. Malmgren’s notes:—“On the 17th of May, when we were in 75° N. lat., a flock of these birds, amongst which we could distinguish birds of the past year, settled in our rigging. Although evidently very tired, they rested only a short time, and then continued their journey against a

heavy head-wind direct towards Spitsbergen. When we arrived on the north coast of Spitsbergen late in May we found the Snow-Buntings busy with their breeding-arrangements. On the 4th of June I saw them pairing on the snow-drifts by the light of the midnight's sun at Wyde Bay, in 80° N. lat.; and on the 27th of July I found a brood of fledged young at Brandywine Bay, in $80^{\circ} 24'$ N. lat. This species builds in stone heaps on the rocky precipices, at an altitude of 100–300 feet above the sea, generally under a large flat stone. The nest is composed of straws and lined with feathers and down. The entrance is only large enough to allow the old birds to enter with ease—a necessary precaution against the Arctic Foxes. The Snow-Bunting is the only songster found on Spitzbergen. Its twitter during the breeding-season is agreeable; and one listens to it with pleasure in these high latitudes. Its food consists of seeds, insects, and larvæ.”

The Snow-Bunting breeds in the high northern regions of Europe, Asia, and America. Dr. Krüper, who found it breeding in Iceland, states that “it builds its nest of dry bents and a little moss. I found it always hidden under huge stones, and containing from five to six eggs. According to Faber and Thienemann the laying-time commences in the beginning of June; but I obtained as early as the 25th of May strongly incubated eggs at Oingeyrar, and on the 28th of May four similar ones on the bird-island of Drangay. On the 4th of June I found on a mountain near Bard, in Fljoten, a nest with six fresh eggs under a large block of stone; and on the 12th of June I also found six slightly incubated eggs at Akureyri. Although many Snow-Buntings migrate, still a large quantity remain in Iceland; and their numbers are increased by arrivals from Greenland.” Professor von Middendorff, who took several nests in Siberia, writes that “most of the nests were lined with Ptarmigan feathers, carefully arranged by the female. In a nest close to our tent the Reindeer-hair off our rugs formed a lining. The nest itself is composed of grasses, the finer portions of which are inside; occasionally outside this grass-nest is a layer of moss or rarely of roots, and even dried twigs of the dwarf birch; generally, however, it is only composed of grass-straws.” Mr. A. Benzon, of Copenhagen, who, in his rich collection, possesses numerous nests and a large series of eggs from various parts of Greenland and Northern Scandinavia, informs me that “the nest consists of a bulky foundation of dried grass, usually lined with feathers and down, and sometimes with hair only; the nest measures from 120 and 60 outside measure, and 70 and 40 inside measure, to 140 and 80 outside, and inside 70 and 45 millimetres respectively. In Greenland it usually builds its nest in the stone heaps, occasionally in old graves, and appears to lay more eggs (seven to eight) there than in Northern Europe, where it deposits only five to six. Mr. Benzon has several nests from Godhavn, in North Greenland, some containing seven, others eight eggs. The ground-colour of the eggs of this species is bluish white, sometimes with a violet tinge. Like the eggs of all the Buntings they vary considerably in the markings, which in some consist merely of underlying surface-spots without shell-markings, whereas others are closely covered with dark rust-brown spots and scratches, which in some are dark, almost blackish brown. In many the spots are collected and form a ring round the larger end. The so-called brand-spots are often seen; but, on the other hand, the scratches are not so common as on other Buntings' eggs. In size they vary from 20 by $15\frac{1}{2}$ to 24 by 17, the normal size being 21 by $16\frac{1}{2}$ millimetres.”

I have in my collection a large series of the eggs of this species, chiefly obtained through

Mr. Benzon, and, on looking over them, find that I can add nothing to his description above translated.

On the one Plate two males are figured, the bird to the right being in full breeding-plumage, and that to the left in spring plumage before the white edges of the dorsal feathers have worn off, in which stage it often does duty in collections as an adult female. On the second Plate the adult female, in late autumn plumage, is figured with a Lapland Bunting killed at the same season. The female in breeding-plumage is not figured, as I intended, if my friend succeeded in finding the nest, to figure the female and nestlings on an extra plate. The specimens figured and described are in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Yarmouth, April 4th, 1870; *b*. Glen Tanar, Aberdeenshire (*W. Cunliffe Brooks*). *c, d, ♂*. Stubbekjœbing, Denmark, February 22nd, 1871 (*A. Benzon*). *e, ♀*. Christiania, April 7th, 1866 (*R. Collett*). *f, ♂, g, ♀*. Falköping, Sweden, March 20th, 1871 (*Meves*). *h, ♂*. Quickjock, Lapland, June 3rd (*H. Wheelwright*). *i, ♀*. Finland, April 16th, 1861 (*H. E. D.*). *j, ♂*. Greenland, summer, 1870 (*Meves*). *k*. Greenland (*Erichsen*). *l, ♂, m, ♀ æst.* Greenland. *n, ♂, o*. Dunns Marsh, St. John, N. B., April 4th, 1862 (*H. E. D.*). *p, ♀*. Hampstead, March 17th, 1870 (*Davy*).

E Mus. H. B. Tristram.

a, ♂. Greatham, Durham, January 5th, 1867; *b*. Yarmouth, November 6th, 1867; *c*. Winter plumage, Castle Eden (*H. B. T.*). *d*. N. America (*H. Buckley*).

E Mus. Baron A. von Hügel.

a. Sweden, November 1868. *b, c*. Yarmouth, November. *d*. Hiddensee, Germany, February. *e*. Hiddensee, April. *f, g*. Canada, 1870.

Section IV. OSCINES SCUTELLIPLANTARES.

Family ALAUDIDÆ.

Genus CERTHILAUDA.

Upupa apud Desfontaines, Mém. de l'Acad. 1787, p. 504.

Alauda apud Stanley in Salt's Trav. to Abyss. App. p. lx (1811).

Certhilauda, Swainson, Zool. Journ. iii. p. 344 (1827).

Alaemon apud Keyserling & Blasius, Wirbelth. Eur. p. xxxvi (1840).

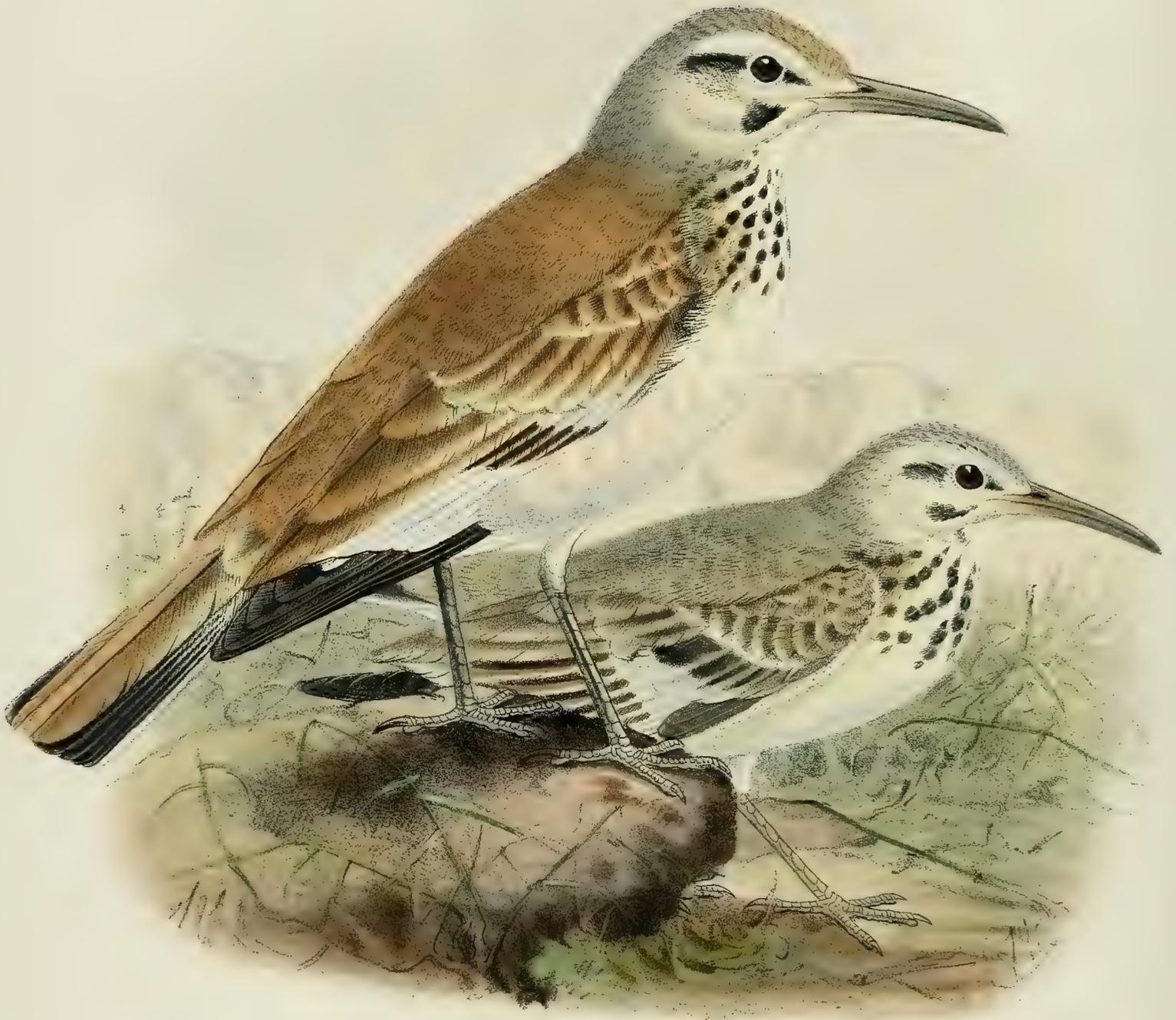
Thinotretes apud Gloger, Naturg. p. 266 (1842).

Saxicola apud Blyth, Journ. As. Soc. Beng. 1847, p. 130.

THIS section, containing the Larks, differs materially from all other sections of the Oscines in having the posterior surface of the tarsus scutellate instead of plain. It may very fairly be divided into eight genera, the first of which, *Certhilauda*, may be called more especially an African group, all the species included in it belonging to the Ethiopian Region except the two which range into the Western Palæarctic Region, the larger of which is found as far east in Asia as Sindh. The species included in this genus are inhabitants of the desert, and are said to be much more solitary in their general habits than the other Larks. They do not perch much, but run with great swiftness, like the Coursers. They feed on insects of various kinds, and to some extent also on seeds; their flight is short and light; their note is a somewhat melancholy whistle; and their song, which is usually uttered whilst they are on the wing, is pleasing, though not varied. They are said to make a rather slight nest, which they place on the ground, and deposit rather large eggs, dull white in colour, blotched and spotted with brown.

The type of the genus is *Certhilauda capensis* (Bodd.), which does not occur in Europe; but as *Certhilauda desertorum* is congeneric with it, I give its characters, as follows:—bill elongated, curved, tapering, moderately strong; nostrils oval, placed in the anterior portion of the nasal membrane; wings long, the first quill not much longer than the coverts, the second shorter than the sixth, the third and fourth about equal and longest; tail moderately long, nearly even; legs long, rather slender, feet weak; tarsus covered in front with seven large and three inferior scutellæ, and posteriorly also scutellate; claws rather short, stout, slightly curved, rather blunt.

In the article on this species I named this bird *Certhilauda desertorum*; but I have since ascertained that the bird described by Desfontaines (Mém. de l'Acad. 1787, p. 504) under the name of *Upupa alaudipes*, is certainly the present species, which should therefore bear the name of *Certhilauda alaudipes* (Desf.).



J.G. Keulemans del.

Mintern Bros. imp.

CURVE BILLED LARK.
CERTHILAUDA DESERTORUM

CERTHILAUDA DESERTORUM.

(CURVE-BILLED LARK.)

- Alauda desertorum*, Stanley in Salt's Trav. to Abyss. App. p. lx. (1811).
Alauda bifasciata, Licht. Verz. Doubl. p. 27 (1823).
Certhilauda bifasciata (Licht.), Swains. Classif. of B. ii. p. 293 (1837).
Alaemon desertorum (Stanl.), Keys. & Blas. Wirbelth. Eur. p. xxxvi. (1840).
Thinotretes, Gloger (*A. bifasciata*, Licht.), Naturg. p. 266 (1842).
Saxicola pallida, Blyth, Journ. As. Soc. Beng. 1847, p. 130 (nec Rüpp.).
Certhilauda desertorum (Stanl.), Bp. Conspect. Gen. Av. p. 246 (1850).
Certhilauda meridionalis, A. E. Brehm, Journ. für Orn. 1854, p. 77.
Certhilauda salvini, Trist. Ibis, 1859, p. 57.
Certhilauda doriæ, Salvad. Att. R. Accad. Sc. Torino, 1868, p. 292.
Alaemon jessii, Finsch, P. Z. S. 1869, p. 430.

Bifasciated Lark, *Curve-billed Lark*, English; *Alouette bifasciée*, French.

Figuræ notabiles.

Temminck, Pl. Col. 393; Rüpp. Atl. tab. 5; Gould, B. of Eur. pl. 168.

♂ *ad.* suprâ pallidè rufescenti-isabellinus, capite et nuchâ vix griseo tinctis, uropygio pallidiore: primariis, nisi in parte basali, nigricantibus: secundariis albis, centraliter valdè nigricante fasciatis: tectricibus alarum minoribus pallidè fuscis, isabellino marginatis, majoribus fuscis albo terminatis: caudâ nigrâ, rectricibus duabus extimis in pogonio externo albis, duabus mediis dorso concoloribus sed centraliter saturatoribus, rhachibus nigricantibus: corpore subtùs albo, pectore summo nigricante guttato et vix grisescente isabellino lavato: superciliis albidis: facie laterali ante, pone et infra oculos nigricante notato: tectricibus alarum inferioribus et axillaribus albis: rostro pallidè fusco: pedibus grisescenti-albidis: iride fuscâ.

♀ *mari similis.*

Adult Male (Algeria). Upper parts pale rufescent isabelline, with a greyish tinge on the head and nape; scapulars slightly more rufescent than the back; primary quills blackish, except at the extreme base, where they are white, the white increasing in area on the inner ones; innermost primary tipped with white; secondaries white, with a broad blackish band across the centre; larger wing-coverts dark brown, tipped with white, smaller ones dull brown, broadly margined with isabelline; rump and upper tail-coverts much paler than the rest of the upper parts, the latter being margined with whitish; central rectrices sandy isabelline with darker centres, the shafts of the feathers blackish, remaining rectrices blackish brown, the outermost having the outer web white; underparts white, on the breast slightly washed with grey and spotted with blackish brown; sides of the face before, behind, and below the eye marked with black, over the eye a tolerably distinct whitish streak; beak pale brown; legs greyish white; iris brown. Total length nearly 8 inches, culmen 1.15, wing 4.7, tail 3.55, tarsus 1.3.

Female. Similar to the male.

Obs. In the series I have before me I find considerable variation in the tone of colour, some specimens being much greyer, and some much more rufous than others; but I find that these appear to be merely individual varieties, entirely irrespective of age, sex, or the season of the year when the specimens were obtained; for I find both grey and red males and females varying equally in colour, and the grey specimens are killed at the same time of the year as others very red in tinge. The most rufous bird is one from Nubia, in Canon Tristram's collection; and the greyest one is the specimen I have figured in the back-ground, an adult male from Egypt.

A TRUE inhabitant of the desert, the present species is found only in the sandy districts in Northern Africa and in the deserts of Western Asia; but it is said to have occurred on the northern shores of the Mediterranean, though the records of its having been met with there rest on but slight grounds. Schlegel (*Rev. Crit.* p. lviii) states that it has been met with in Andalusia; but none of the later writers on the ornithology of Spain appear to believe that it has ever really occurred there. Malherbe (*Faune Orn. de la Sicil.* p. 107) certainly states that it occurs during migration in Sicily and in Provence; but he gives no instance of a specimen having been obtained, and later investigation tends to show that he must have laboured under some mistake. Both Von der Mühle (*Orn. Griechenl.* p. 34) and Linder Mayer (*Vög. Griechenl.* p. 47) include it as occurring in Greece, and say that it is not uncommon on the arid plains between Megara and Thebes; but, as they do not give any descriptions, it is not possible to decide whether they really obtained the present species or not. Degland and Gerbe and Jaubert and Barthélemy-Lapommeraye speak of it as occurring in the south of France, but give no authority; and altogether its presence north of the Mediterranean is enveloped in considerable doubt and obscurity. Cabanis (*Mus. Hein. i.* p. 126) records it from Candia; and Canon Tristram (*Ibis*, 1866, p. 289) says that he saw it several times in Palestine, but only obtained a single specimen. Mr. C. W. Wyatt (*Ibis*, 1870, p. 15) records it from Ain Musa, in the Sinaitic peninsula; and in North-eastern Africa it is common throughout the desert region down to 16° N. lat. Captain Shelley (*Ibis*, 1871, p. 139) says that he only met with it twice in Egypt; but Dr. Leith Adams (*Ibis*, 1864, p. 24) speaks of it as being "not uncommon, either solitary or in small flocks, around the pyramids and along the edge of the desert to Nubia." Messrs. Finsch and Hartlaub record it from Egypt, Nubia, and Sennaar; Von Heuglin (*Ibis*, 1859, p. 343) says that it is found on the Red Sea, south of Berenice (Ras Benass, 24° N. lat.), along the East-African coast to the Somali country; and I have specimens from Aden. Mr. Blanford found it in Abyssinia, common about Zoulla, but comparatively rare near Massowa. In North-western Africa it is numerous in the desert country. Major Loche speaks of it as being common in the Sahara, and he observed it from Laghouat to Waregla; and all the other naturalists who have collected in Algeria speak of it as being a common species. Mr. Taczanowski (*J. f. O.* 1870, p. 44) says that it is found in the province of Constantine, where it frequents the bush-covered desert.

To the eastward the present species is found as far as Sindh, where, Mr. A. O. Hume says that, as far as his experience goes, "it is confined to the more sandy tracts included in the broad strip of comparative desert which, almost everywhere, borders the bases of the hills that alike on the north and west separate Sindh from Khelat." Mr. Blanford met with it in Persia; and De Filippi records it from Bender Abbas; but Severtzoff does not refer to it as having been observed by him in Turkestan.

In its habits the present species is a true desert bird; and, unlike most of the Larks, it appears to be rather solitary in its mode of life than otherwise, and does not ever collect in flocks. Von Heuglin (J. f. O. 1868, p. 231) says that "it affects sandy flat country with but little vegetation, often visits the caravan-roads, goes in pairs, and does not wander much. In many respects, particularly in its flight and song, it differs from its congeners; it goes generally on the ground, runs much about hunting after insects, which form its chief subsistence. When running swiftly, which it generally does in a direct line, it often suddenly stops, but only for an instant, either to look about or to alter its direction, just as *Cursorius* does. Its short, light, and soft flight has some resemblance to that of the Hoopoe; its note is a melancholy querulous whistle. When singing the bird does not rise in the air; nor does it seem to care for elevated positions, such as an elevated stone or a bush, and does not soon leave the place it has taken possession of. The Desert-Lark is seldom seen near water, unless by chance its habitat adjoins some; on the contrary, it generally inhabits the most burnt-up driest desert, often places where not a drop of rain falls for years." Mr. Taczanowski, writing respecting its habits as observed by him in Algeria, says (J. f. O. 1870, p. 44) that "when suddenly disturbed it flies on to a bush, from which it drops again to the ground, and runs off swiftly, being then usually impossible to flush again. The males commenced singing about the 10th March; and though rather a peculiar songster, it is perhaps the best that is found there. It rises in the air to an altitude of about fifty feet, utters three notes, which it repeats three times in a clear loud tone, finishes off with a triller, and drops down on to its perch on a bush." Canon Tristram also (Ibis, 1859, p. 427) says, "unlike its congeners it seems to be a most solitary bird; and seldom, except in the breeding-season, have I seen even two together. But a day rarely occurred when we did not obtain a few specimens on the march; and, indeed, this game formed our principal and favourite animal food. Although its uniform of inconspicuous drab renders it most difficult of detection on the ground, its restless habits soon attract attention. The moment it extends its wings the broad black bar across the snow-white secondaries attracts the eye, and renders it an easy mark. At first sight it reminded me much of a Plover in the manner in which it rose and scudded away. Indeed there is nothing of the Lark in its flight, except in early morning, when I have watched it rise perpendicularly to some elevation, and then suddenly drop, repeating these gambols uninterruptedly over exactly the same spot for nearly an hour, accompanying itself by a loud whistling song. It runs with great rapidity, and it requires no little speed of foot to capture a broken-winged victim. In the stomach of those I opened I found small coleoptera, sand-flies, and hard seeds. There is something very graceful in all its movements; and the distinct markings of its wings, and the expansion of its long black tail, render it really a beautiful bird when flying. The egg is very large, 12 lines by 8; the ground-colour like that of *C. duponti*, but the brown blotches smaller and far more closely distributed, especially towards the broader end. It would not be easy to select it out of a series of some varieties of *Lanius excubitor*."

The specimens figured are the adult male above described, and another much greyer variety from Egypt, an adult male obtained in January 1863, both being in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b. Algerian Sahara (*Fairmaire*). *c, ♀.* N. Africa (*Verreaux*). *d, ♂.* Ghizeh, Egypt, January 18th, 1863 (*S. S. Allen*). *e, f, g.* Djeddah, Red Sea (*S. S. Allen*).

E Mus. H. B. Tristram.

a, ♂, b, ♂. Wed-Irluh, Sahara, December 9th, 1856 (*H. B. T.*). *c, ♀.* Desert, Ain Bahrdad, December 3rd, 1856 (*H. B. T.*). *d, ♂.* Desert of Souf, January 2nd, 1857 (*H. B. T.*). *e, ♀.* Desert, El Mariar, January 15th, 1857 (*H. B. T.*). *f, g, ♀.* Laghouat, November 1856, types of *C. salvini* (*H. B. T.*). *h, ♂.* Nubia, September 14th, 1851 (*Brehm*).



DUPONT'S LARK.

CERTHILAUDA DUPONTI.

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CERTHILAUDA DUPONTI.

(DUPONT'S LARK.)

Alauda dupontii, Vieill. Faun. Franç. p. 173 (1828).*Alæmon dupontii*, Keys. & Blas. Wirbelth. p. 36 (1840).*Certhilauda duponti*, Bp. Cat. Met. Ucc. Eur. no. 103 (1842).*Figuræ notabiles.*

Vieill. Faun. Franç. pl. 76. fig. 2; Roux, Orn. Prov. i. pl. 186; Bree, B. of Eur. p. 184; Werner, Atlas, —.

Ad. supra brunneus, plumis medialiter saturatè brunneis, fulvo marginatis: uropygio plumis dilutiùs brunneis, angustè fulvo marginatis: tectricibus alarum pallidè brunneis, fulvo marginatis, majoribus, præsertim exterioribus, rufescente lavatis: remigibus cinerascenti-brunneis, primario primo extùs albido, secundariis fulvescente marginatis et rufescente lavatis: caudâ nigricante, rectricibus duabus centralibus pallidè rufescentibus, reliquis rufescenti-fulvo limbatis, penultimâ extùs albo limbata, extimâ ferè omnino albâ, pogonio interno intùs brunneo notato: loris, supercilio et facie laterali fulvescenti-albis, hâc minutè brunneo lineatâ: regione paroticâ posticâ brunneâ: fasciâ mystacali brunneâ indistinctâ: gutture albido minutè brunneo punctulato: pectore superiore et hypochondriis fulvescenti-albidis, rufescente lavatis et brunneo aut rufescente minutè lineatis: abdomine et subcaudalibus albicantibus: subalaribus exterioribus fulvescenti-albis, interioribus et axillaribus pallidè brunnescentibus: rostro nigrescenti-brunneo: pedibus pallide rufescentibus: iride brunneâ.

Adult Male (Algerian Sahara). Head, back, and upper parts generally rufous brown, each feather bordered with creamy buff or dirty white, those forming an indistinct streak along the centre of the crown, and one above and behind each eye, as well as the sides of the nape, having broad white margins; quills dull dark brown, the first primary having the outer web white, the remaining quills with the outer web edged with pale creamy brown, the secondaries being tipped, and the innermost secondaries margined on both webs, with the same colour; scapulars the same as the back; tail dark brown, the outermost feather on each side white, with the inner web brown at the base, this colour narrowing off towards the tip, the two central feathers pale reddish brown; chin and throat white, a narrow streak of dark feathers from the base of each side of the mandible passing downwards and meeting the spots on the lower part of the throat; auriculars and sides of the head dull white, washed with rufous; breast white, on the lower part washed with rufous buff, and spotted with dark brown and dark rufous, each feather having a dark centre; flanks streaked with rufous; rest of the underparts white; under wing-coverts dull buff; beak elongated and curved, blackish brown in colour; legs pale reddish; the feet small and feeble; iris brown. Total length 7·5 inches, culmen 1·0, wing 4·0, tail 2·8, tarsus 0·87, hind toe 0·37, hind claw 0·38.

Young. Feathers on the upper parts conspicuously bordered with rufous; the quills edged with bright red; the spots on the throat very pronounced, and the white on the abdomen and under tail-coverts washed with yellowish (fide *Loche*).

FEW, if any, of our Larks are so little known as the present species, which, inhabiting the

Algerian Sahara, is even there so rare that only now and then a stray specimen or two find their way into collectors' cabinets. It has been stated by several authors to have occurred in Spain, Southern France, and Greece; but we have failed to find any undoubted instance of its occurrence anywhere out of Northern Africa; and only on its being found there can we include it in our work as an inhabitant of the Western Palæarctic Region. Temminck, Schinz, and Bree speak of it as inhabiting Syria, and Degland and Gerbe as found in Eastern Asia; but we fail to find any ground for believing that it has ever occurred there. Degland and Gerbe write that it occasionally appears in the south of Europe, and has occurred in Southern Spain, on the Island of Hyères, and that several specimens have been procured in the Marseilles market; but, on the other hand, Jaubert and Barthélemy-Lapommeraye deny this last statement as to its ever having been procured in Marseilles, and doubt its occurrence north of the Mediterranean. Roux writes that he had "never been able to procure this Lark in Provence, although it has been observed during migration."

As regards its supposed occurrence in Greece, Count von der Mühle, in treating of *Galerida cristata*, describes as a new species, under the name of *Alauda ferruginea*, a Lark which most authors have considered to be the present bird; but we are by no means certain that this is the case, as the description given by Von der Mühle of the bird obtained by him does not tally with *Certhilauda duponti*, especially as regards the tail; for one distinguishing characteristic of this species consists of the white outer tail-feathers, and in *Alauda ferruginea* these feathers are described as being dark isabelline reddish brown. For the better elucidation of this question we give a translation of the original description of *Alauda ferruginea*, as follows:—"In the general arrangement of colours it agrees with *G. cristata*, but is everywhere brighter and more fiery red. The edges of the feathers on the upper parts are reddish isabelline, and the earthy grey tint is entirely wanting; the throat, instead of being white, is cream-coloured, and the brown spots on the throat are much darker; the entire underparts are rich light isabelline; the sides and under tail-coverts redder and darker, without any trace of dark shaft-markings; the outermost tail-feather and the edge of the second, as also a portion of the inner web, dark isabelline reddish brown, the others black, lighter at the tip, almost forming an apical spot; the beak very long, reminding one of that of *Alauda bifasciata*, the under mandible horn-yellow, the upper mandible brownish horn." The above description seems rather to point to a variety of the common Crested Lark than to the present species; and we have accordingly expunged *Alauda ferruginea* from our list of synonyms. It is to be regretted that Count von der Mühle has omitted to give measurements, as, had he done so, there would have been a better chance of ascertaining what the bird described really is.

Canon Tristram, writing on the ornithology of Northern Africa (*Ibis*, 1859, p. 427), states that "this elegant and delicately marked bird—a link between *Galerida* and *Certhilauda*, beautifully illustrative of the gentle gradations by which Nature glides from one type to another—is, I believe, the very rarest of all the Larks of the Sahara. I found it only in the far south, in the Wed Nça, at which place it was also obtained by Captain Loche a few months afterwards. Neither of us ever saw more than two or three pairs. The white outer tail-feathers give it the appearance at first sight of our common Skylark, for which indeed it passed with my companion, who was the first to shoot it. Captain Loche obtained a nest of four eggs, one of

which he kindly presented to me. As might have been expected, the eggs differ much from the typical characteristics of the Lark. They are very round, $9\frac{1}{2}$ lines by 8, of a soiled white colour, with pale brown blotches sparsely scattered over the surface, bearing a strong resemblance to small varieties of *Lanius excubitor*, but with an ivory polished surface." Loche, who probably had better opportunities of observing this bird than any collector who has explored in those parts, writes that "Dupont's Lark is found in the Sahara of Algeria, where it frequents open places, and feeds on insects and seeds. Its song is agreeable; and it sings usually early in the morning (at daybreak), and in the evening at sunset; it runs rapidly, and its flight is strong; it is to be met with singly or in small families, never in large flocks, and is shy and most difficult to approach. Its nest is placed on the ground in the sand, and is shallow; the eggs, four in number, are whitish, spotted and marked with reddish; in size they measure about 23 by 17 millimetres." In Dresser's collection are two eggs of this Lark, obtained from Loche, which tally well with Canon Tristram's description and comparison with the eggs of *Lanius excubitor*, being dull white, spotted all over with hair-brown; but in both these eggs the spots are collected at and form a ring round the larger end. In size they measure $\frac{36}{40}$ by $\frac{27}{40}$ and $\frac{34}{40}$ by $\frac{27}{40}$ of an inch respectively.

The specimen described and figured is one of Loche's skins, obtained through Mr. E. Fairmaire, of Paris, and is now in Dresser's collection.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

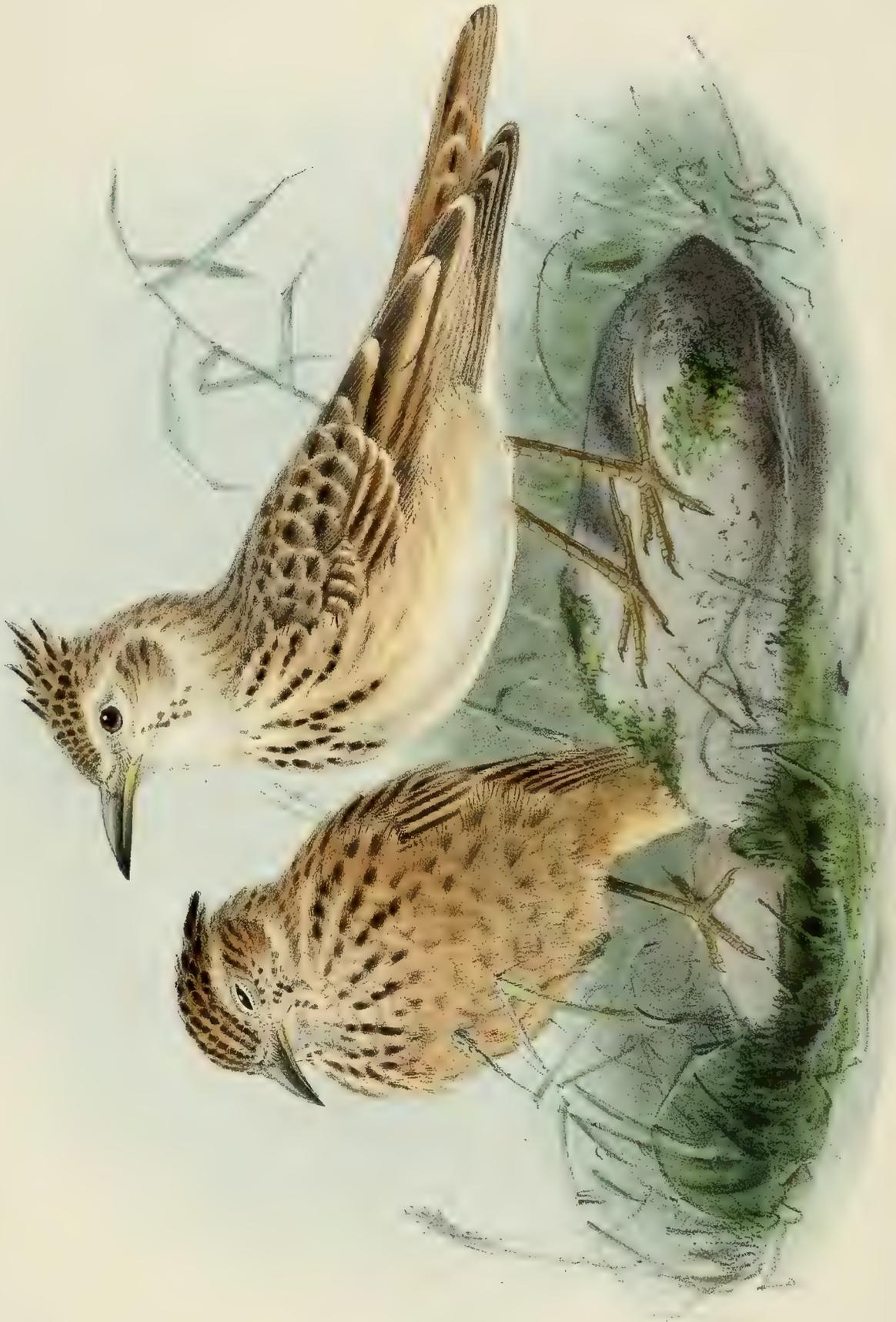
a, b, c. Algerian Sahara (*Loche*).

Genus GALERITA.

- Alauda* apud Linnæus, Syst. Nat. i. p. 288 (1766).
Galerida, Boie, Isis, 1828, p. 321.
Lullula apud Kaup, Natürl. Syst. p. 92 (1829).
Heterops apud Hodgson in Gray's Zool. Misc. p. 84 (1844).
Certhilauda apud Blyth, J. A. S. Beng. xiii. p. 962 (1844).
Galerita, Cabanis (ex Boie), Mus. Hein. i. p. 125 (1850-51).
Megalophonus apud Loche, Hist. Nat. Ois. d'Alg. ii. p. 41 (1867).

THE Crested Larks approach those belonging to the genus *Certhilauda* in form of bill, but differ in habits both from them and to almost a greater degree from the other Larks. They are found in the Palæarctic, Ethiopian, and Oriental Regions, three species occurring as residents in the Western Palæarctic Region. They inhabit open country, both cultivated and wild, are, as a rule, bold and confiding; and one species, *Galerita cristata*, may frequently be seen on roads and in villages as tame as a Sparrow. They are less gregarious than the true Larks; and their flight is heavier than that of the Sky-Lark. They run with great celerity, but seldom perch in trees, though they may be seen seated on fences by the road-side. They are tolerably good songsters, having a soft pleasing note, which they utter either in the air or when perched on some elevation. They feed on insects, seeds, worms, &c., which they pick up from the ground. They build a cup-shaped nest of grass-bents, which they place on the ground, and deposit several dull white eggs spotted and blotched with purplish grey and brown.

Galerita cristata, the type of the genus, has the bill slightly elongated, moderately strong, the upper mandible extending somewhat beyond the lower one; nostrils basal, concealed by recurved feathers; wings moderately long, broad, the first quill shorter than the coverts, the second shorter than the fifth, the third, fourth, and fifth nearly equal and longest; tail moderate, slightly emarginate; legs stout, rather long, the tarsus covered in front with six large and three inferior scutellæ, and posteriorly scutellate; claws short, curved, except the hind claw, which is very long and slightly curved; plumage close, crown conspicuously crested.



CRESTED LARK.
ABYSSINIA.
1865



CRESTED LARK.
GALERITA CRISTATA

GALERITA CRISTATA.

(CRESTED LARK.)

- Alauda senegalensis cristata*, Briss. Orn. iii. p. 362. no. 10, "Senegal" (1760), ex Adanson.
- Alauda cristata*, Linn. Syst. Nat. i. p. 288. no. 6, "Europe" (1766).
- Le Cochevis*, D'Aubent. Pl. Enl. 503. f. 1.
- Cochevis du Sénégal*, D'Aubent. op. cit. pl. 504. f. 1.
- Le Cochevis, ou la grosse Alouette huppée*, Montb. Hist. Nat. Ois. v. p. 66, pl. 5 (1778).
- Alauda cochevis*, L. S. Müller, Syst. Nat. Suppl. p. 134. no. 2 (1776), ex D'Aubent. pl. 503. f. 1.
- La Coquillade*, D'Aubent. op. cit. pl. 662.
- La Coquillade*, Montb. tom. cit. p. 77, "Provence" (1778), = *Alauda cristata*, var., fide Temm. Man. d'Orn. (1815), p. 159; *av. juv.*, fide Temm. op. cit. (1835) iii. p. 205.
- Alauda matutina*, Bodd. Tabl. Pl. Enl. p. 40. no. 662 (1783), ex D'Aubent. pl. 662.
- Alauda undata*, Gm. Syst. Nat. i. p. 797. no. 22 (1788), ex Montb. tom. cit. p. 77.
- Alauda senegalensis*, L. S. Müller, tom. cit. p. 137. no. 15 (1776), ex D'Aubent. pl. 504. f. 1.
- La Grisette ou le Cochevis du Sénégal*, Montb. tom. cit. p. 79, "Niger, Senegal" (1778).
- Alauda senegalensis*, Bodd. (*mot. propr.*) tom. cit. p. 29. no. 504 (1783), ex D'Aubent. pl. 504. f. 1.
- Alauda senegalensis*, Gm. (*mot. propr.*) tom. cit. p. 797. no. 23 (1788), ex Briss. no. 10.
- Galerida cristata* (Linn.), Boie, Isis, xxi. p. 321 (1828).
- Lullula cristata* (Linn.), Kaup, Entwicklungs-Gesch. europ. Thierw. pp. 92, 192 (1829).
- Galerida viarum*, C. L. Brehm, Vög. Deutschlands, p. 315, "North-western Germany" (1831).
- Galerita undata* (Gm.), C. L. Brehm, op. cit. p. 316, "France, Switzerland" (1831).
- Alauda cristata*, Pallas (*mot. propr.*), Zoogr. Rosso-Asiatica, i. p. 523. no. 149, "South Russia" (1831)
- Alauda galerita*, Pallas, tom. cit. p. 524. no. 150, "Russia, Siberia, Dauria" (1831).
- Alauda chendoola*, Franklin, P. Z. S. 1831, p. 119. no. 64, "Central India."
- Alauda gulgula*, Franklin, ap. Sykes, P. Z. S. 1832, p. 92. no. 97, "Dukhun," nec Franklin, ♀ fide Hors. & Moore, Cat. Mus. E. I. C. ii. p. 465.
- Alauda cristata*, Linn., Rüppell, neue Wirbelthiere, *Vögel*, p. 104, "common in Egypt, Nubia, and Abyssinia" (1835).
- Alauda deva*, Sykes, ap. Jerd. Madr. J. Sc. xi. p. 31. no. 186, "Southern India" (1840), nec Sykes.
- Heterops cristatus* (Linn.), Hodgson, Gray's Zool. Misc. p. 84. no. 729, "Nipaul" (1844).
- Certhilauda chendoola* (Franklin), Blyth, J. A. S. B. xiii. p. 962, "Bengal, Nipaul, N. India generally, Scinde" (1844).
- Certhilauda boysii*, Blyth, J. A. S. B. xv. p. 41, "Bengal" (1846).
- Galerida chendoola* (Franklin), Blyth, Cat. Calc. Mus. p. 133. no. 740, "sandy plains of India" (1848).
- Alauda cristata*, Linn., var. loc., Sundev. Œfv. Ak. Förh. 1849, p. , "Sierra Leone."

- Galerida abyssinica*, Bp. Consp. i. p. 245, "Abyssinia" (1850), ex Rüppell, *l. c.*
- Galerida senegalensis* (Gm.), Bp. tom. cit. p. 245. no. 4 (1850).
- Galerida boysii* (Blyth), Bp. tom. cit. p. 245. no. 5 (1850).
- Galerita cristata* (Linn.), Cab. Mus. Hein. i. p. 125. no. 666 (1851).
- Galerita nigricans*, C. L. Brehm, Vogelfang, p. 123, "Egypt, Thuringia" (1855).
- Galerita major*, C. L. Brehm, op. cit. p. 124, "Germany, Hungary" (1855).
- Galerita pagorum*, C. L. Brehm, loc. cit. "Germany, Hungary" (1855).
- Galerita karinthiaca*, C. L. Brehm, loc. cit. (1855).
- Galerita rufescens*, C. L. Brehm, loc. cit. (1855), nec *Alauda rufescens*, A. Brehm, J. f. O. 1854, p. 77.
- Galerita lutea*, C. L. Brehm, loc. cit. (1855); Habesch, p. 218 (1863), nec O. Brehm, Naumannia, 1858, p. 210 (fide O. Finsch, Trans. Zool. Soc. vii. p. 316), = *G. flava*, A. Brehm, J. f. O. 1854, p. 77, "East Sudan."
- Galerita altirostris*, O. Brehm, Vogelfang, p. 124, "Upper Egypt" (1855).
- Galerida senegalensis* (Gm.), Hartl. Orn. West-Afr. p. 153. no. 466, "West Africa" (1857).
- Galerita cristata vulgaris*, C. L. Brehm, Naumannia, 1858, p. 207, "Leipzig, Witten."
- Galerita cristata pallida*, C. L. Brehm, loc. cit., "Spain" (1858).
- Galerita cristata planorum*, C. L. Brehm, loc. cit., "Dalmatia" (1858).
- Galerita cristata gallica*, C. L. Brehm, tom. cit. p. 208, "vicinity of Lyons" (1858).
- Galerita cristata tenuirostris*, C. L. Brehm, loc. cit., "Sarepta" (1858).
- Galerita cristata angustistriata*, C. L. Brehm, loc. cit., "Spain, Greece, Nubia" (1858).
- Galerita cristata maculata*, C. L. Brehm, loc. cit., "Assuan, in Nubia; Masnou, in Spain" (1858).
- Galerita abyssinica*, Paul de Würt. (*mot. propr.*), C. L. Brehm, tom. cit. p. 209, "Abyssinia" (1858).
- Galerita theklæ*, C. L. Brehm, tom. cit. p. 210, "mountains of Southern Spain, Sierra Nevada, Jativa, near Valencia" (1858).
- Galerita theklæ major*, L. C. Brehm, tom. cit. p. 213 (1858).
- Galerita theklæ minor*, L. C. Brehm, loc. cit. (1858).
- Galerida arenicola*, Tristram, Ibis, 1859, p. 58, "Algerian Sahara."
- Alauda leautungensis*, Swinhoe, Ibis, 1861, p. 256, "Leautung, Talien Bay (N. China)".
- Galerida leautungensis*, Swinhoe, P. Z. S. 1863, p. 272.
- Galerida cristata* (Linn.), Jerd. B. of Ind. ii. p. 437. no. 769, "India" (1863).
- Galerida brachyura*, Tristram, P. Z. S. 1864, p. 435. no. 81, "Palestine."
- Galerita cristata* (Linn.), De Filippi, Viagg. Persia, p. 348, "Persia" (1865).
- Galerita boysii*, Blyth, Ibis, 1867, p. 48.
- Alauda cristatella*, Mus. Lugd., fide V. Heuglin, Cab. J. f. O. 1868, p. 223, "Egypt."
- Alauda (Galerita) arenicola*?, Tristram, var. *fusca*, Blanford, Geol. & Zool. Abyssinia, p. 387. no. 176, "Ashangi" (1870).
- Galerida cristata* (Linn.), Swinhoe, P. Z. S. 1871, p. 390. no. 419, "Talienwan and Pekin valleys."
- Alauda marginipennis*, Pr. Würt., fide V. Heuglin, Orn. Nordost-Afrikas, p. 681 (1871).
- Galerita magna*, Hume, "Lahore to Yarkand," p. 270, pl. xxx., "Yarkand" (1873).

(The above by Lord Walden.)

Cochevis huppé, French; *Cotovia*, Portuguese; *Cujada*, *Carretera*, Spanish; *Capellaccia*, Italian; *Haubenlerche*, German; *Kuifleeuwerik*, Dutch; *Toplærke*, Danish; *Topplärka*, *Tofslärka*, Swedish; *Javronok chochlatyi*, Russian; *Smieciucha*, Polish, *Cubaha*, Moorish.

Figuræ notabiles.

D'Aubenton, *l. c.*; Naum. Vög. Deutschl. pl. 99. fig. 1; Gould, B. of Eur. pl. 165; B. of Gt. Brit. pt. ix.; Yarr. Brit. B. 2nd ed. i. p. 455; Kjærb. Orn. Dan. Afb. pl. xviii.; Schl. Vog. Nederl. pl. 151; Fritsch, Vög. Eur. tab. 16. fig. 16; Sundev. Sv. Fogl. taf. lxix. fig. 4; Werner, Atlas, *Granivores*, pl. 3; Hume, *l. c.*

♂ *ad.* suprâ brunneus, dorsi plumis medialiter saturatè brunneis, marginibus earum grisescenti-fulvis: pileo dorso concolori, cristæ plumis longissimis atque angustatis omninò saturatè brunneis, angustè isabellino utrinque marginatis: loris et supercilio suprâ regionem paroticam distinctiùs isabellino-fulvis: annulo oculari fulvescenti-albo: genis lactescenti-albis, fulvo paullulùm adumbratis et lineâ nigricante indistinctâ longitudinaliter notatis: regione paroticâ brunneâ isabellino lavatâ, parte superiore saturatiùs brunneâ: colli lateribus dorso concoloribus, eodem modo saturatè brunneo medialiter striatis: tectricibus alarum minimis brunneis, grisescenti-fulvo lavatis, medianis et majoribus brunneis, medialiter valdè saturatoribus, latè fulvo marginatis: remigibus brunneis, extùs rufescente isabellino angustè marginatis, secundariis dorsalibus grisescenti-fulvo, dorso concolori lavatis: dorsi postici et uropygii plumis dorso reliquo concoloribus, sed angustiùs saturatè brunneo medialiter striatis: tectricibus supra-caudalibus magis rufescentibus, medialiter plus minusve brunneo adumbratis: rectricibus nigricanti-brunneis, plumis duabus centralibus minus saturatis et fulvo vix rufescente tinctis: rectricis extimæ pogonio externo et pogonio interno versùs apicem obliquè rufescenti-isabellino, proximæ pogonio externo vix hòc colore lavato, rectricibus omnibus ad apicem angustissimè albidis: subtùs lactescenti-fulvus, fasciâ mystacali nigricante indistinctâ: pectoris superioris plumis distinctè medialiter saturatè brunneis, hypochondriis eodem colore angustè striolatis: tectricibus subalaribus cum axillaribus et rectricum pogonio interno rufescenti-isabellinis: rostro saturatè flavicanti-brunneo: pedibus brunnescenti-carneis: iride brunneâ.

♂ *hiem.* vix à ptilosi æstivâ distinguendus, sed paullò obscurior.

♀ haud à mari distinguenda.

Juv. pallidè brunneus, plumis antè apicem saturatè brunneis, omnibus distinctè albo terminatis: cristâ distinctâ saturatè brunneâ, albo terminatâ: dorso imo et uropygio fulvescentibus brunneo transfasciolatis: tectricibus supra-caudalibus clarè rufescenti-isabellinis: caudâ nigricante, pennis quatuor pallidè brunneis extùs fulvo marginatis et ad apicem albis, rectrice extimâ versùs apicem clarè fulvescenti-isabellinâ, pogonio externo albido: alâ pallidè brunneâ, tectricibus alarum albo, majoribus autem fulvo latè marginatis, primariis fulvo, secundariis dorsalibus albo limbatis: subtùs albescens, pectore superiore brunneo vario: subalaribus albicantibus isabellino lavatis: remigum pogonio interno isabellino-fulvo.

Adult Male. Head brown, all the feathers margined with grizzly buff, and having a somewhat striped appearance where the brown bases show through; arising from the centre of the crown a very conspicuous crest, composed of eight or ten narrow elongated plumes, the longest of which, when the crest is erect, reaches beyond the occipital line of the skull; these plumes are blackish brown in colour, with

a narrow lateral margin of sandy buff, broader on the smaller, narrower and more inclining to rufous on the larger ones; upper surface of the body brown, the feathers of the neck and back blackish brown in the centre, margined with buff, giving them the appearance of being broadly striped down the centre; the lower part of the back and rump more grizzly, the feathers darker in the centre, but not so broadly marked as in the upper part of the back; least wing-coverts brown, edged with buff, very like the rest of the back; greater and median coverts brown, rather darker in the centre of each feather, and conspicuously margined and tipped with clear fulvous, which shades off into a very narrow white edging; primaries and their coverts brown, externally margined with pale rufous, the secondaries washed with greyish buff, so that the innermost are about the same colour as the back; upper tail-coverts brown in the centre of the feather, but slightly more rufous than the rump; tail-feathers blackish, the four centre ones (the two middle feathers especially) inclining to clear brown, darker in the centre, and shading off into fulvous on the edge, the outer feather decidedly rufous on the external web, this colour also occupying a great portion of the inner one also, the second feather also slightly rufescent towards the tip of the outer web; all the tail-feathers narrowly margined with whitish at the tip; lores, extending backwards into a narrow eyebrow, which is almost imperceptible, till it widens out into a broad line behind the ear-coverts, pale isabelline; a ring of feathers round the eye buffy white; cheeks whitish, somewhat tinged with fulvous on the hinder part, with a tolerably defined line of blackish feathers running from below the eye lengthways along the cheek; ear-coverts brownish, darker on the upper margin, many of the feathers mesially streaked with blackish brown, giving the appearance of irregular lines; under surface of the body creamy white, with a tinge of isabelline colour on the breast; the sides of the throat marked with little spots of blackish brown, forming an irregular kind of moustache; the feathers of the upper part of the breast more distinctly streaked with mesial streaks of the same colour, and the flanks narrowly striped with blackish shaft-lines; under wing-coverts, axillaries, and the greater part of the inner web of the quills clear isabelline rufous, with a few mesial marks of dark brown on the small feathers running along the carpal bend of the wing; bill dull yellowish brown; feet pale flesh-brown; iris dark brown. Total length 6·9 inches, culmen 0·75, wing 3·9, tail 2·5, tarsus 1·0.

Obs. I cannot perceive any noticeable differences in the sexes of the Crested Lark; nor does the winter plumage appear to differ from the summer dress, beyond being a little more dingy in appearance, owing doubtless to the assumption of grey edgings to the feathers, as is the case with all Larks at this season of the year.

Young. Very much paler than the adult, and having all the feathers of the upper surface barred near the tip with a narrow subterminal line of blackish brown and a much broader apical bar of white; the crest fully shown, and the feathers composing it darker brown; the eyebrow also clearly indicated by a line of white feathers; lesser and median wing-coverts very broadly margined with white, the greater coverts margined with fulvous white; quills edged with pale isabelline, the innermost secondaries with white; lower part of the back and rump fulvous, indistinctly crossed with brownish bars; upper tail-coverts pale rufous; tail blackish, the middle feathers very pale brown, irregularly crossed with transverse bars of dusky brown, and edged with whitish at the tip; the outer feather pale rufous, merging into white along the external web; under surface of the body whitish, with a slight shade of fulvous on the breast, which is marked with numerous small spots of brown; under wing-coverts whitish, with a pale isabelline shade, not so deep as the inner web of the quills, which are decided isabelline rufous, almost as dark as in the adults.

Obs. After having most carefully examined a large series of Crested Larks I have come to the conclusion that in Europe north of the Mediterranean there is but one species of Crested Lark, and that the

Indian bird does not differ from that met with in Europe. In Northern Africa, however, are two species which, though closely allied to our Crested Lark, I have decided in keeping distinct. The first of these (*Galerita macrorhyncha*) differs in being larger in size, and having a much larger and more powerful bill than *G. cristata*; but occasional large varieties of this latter species, as, for instance, one which I have examined, from Abyssinia, approach rather near to it. The second species (*Galerita isabellina*) is a pale desert Crested Lark, having a very short small bill, and is easily distinguishable even from pale varieties of *G. cristata*. Both these species are figured on the same Plate; and I have also on another Plate figured the two extreme varieties from Abyssinia, to which reference is made below.

Taking the series of Crested Larks in regular order, I may make the following remarks on the specimens from different localities:—

Scandinavia. One single specimen in my collection, from Skåne, in Sweden, differs in no respect from examples from various parts of Germany.

Germany. A large series from different localities in Germany present no distinguishable differences; one example shot by me at Alt-Orsova, in Hungary, is rather small, but not less in size than others from Westphalia.

Holland and France. One specimen from Holland and three from France do not in the least differ from those obtained in Germany.

Spain. Specimens from this country differ somewhat according to locality, those from the dry arid country being slightly paler than others from more fertile localities, and having the underparts much whiter, in most examples almost pure white, and the spots on the breast very dark and clearly defined. These are, I conclude, the variety described by Brehm as a distinct species, under the name of *Galerita theklæ*. From Aranjuez are several specimens of this variety; but others from Malaga and Granada are precisely similar to German examples.

Mr. E. F. von Homeyer, who met with the Crested Lark on the Balearic islands, considers that the species found there is referable to *G. theklæ* of Brehm, which he looks on as a good species, but which I consider a mere variety of *G. cristata*. This bird, of which I have not examined a typical example, is said to have the upper parts much darker than any Crested Lark, the markings on the underparts intenser, resembling those on a Woodlark, the entire plumage closer and thicker than is generally the case in Crested Larks, more resembling that of a Woodlark. The bird is described as altogether smaller, the wing from carpus always under 100 millimetres, whereas all Crested Larks measure above 100 millimetres, bill almost straight, 2–4 millimetres, and the middle toe 2 millimetres shorter than that of *G. cristata*. The first primary is said to be a good distinctive character, being always shorter in *G. cristata* than the other primaries, and in *G. theklæ* always longer. I cannot, however, after examining a large series of specimens from Spain, find that any of the above characters hold good.

Italy. One single specimen from this country is identical with the German examples.

Greece. I can find no difference between examples from Central Europe and one collected near Corfu by Mr. Hanbury Barclay.

Turkey. Three examples collected by Mr. Robson agree precisely with the ordinary dark German birds.

Asia Minor. One specimen collected by Mr. Robson agrees precisely with those from Turkey, both in plumage and measurements.

Cyprus. A female from Canon Tristram's collection does not differ from the preceding bird, except that the underparts are somewhat paler.

Palestine. Seven specimens, all collected by Canon Tristram, closely resemble the pale variety above referred to from Aranjuez, in Spain; one of these, marked by Canon Tristram *Galerita arenicola*, does not

in the least differ from the others; nor does another, his type of *Galerita brachyura*, except that the wing and tail are a trifle shorter; but I have a dark bird from Egypt with equally short wings and tail.

Egypt. Five specimens from this country, collected by Captain G. E. Shelley, and one by Mr. E. Cavendish Taylor, are precisely similar to the ordinary run of German birds, except that Mr. Taylor's bird has the spots on the breast rather larger and darker.

Abyssinia. Two examples are now before me, both of which were collected by Mr. Jesse, one at Senafé on the 24th of April, and the other at Amba on the 21st of August; the former of these has the underparts washed with pale rufous; the wings and tail very dark, and broadly margined with rufous; and the feathers on the back also dark, and broadly margined with dull rufous brown. The latter approaches very closely to specimens of *G. macrorhyncha* from Algeria both in measurements and colour, and especially in the size of the bill, but is not equal in size to the smallest example of that species. It most closely resembles the bird described by Mr. Hume, from Yarkand, under the name of *Galerita magna*. Of the above two specimens an extra Plate will be given. One of the three Abyssinian specimens collected by Mr. Blanford, now in the British Museum (spec. e), is an unusually dark bird, and has the breast very closely and distinctly spotted.

North-western Africa. From here I have a large and somewhat puzzling series. Of the true *G. cristata*, similar in every respect to specimens from Germany and France, I have before me four from Algeria and four from Tunis. Of the former, one from the collection of Canon Tristram is labelled *G. abyssinica*. Three others from Algeria, differing merely in having the upper parts paler, and slightly tinged with rufous, and the tail very rufous, are labelled by Canon Tristram *G. abyssinica*; but I cannot separate them specifically from the Common Crested Lark. They appear to be tending towards the pale desert race, which I have preferred to keep distinct under the name of *G. isabellina*, and agree very closely with that species in measurements, though not in colour. Two more from Algeria, types of Canon Tristram's *Galerita arenicola*, are in colour intermediate between those last mentioned and typical examples of *Galerita cristata* from Germany; but in size, and especially as regards the length of bill, they considerably exceed the former. Two others, also from Algeria, are both referable to *G. isabellina*, and are labelled by Canon Tristram as such. In measurements they differ very slightly from the rufous varieties above spoken of, but are very pale sandy-coloured above, and almost pure white below, only having a few markings on the breast, and still fewer on the throat. I have hesitated somewhat in deciding to separate *G. isabellina* as a distinct species; but as I have not in the series before me any specimens forming a distinct link between it and *G. cristata*, I have deemed it advisable to keep it distinct. Six other specimens, all obtained in Algeria, are referable to *G. macrorhyncha*, which is distinguishable from *G. cristata* by its larger size and much larger bill. It is true that individual specimens of the latter do occasionally approach closely to the former; but the smallest *G. macrorhyncha* is always larger than the largest *G. cristata*, though in colour and shade of plumage they do not always differ. In the British Museum are three specimens from Senegal which I have, thanks to the courtesy of the officials, been able to examine. They bear the very closest resemblance to the variety from Spain, described by Brehm under the name of *G. theklae*, both in measurements and plumage, and have the spots on the breast, like those on the breast of the Wood-Lark, very clearly defined.

From Asia I have specimens from:—

Persia. Nine birds from Shiraz and Bushire, collected by Mr. Blanford, differ somewhat *inter se*, one in particular, a female from Shiraz, shot in the summer of 1870, being precisely similar in plumage to a rather dull and dark bird from France, whereas one or two are as pale as the palest examples from Baluchistan, and have the spots on the breast very clearly marked. The palest of these specimens, compared with Canon Tristram's type of *G. arenicola*, resembles it very closely both in colour of plumage and measurements.

Baluchistan. Three specimens, obtained by Mr. Blanford, are somewhat paler and a trifle greyer than Persian examples, which they otherwise closely resemble, except that the underparts are very white without any wash of buff, and the spots on the breast are very clearly defined; compared with Spanish specimens of what I suppose to be so-called *G. theklae*, they agree very closely.

India. Fifteen specimens from various parts of India differ somewhat *inter se*; but after a most careful examination I fail to detect any constant character by which to distinguish them from our European bird. Mr. A. O. Hume, who has carefully examined a large series of Crested Larks from various localities in India, writes in 'Stray Feathers' that "the plumage is excessively variable, but most of the Sindh birds belong to one of two types, the grey brown and the desert or isabelline. I at one time believed that these were divisible specifically; but the examination of a large series convinces me that no such separation is either desirable or possible. As a matter of fact this species is very variable alike in colour and size, both according to sex and individuals. The wing varies from 3.5 in a small female to 4.32 in a very large male; and the bill at front in like manner varies from 0.54 to 0.76. In 'The Ibis' for 1867, p. 48, Mr. Blyth remarks, '*Galerita boysii*, nobis, proves to be a good species. Examples from Lahore have the wing 3.5, and the rest in proportion; otherwise resembling *G. cristata*.' I am, however, compelled to suppress this supposed species, as well as *chendoola*, Frankl.; the examination of a large series proves that it is impossible to draw a line anywhere between the largest and smallest examples. A perfect series of the wings occurs; and as for the difference in tone of plumage, big and little examples are alike met with amongst the brown, rufous, sandy or desert-colour, and grey types. I have measured carefully some fifty specimens, and arranged them before me according to the size of the wing. In this large series it is impossible to draw a line anywhere. As a rule, all the birds up to the 3.9 are females, and those of 3.9 and upwards are males; but one female has a wing of 3.95, and there is a male with a wing of only 3.6; but this is quite a young bird. Besides the variation in the bill and wings, that in the hind claw is excessively great. Picking out the two extremes, I find that this varies from 0.28 to 0.6, and though the claws are, to a certain extent, proportional to the size of the bird, the longest claw of all pertains to a female with a wing only 3.8. Again, the variation in the spottings on the breast is very remarkable: in some these are large, well defined, blackish brown; in others they are mere blurred streaks, of a somewhat pale brown; in some the spots are very numerous, in others there are not more than half a dozen altogether.

"As regards the size, all that can be said is that all the biggest birds appear to be from the far west and north-west."

I have had the opportunity of examining the type and another specimen obtained at the same time of Mr. A. O. Hume's *Galerita magna* from Yarkand, which I consider to be referable to *G. cristata*. In general plumage it very closely resembles the variety described by Canon Tristram under the name of *G. arenicola*; but, as will be seen by the table of measurements below, it has a rather longer wing and tarsus.

China. Six examples from Pekin, Talién Bay, and Heangshungfoo, amongst which are the types of Mr. Swinhoe's *Alauda leautungensis*, all being collected by that gentleman, agree well with Indian specimens, but are a shade paler and slightly more rufescent than others from Germany.

I have not deemed it expedient to tabulate the measurements of each individual specimen in the above series of Crested Larks, but give the following table, showing the maximum and minimum measurements of the specimens from each country. I have, however, also given the measurements of Canon Tristram's types of *Galerita brachyura* and *G. arenicola*, and Mr. Hume's *G. magna* separately.

	Culmen. inch.	Wing. inches.	Tail. inches.	Tarsus. inch.
Sweden	0.75 —	3.9 —	2.5 —	1.0 —
Germany	0.6 —0.72	3.8—4.3	2.5 —2.8	0.85—1.05
Holland and France	0.7 —0.75	3.8—4.1	2.45—2.6	0.9 —1.05
Spain	0.65—0.8	3.8—4.3	2.5 —2.8	0.9 —1.0
Italy	0.75 —	4.0 —	2.7 —	1.0 —
Greece	0.7 —	4.1 —	2.6 —	0.95 —
Turkey	0.75—0.8	4.0—4.1	2.6 —2.65	0.9 —1.0
Cyprus	0.82 —	3.9 —	2.75 —	1.0 —

	Culmen. inch.	Wing. inches.	Tail. inches.	Tarsus. inch.
Palestine	0·7 -0·75	4·0 -4·3	2·6 -2·9	1·0 —
„ <i>G. brachyura</i>	0·75 —	3·8 —	2·35 —	1·0 —
Egypt.	0·7 -0·75	3·8 -4·2	2·35-2·7	0·95-1·0
Abyssinia	0·68-0·8	3·9 -4·1	2·4 -2·55	0·9 -1·05
N.-W. Africa	0·7 -0·8	3·8 -4·1	2·4 -2·9	1·0 -1·1
„ <i>G. arenicola</i>	0·75-0·8	3·9 -4·0	2·8 -2·9	1·0 —
Persia	0·75-0·82	3·95-4·3	2·5 -2·8	0·9 -0·95
Baluchistan	0·7 -0·8	4·2 -4·3	2·75-2·8	0·9 -1·0
India	0·7 -0·8	3·7 -4·2	2·2 -2·7	0·9 -1·0
Yarkand, <i>G. magna</i>	0·75-0·8	4·25-4·35	2·9 —	1·09-1·1
China.	0·65-0·75	3·9 -4·2	2·5 -2·8	0·9 -1·0

THE Crested Lark is found in Central and Southern Europe (seldom straggling to Northern Europe), Northern Africa, and eastward into India and China. In Great Britain it has only occurred as an extremely rare straggler. Mr. J. H. Gurney, jun., writes to me that he thinks “six Crested Larks have altogether been obtained; and I can tell you in whose possession they are. I pass over the one of Yarrell’s supplement, communicated to him by Mr. Bond, who has the original notice and picture (which I searched for in the ‘Dublin Penny Journal’ at Wheldon’s, without finding it), as its hind toe and nail were remarkably long. The first real specimen is Mr. Bond’s, said to have been killed at Littlehampton, and alluded to by Yarrell and Morris, who merely say ‘killed in Sussex,’ without mentioning any names. The Penzance pair in Mr. Rodd’s collection and mine are recorded, Zool. p. 1497; and a third (Zool. p. 3033) was, I am informed, destroyed in the town Museum; but perhaps my informant only meant that it was badly stuffed. Another was obtained at Shoreham (Ibis, vi. p. 224) in 1863; and, lastly, one was obtained at Budock Bottoms, near Falmouth, by Mr. Gill (Bullmore’s Cornish Fauna, p. 20). Mr. Gill wrote to me that he still has this specimen. The one recorded as obtained on Blackheath (Zool. p. 1167) is more than doubtful.”

Referring to the specimens obtained in Cornwall, Mr. Rodd writes as follows:—“There were three specimens of this continental Lark captured in the immediate neighbourhood of Penzance nearly at the same time; indeed two of them were together. These two birds were observed on the top of a bank adjoining the sea-shore between Penzance and Marazion; and the attention of Mr. Vingoe, who shot them, was particularly drawn to them by their peculiar flute-like chirp, which somewhat resembled the note of the Wood-Lark. The third example was obtained in the same locality and about the same time by another person.”

It has not been recorded as occurring so far north as in Norway, but has been met with in Southern Sweden, where Nilsson enumerates five instances of its occurrence, two of which took place in midwinter. It has, however, been found breeding there; and Mr. Meves took a nest containing five eggs near Trelleborg, where, however, this bird is not common. Dr. C. R. Sundström also writes that “it has on several occasions been seen in Skåne, and once shot near Upsala. It has been observed throughout the year; and I myself saw several in October 1861 and in January 1862 between Malmö and Lund, and shot two there. In June 1862 I saw one near Malmö, but could not find the nest, though the bird by its anxious manner showed that

the nest was not far distant." Magnus von Wright records the occurrence of one near Helsingfors, in Finland, on the 27th of March, 1851; and Professor Malmgren informs me that one was shot near Wyburg on the 27th of January, 1870; but it does not inhabit Northern Russia. I have observed it in the Baltic Provinces, where, however, it is not common. In Germany, Naumann records it as "far more abundant in the southern portion than in the north, and not equally distributed, being far more numerous in some than in other districts. In Holstein, Prussia, and Livonia it is not very common, in Anhalt, however, one of the most abundant of the birds found there. Many remain over winter on the Main and Rhine, in Franconia and Thuringia, arriving there in October and November, and leaving early in the spring. In the north of Germany they are resident, only wandering to a certain extent in small companies or pairs, being found in November and December, where they do not occur at other seasons of the year. Old pairs breed year after year at the same place. Like the Sparrows they affect the neighbourhood of habitations, and frequent public roads." Mr. A. Benzon, of Copenhagen, informs me that "it occurs but rarely in Denmark, and is met with now and then, especially during the winter, on roads, in villages, and amongst farm buildings. In habits it differs considerably from the Sky-Lark, and does not, like this, rise singing into the air, but sits twittering in a rut; and when a cart or carriage approaches it flies off to a short distance, and settles again, singing, and performs this manœuvre several times in succession. In general it is not shy. I do not know if it breeds in Denmark; but I have eggs from the peninsula, which are said to be those of this bird; and Fischer thinks that it breeds there occasionally." In Belgium, Baron de Selys-Longchamps writes, it is "rare during passage, and occasionally breeds near Ostend;" but, as I am informed by Mr. H. M. Labouchere, "it is comparatively common in Holland, where it breeds, and may be seen the whole year through. It seems, nevertheless, to be confined to certain localities, the villages on the coast appearing to be its favourite places of resort; but the greatest number of these birds I have ever seen was near the town of Kuilenburg, on the river Leck, where they seemed to be the only birds in the neighbourhood; there I saw hundreds of them in the ploughed fields just outside the town, as well as on the tops of the houses, and even on the telegraph-wires bordering the railway." De la Fontaine, in his work on the fauna of Luxemburg, writes that "its range appears to be restricted to the dark soil, it being most numerous between Arlou and Thionville, and at Echternach; but it is nowhere so common as in the neighbourhood of Luxemburg." In France MM. Degland and Gerbe state that it is abundant and resident throughout the country. It never assembles in flocks like the Sky-Lark, and prefers fields near roads, along which it is often to be seen, especially in winter, seeking for food in the horse-dung. It is not such good eating as other species of Lark; but it is much sought after by bird-catchers, owing to its facility for learning and repeating notes whistled to it. To this De la Fontaine adds that it survives the loss of its liberty but a short time; but Jaubert and Barthélemy-Lapommeraye state that it is common in the south of France, and supports captivity quite well, they having known caged individuals live twelve and fifteen years. It is common in Portugal; and Dr. E. Rey writes to me that he found it inhabiting different localities from those it affects in Eastern Europe, viz. plains far distant from human habitations; but, on the other hand, Mr. Gervase F. Mathews, R. N., informs me that "it occurs commonly near all the small villages I have visited in the

neighbourhood of Lisbon, such as Moita, Villa Franca, Benifica, Ruguengo, &c., where it affects dry roads and delights to scuffle and preen its feathers in the dust. It is by no means a shy bird, as it is often seen in village streets and on footpaths through much-frequented gardens, when, on the approach of any one, it almost invariably walks a short distance with erected crest, every now and then pretending to pick something up from the ground before it takes wing. It does not congregate in flocks, and seldom mixes with other species of the same genus, but is usually found in pairs." In Spain it is likewise common; and from that country I have examined a great variety of specimens, but consider that, though they vary somewhat *inter se*, all are referable to the Common Crested Lark. Major Irby found it resident and very common in Andalusia, and also observed it on the Rock of Gibraltar. Mr. Howard Saunders has lent me a series of specimens from various parts of Spain for examination; and I have often seen it near Madrid. Passing eastward again, we find it, according to Bailly, rare in Savoy, where it is only met with during the two seasons of migration, that country being probably too mountainous to suit this species. Doderlein records it as abundant, especially near Catania and Modonia; but, curiously enough, it does not appear to occur in Sardinia; for Mr. A. B. Brooke writes that "one of the most remarkable points about the ornithology of Sardinia is the entire absence of this bird, which has never yet been found in the island by any body; and although I kept a sharp look-out during the months of April and May, when large flocks of *A. arvensis*, *A. brachydactyla*, &c. were constantly passing, yet I never saw a single specimen. I can hardly help thinking, however, that a few at any rate must pass through the island, as they are so common all round the neighbouring coasts." Nor has it been recorded from Malta by Mr. C. A. Wright, though Schembri includes it as occurring there. It abounds near Pisa in winter, and is likewise common in many other parts of Italy. Count von der Mühle states that it is not very common in Greece; but, according to Lindermayer, it is there "resident, and in many parts very common. It frequents the roads, vineyards, and gardens, leaving the desert places to others of its congeners, and breeds in the middle of April." Lord Lilford found it common at all seasons in Corfu and Epirus. In Styria and throughout Austria, Hungary, and the Danubian Principalities I found it common; and Mr. Robson also records it as "very numerous in Asiatic and European Turkey, and widely spread over mountains and large plains, both on cultivated and uncultivated ground. It is a wild bird, and frequents bare, open grounds, and often feeds and runs on pathways; it is partial to sitting on stone walls and low buildings, and sometimes alights on trees. It is easily distinguished from the other Larks in flight. It congregates in small flocks in the winter, and is often found feeding on barren hills, frequenting farmyards, and near buildings in the country. The Crested Lark is not in request for eating; and few are shot by sportsmen." It is common on the coasts of the Black Sea; and Professor Nordmann says that "it remains throughout the year in the south of Russia, frequenting the neighbourhood of habitations, and avoiding the unequal soil, being therefore wanting in the mountain-districts of Abasia." Mr. Leonida Sabanäeff writes that, "though occasionally observed as far north as Moscow during the spring migration, it is chiefly found in Central and Southern Russia; it breeds rarely in the Government of Tula, being generally met with in the autumn, and then in large numbers; but further to the south it is a resident. The northern boundary of its range runs through the Governments of Kaluga, Tula, Tamboff, and Saratoff. It is in general a bird of the black-soil districts, where it breeds and

even winters, being sedentary in the Governments of Charkoff and Voronege." Kessler found it frequenting gardens, orchards, villages, and towns, in which latter it is found about the streets in company with Sparrows; and the peasantry in South-western Russia call it *Posmetushka*, or dust-bird, as it is always seen about the dust-heaps. Eversmann writes that "it inhabits the southern parts of the Volga and the adjoining steppes, the shores of the Caspian, the Ural, Sir-Daria, and the southern Kirghis steppes, but does not appear to occur near Orenburg." It is found in the countries bordering the Black Sea, and is not uncommon in Asia Minor and Palestine—according to Canon Tristram, "one of the commonest birds in the latter country in the open grounds of the central, northern, and coast regions, remaining all the year, and breeding as late as June, though most of the nests were taken about the end of April." I have also examined a specimen from Cyprus. Messrs. Finsch and Hartlaub give the range of the Crested Lark in Africa as "extending over the entire northern part (Algeria, Tunis, Tripoli, the Sahara, Egypt), the north-eastern part (Nubia, Kordofan, Abyssinia at 4000–10,000 feet altitude, in the Gallas country up to 12,000 feet, the Bogos country, the countries bordering the Red Sea, the Island of Dahalak), to the south into the Somali country in our eastern range (where Von Heuglin observed it at Seila), on the Adriatic coast, and a portion of the west (Senegal, Kasamense). In the central districts neither Antinori nor Von Heuglin observed it either on the Upper White Nile or the Gazelle River."

Dr. Th. von Heuglin writes that "the Crested Lark is a resident in Egypt, Arabia, the islands of the Red Sea, Nubia, and Kordofan, even in the highlands of Abyssinia. On the Upper White Nile and in Southern Senaar I never met with it. The African varieties and races are invariably smaller than our European birds; and the colour of the plumage varies, according to their habitat, whether it be on cultivated land, hills, or the desert, from brownish grey and bright rusty yellow to pale cream grey. The crest is sometimes more pointed and elongated, sometimes broader and shorter; and the thickness of the bill and length and form of the spurs vary equally much. In song and habits they are precisely similar to our European Crested Lark. The Abyssinian form is small and darkest-coloured; above light reddish brown, with broad distinct brownish black shaft-stripes; axillaries and under tail-coverts cream-coloured, with a vinous tinge; breast and sides and a broad superocular stripe reddish cream-coloured; this local form we met with in Tigreh and Amhara, at an altitude of 4000–10,000 feet, and in the Galla country up to 12,000. Tarsus $9\frac{1}{2}$ "', wing 3" 8"', distance between wing and point of tail 7"', tail 2" 4"'. The Egyptian form has a longer pale horn-yellow bill, longer, narrower crest, rather slighter figure, and is in colour more or less of a sandy yellow (*A. cristatella*, Mus. Lugd.). The breeding-season in Egypt is in March, in the Archipelago of Dahlak in May and June; in Tigreh I found fledged young in December."

What Dr. von Heuglin says about this species in North-western Africa I can well confirm from the examination of a large series of specimens from North-western Africa; and after a careful examination of all the specimens I can collect together, and after being not a little puzzled by the great individual varieties, I have come to the conclusion that but three species can be looked on as valid—the present species, *G. isabellina*, Bp., and *G. macrorhyncha*, Trist.; and I hesitated somewhat before deciding on the specific value of the second of these, which is merely a small desert form or race of the Crested Lark. Loche states that the present species is

common in Algeria, especially in bushy localities; and Mr. O. Salvin records it as "abundant on all the plains both in Tunis and the Salt-Lake country. In the latter districts we found it breeding in the month of May; but some eggs were obtained in April. Though the plains appear to be most frequented, it was by no means an unusual occurrence to find the Crested Lark in the mountains and rocky passes, it in this respect differing from *A. calandra* and *brachydactyla*, both of which we found exclusively in the level country." In Morocco, Major Irby writes, it is "resident, and found in great numbers; many go south in winter. It is the tamest of all birds, and one of the most common. They begin to lay about the 20th of April; and I have seen the nest between the mule-tracks of the much-frequented roads between Fez and Tangier in a tuft of grass, so close to the track that every animal passing along must have almost touched the nest; near Gibraltar they are always to be seen on the beach, running about within a few inches of the waves."

It has not been recorded from the Cape-Verd Islands.

To the eastward the Crested Lark extends through Persia into India and China, but was not met with in Siberia by any of the Russian travellers. De Filippi records it as abundant in Persia; and Mr. Blanford brought back a large series from Persia and Baluchistan, which he has kindly lent to me for examination, and which agree with European specimens, both as regards plumage and measurements, though, like these, the specimens differ a good deal *inter se*. Mr. A. O. Hume records the Crested Lark as "excessively abundant throughout Sindh, as it is indeed throughout Rajpootana, the Punjab, Oudh, and the North-west Provinces;" and Dr. Jerdon writes that it is "found throughout all India, most abundant in the north and north-west. It is rare in the Carnatic, not found in Malabar, more common in the Deccan, and thence spreading from Behar in the east to Sindh and the Punjab, where it is very common. It is not known in Bengal, nor in the Himalayas, nor in the countries to the eastwards. It prefers dry, open, sandy plains, or ploughed land, to grass, wet meadows, or cultivation." Mr. Swinhoe met with it in China, where, he states, it is "common about the hills round the cultivated valleys of Talién Bay, North China, and the Pekin valleys." Père David also met with it in Mongolia.

In its habits the Crested Lark is confiding and fearless, and in the neighbourhood of villages and inhabited places is one of the most unsuspecting and tame birds. When in Southern Germany and Hungary, where it is very common, I observed it on almost all the high roads, and in the streets of the small towns and villages, pecking about amongst the horse-droppings almost as tamely as a London Sparrow. They appear very fond of inhabited places and frequented high roads, seldom being found very far from these, and when disturbed by a passing vehicle will either run on one side and let it pass, or fly on a short distance ahead, again and again, as the traveller approaches them. In different parts of Europe they are resident or migratory, according as the locality is suitable or not for winter quarters; but in most parts they are partial migrants, merely shifting their quarters according to season. In Germany, Naumann writes, "they leave their northern haunts in the winter, which they spend in smaller or larger companies in milder climates. Many winter on the Main and Rhine and in Franconia and Thuringia, arriving there in October and November, and disappearing at the first commencement of spring. Here in Northern Germany these Larks are resident or partially migratory, these latter rambling in pairs or small companies from place to place, and arriving in winter where

they are not observed in summer, but seldom remain there long. This time of migration is in November and December. Old pairs remain year after year at the same breeding-place. They migrate from the one inhabited place to the other in the day-time, generally in the forenoon, and fly at a considerable altitude. They are peculiar in their choice of locality. They always frequent, like the Sparrow, the neighbourhood of human habitations, near and in villages and towns; but by no means do all without exception do this. This refers chiefly to their summer habitat, as in the winter they even frequent mountainous districts and large roads which go through forests (but only in inhabited districts), whereas at other seasons they altogether avoid forests and mountains. Nor does one ever see them on the open fields and amongst the grain when far from habitations, nor in meadows, either in the summer or winter. They frequent only such villages and the neighbourhood of such towns as lie higher than others in the vicinity and have a dry or unfruitful but still not a dead soil; and this they carry so far that, when inhabiting places which have on the one side fine fruitful meadows, water, gardens, brushwood, and low damp soil, and on the other position and soil as above described, they invariably frequent the dry side, and scarcely ever visit the fruitful part. If in such places there are gardens surrounded with old earth walls planted with scanty and poor trees, or containing poorly tended land, in the neighbourhood of open fields, or roads, or old sand- or clay-pits, or dry ploughed fields, these are favourite resorts of the Crested Lark. In such places one sees quantities of them; and on the plains of Anhalt, on this side of the Elbe, there are few villages where none are found, excepting only such as are surrounded by fertile meadows, water, trees, and brushwood, or which are encircled by dead sand-plains, or the true forest-villages. I have never seen them in the forest, or in thickets, or amongst bushes, and never sitting on a tree; nor do I ever recollect to have seen them by the water-side." Though the habits of this Lark are as above stated in the more cultivated portions of Europe, in other less thickly peopled localities, where large tracts of waste land are found, this bird adapts itself to the locality, and frequents these desert places far from any human habitation. I have seen the Crested Lark in Spain at considerable distances from inhabited places, but could not distinguish any difference in its note or habits, though Dr. Rey informs me that he could detect a difference in the song of those which he met with frequenting the desert plains of Portugal; and he appears to look on *G. theclae* as a good species, in which view I cannot agree with him.

The call-note of this Lark is a low, not unmelodious whistle; and the song is sweet, in many respects richer than that of the Sky-Lark, and somewhat reminding one of the song of the Wood-Lark. Naumann writes that "when flying away it utters a low *hoid hoid*, which it sometimes draws out, and which occasionally sounds like *hroid*, and is not seldom followed by the call-note *quie*, which, when complete, sounds like *Qui, qui, quie*, or *Düdidriä*. These notes are pleasing; but much more so is the song of the male which he utters in the spring, generally when on the wing, but sometimes sitting, from the early morning, and even during the night, or at least before daybreak."

The Crested Lark runs swiftly and with great ease and erect carriage. Though it often elevates its crest, it as often if not more generally carries it depressed. Mr. J. H. Gurney, jun., writing on its habits, says, "I frequently saw Crested Larks pecking about in the snow, and even in a village on a housetop. Their crests are as often depressed as erect, but never so much so

as to be quite invisible. [See the representation in Yarrell, 1st Supp.] I should probably be right in attributing their presence to hard weather." The food of this bird consists of insects and seeds, the latter forming its chief food during the autumn and winter seasons. It prefers the various grass-seeds, oats, and wheat, not caring so much for barley; but it is very fond of Canary-seed.

Whenever found near villages and towns, the Crested Lark places its nest in the immediate vicinity of human habitations; but in sparsely populated localities it frequently breeds in desolate places. The nest is placed on the ground, in any suitable depression in the soil, more seldom amongst the grass, though not unfrequently in a tussock near a roadside. In Germany, Naumann writes, "one often finds the nest on ploughed land and in grain-fields, but never far from gardens and buildings, seldom more than one hundred paces distant, but oftener nearer, or in gardens where grain or potatoes are cultivated, or amongst vegetables, or in gardens where few or no trees are planted, and which adjoin the open fields. Here they generally build on the ground in any small depression or footprint of cattle, or behind a clod, but very seldom in the grass. They sometimes build on old earth walls, or low straw roofs in the fields. Although single pairs are throughout the year generally together, they are during the breeding-season, when the one must be alone laying or incubating, almost inseparable. The male is always with his mate, but does not assist in making the nest; when the latter is seeking for the necessary materials he runs beside her, and accompanies her when she flies back to the nest." The nest is loosely and simply constructed of dried grass, straws, weeds, small roots, and is occasionally lined with a few horsehairs. The usual number of eggs deposited varies from four to six, five or four being the usual complement. In colour and makings they vary much, being sometimes as light as those of the Wood-Lark, and occasionally a miniature of a dark Calandra's egg. So far as my own experience goes, the eggs from Northern Europe are darker than those from the south. In my collection are eggs from Spain, Germany, and Greece, which vary very considerably. The ground-colour is greyish white, sometimes with a brown or greenish tinge, the surface-markings dark brown, nut-brown, or dull umber, and the underlying shell-blotches purplish grey or light nut-brown. In some the markings are but thinly scattered, and here and there is a large blotch; in others the spots are closely scattered all over the surface of the egg. In size they vary from $\frac{2.6}{4.0}$ by $\frac{3.5}{4.0}$ to $\frac{2.8}{4.0}$ by $\frac{3.7}{4.0}$ inch. Dr. E. Rey gives the average size of a hundred eggs he has in his collection (which were taken in Germany) as 22.7 by 16.8 millimetres, the largest measuring 22.0 by 18.3, and the smallest 19.5 by 15.0 millimetres respectively. Fresh eggs were found from the 12th of April to the middle of June, and in one instance on the 18th of July. The full complement of eggs is generally four or five, seldom six.

In confinement the Crested Lark thrives well, and is an excellent songster. I have often seen it in cages in the German villages; and Dr. Jerdon states that in India "it is frequently caged in all parts of the country, and the bird is kept in darkness by several layers of cloth wrapped round the cage, the custom being to wrap an additional cover round the cage every year. In this state it sings very sweetly, and learns to imitate most exactly the notes of various other birds, and of animals, such as the yelping of a dog, the mewing of a cat, the call of a hen to her chickens, &c. &c."

The specimen figured is a female obtained by Mr. Meves at Trelleborg, in Sweden; and those

described are specimens *c*, *a*, *f*, and *l* in my collection. In a second Plate the two Abyssinian birds above referred to are figured.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀. Trelleborg, Skåne, Sweden, June 27th, 1867 (*Meves*). *b*. Ober-Lausitz (*Möschler*). *c*, ♂. Silesia (*Möschler*). *d*. Oudenak, Holland (*P. L. Sclater*). *e*. France (*Fairmaire*). *f*. Malaga, Spain, 28th December (*H. Saunders*). *g*, ♂. Kadakir, Turkey, March 21st, 1863 (*Robson*). *h*. Orsova, Hungary, April 1866 (*H. E. D.*). *i*, ♂. Volga (*Möschler*). *k*, ♀. Asia Minor (*Robson*). *l*, ♀ *juv.* Smyrna, July 30th, 1871 (*Krüper*). *m*. Corfu (*Hanbury Barclay*). *n*. Egypt, February 1869 (*E. C. Taylor*). *o*. Tangiers (*Olcese*). *p*. Lahore (*Marshall*). *r*. Etawah, N.-W. India, May 3rd, 1869 (*W. E. Brooks*).

E Mus. Lord Walden.

a, ♂. Turkey, January 23rd, 1865 (*Robson*). *b*, ♂. Asia Minor, October 24th, 1866 (*Robson*). *c*, ♂. Senafe, Abyssinia, April 24th, 1868. *d*, ♂. Amba, August 21st, 1868. *e*, ♂, *f*, ♂, *g*, ♀, *h*, ♀, *i*, ♂, *k*, ♀, *l*, ♂. Umballah, November 1866 (*R. C. Beavan*). *m*. N.-E. India? *n*. Punjab.

E Mus. G. E. Shelley.

a, ♂. Egypt, March 6th, 1868. *b*, ♂. Egypt, March 15th, 1868. *c*. Egypt, March 26th, 1868. *d*, ♀. May 3rd, 1870. *e*, ♂. March 15th, 1870 (*G. E. S.*).

E Mus. J. H. Gurney, jun.

a. Hereford? *b*. Paris, November 1868 (*J. Gatcombe*). *c*, ♀. Madrid, January 1870. *d*, ♀. Blida, Algiers, February 11th, 1870 (*J. H. G., jr.*).

E Mus. H. B. Tristram.

a. France. *b*, *c*, ♀. Cyprus, November 17th, 1863. *d*, ♂, *e*, ♀. Beersheba, February 3rd, 1864. *f*, ♀. Mar-Elias, February 20th, 1864. *g*, ♀. Urtas, Judæa, February 9th, 1864. *h*, ♀. Ghor el Safieh, January 29th, 1864. *i*, ♂ (type of *G. brachyura*). Jordan Ghor. *k*, *l*, ♂ (types of *G. arenicola*). Tamana and Rhadama, January 1857. *m*, ♂. Algiers, May 9th, 1856 (*H. B. T.*). *n*, ♂. Algiers, February 4th, 1870 (*J. H. Gurney, jun.*). *o*, *p*, *q*, ♂. Laghouat, November 1856. *r*, ♂. Chabka Mzab, December 9th, 1856.

E Mus. Ind. Cal.

a, ♂, *b*, ♀. Bam, S.-E. Persia, April 22nd, 1872 (*W. T. Blanford*). *c*, ♀. S.-W. of Kurmán, S. Persia, May 21st, 1872 (*W. T. B.*). *d*, ♂. Dizak, Baluchistan, March 21st, 1872. *e*, ♂, *f*, ♀. Gwádar, Baluchistan, December 1871 (*W. T. B.*). *f*, *g*, ♀. Shiraz, Persia (4750 feet), June 1869 (*Major St. John*). *h*, ♀. Shiraz, 1870. *k*. Shiraz (6000 feet), albino, August 1870. *l*, ♀, *m*, *juv.* Abadeh (6500 feet), July 1870. *n*, ♂. Bushire, January 1870 (*Major St. John*).

E Mus. H. J. Elwes.

a, ♂. Athens, January 20th, 1869 (*H. J. E.*). *b*. Punjab, December 14th, 1869 (*H. J. E.*).

E Mus. Salvin and Godman.

a, ♂. Tunis, February 21st, 1857 (*O. Salvin*). *b*, ♀. Kef Laks, Constantine, April 23rd, 1857 (*O. S.*).

E Mus. R. Swinhoe.

a, ♂, *b*, ♀ (type of *G. leautungensis*). *c*. Talién Bay, China, June 1860. *d*. Pekin, July 1868. *e*. Heangshungfoo, September 26th, 1868. *f*. Mingtoombs, China, September 1868 (*R. S.*).

E Mus. Lord Lilford.

a, ♂, *b*, ♀, *c*. Aranjuez, May 1865.

E Mus. Howard Saunders.

a, ♂. Catania, February 26th, 1869. *b*, ♂, *c*, ♀. Malaga, January 1868. *d*, *e*, *f*, *g*. Granada, June and July 1869 (*H. S.*)

E Mus. A. B. Brooke.

a. Riviera, March 1869 (*A. B. B.*).

E Mus. W. Schlüter.

a, *b*. Moravia. *c*, ♂, *d*, ♂, *e*, ♂, *f*, ♀, *g*, *juv.* Westphalia. *h*, ♂. Galicia (*W. S.*).

E Mus. Berol.

a, ♂. Mark Brandenburg, no. 5458. *b*, ♂. Volga (*Möschler*). *c*. Egypt, no. 5345.

E Mus. Brit. Reg.

a. Belgium, December 1870. *b*, ♀. Asia Minor. *c*, ♂. Zoulla, December 26th, 1867 (*Blanford*). *d*, ♀. Massowa, August 25th, 1868 (*Blanford*). *e*. Ashanglu, April 4th, 1868 (*Blanford*). *f*. East Africa. *g*, *h*. Senegal (*Laglaize*). *i*. Senegal. *j*, ♂. Yarkand, August 25th (*Hume*), type of *Gal. magna*. *k*, *juv.* Yarkand, August 1870 (*A. O. Hume*).



ISABELLINE LARK.
GALERITA ISABELLINA.

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TRISTRAMS LARK.
GALERITA MACROPHYNCHA.

GALERITA MACRORHYNCHA.

(TRISTRAM'S LARK.)

Galerida randonii, Loche, Cat. Mamm. et Ois. obs. en Alg. p. 85 (1858), desc. nullâ.

Galerida macrorhyncha, Tristram, Ibis, i. p. 57 (1859).

Galerida randonii, Loche, Rev. et Mag. de Zool. p. 150, pl. 11. fig. 2 (1860).

Megalophonus randonii, Loche, Hist. Nat. Ois. d'Alg. ii. p. 41 (1867).

Figura unica.

Loche, tom. cit.

Ad. Galerita cristata similis, sed paullo pallidior et major: rostro majore, elongato, incurvo.

Adult Male. General colour similar to *G. cristata*, but somewhat paler in tinge; primaries washed with rufous fawn towards their base, the central rectrices having the basal half also washed with that colour; beak and tarsi pale flesh-colour; iris brown. Total length 7.75 inches, culmen 1, wing 4.5, tail 2.9, tarsus 1.05.

Female. Similar to the male, but somewhat smaller, measuring—culmen 0.85, wing 4.4, tail 2.8, tarsus 1.

Obs. This Lark is distinguishable from the Common Crested Lark by its larger size and more powerful and longer bill. In the five specimens I have before me the measurements vary as follows—culmen 0.85 to 1, wing 4.4 to 4.8, tail 2.8 to 2.95, tarsus 1 to 1.1.

THIS Lark, differing from *Galerita cristata* in being considerably larger in size and having a stouter and larger, curved bill, inhabits North-western Africa; but it must also be found much further eastward, as a specimen belonging to the Berlin Museum, obtained by Ehrenberg at Sor, in Syria, is certainly referable to this species. I have examined and measured this specimen, which measures—culmen 0.85, wing 4.3, tail 2.9, tarsus 1.05, and, compared with Canon Tristram's female type example, agrees very closely with it.

Excepting this bird, I have seen no specimens, except from Algeria, where it is tolerably common. It was first discovered by Canon Tristram in 1857, but not described by him until 1859. In the mean time Major Loche catalogued it, as above recorded, under the name of *Galerida randonii*, but published no description before 1860; thus Canon Tristram's name published, with a description of the bird in 1859, takes precedence. Canon Tristram states (Ibis, 1859, p. 426) that the specimens in Major Loche's collection were some which he gave to him in 1857, these being, he presumes, the birds catalogued by that gentleman. Dr. Tristram, writing on the ornithology of Algeria, says that, "unlike its congeners, this bird, by far the largest of its genus, appears only to resort to the northern edge of the Sahara, where its lateral range extends from Morocco to Tripoli. As might be anticipated from its habitat, its plumage partakes only in a slight degree of the sandy hues which mark the true desert-habitants, although very much paler than any Crested Larks obtained in Europe or in the Tell. It is unnecessary to repeat the diagnosis already given in 'The Ibis;' but its size will at once prevent it from being

mistaken for any other species. Its whole length is 7·8 inches, wing 4·5, tail 2·8, beak 1·0, tarsi 1·05. The form of its bill resembles that of *G. arenicola*, but, though curved, is not so slender, and is stouter and more compressed at the base. In both species the extremity of the bill is rounded and dilated, instead of running to a point as in other *Galeridæ*. This may probably arise from its habit of constantly digging into the soil for its food, from which cause also the capistra are generally more worn and the nostrils bare. It is very abundant near El Aghouat, where I first remarked it following the labourers in a barley patch, after the manner of a Rook. It appears to be confined to those districts where there is water and cultivation. I was not fortunate enough to meet with it in the breeding-season." Mr. J. H. Gurney, jun., writes that he "first remarked this species at Ain-Oussera (where Capt. Loche obtained it), on the 12th of March, at which time they were paired. It seems to be confined, like *Calandra*, to level plains, whereas *Galerida abyssinica* is found in the hills. They walk with crest up; and when one has been on the ground, I have observed it often look upwards at its mate in the sky, singing as it mounted. Of those I shot, one had been feeding upon caterpillars an inch in length; the gizzard of another glittered with the white wings of small beetles. There appears to be a sexual difference not hitherto noticed, viz. that the female is smaller than the male, and much darker."

Mr. Taczanowski first met with it halfway between Elkantara and the heights of El Outaja, and states that it inhabits only the plains of El Outaja and the neighbouring heights, Biskra, and the edge of the Sahara, near the Oasis. Mr. C. F. Tyrwhitt Drake, however, met with it on the upland plains towards the city of Morocco; and a specimen he brought home and sent to Canon Tristram for comparison with the type of the species, was stated by the latter gentleman to be darker and more rufous than any he obtained in Algeria. This specimen is now in the Cambridge Museum. Major Loche, who refers to this bird under the name of *Megalophonus randonii*, writes that "it is very wild, and in localities where it meets the common Crested Lark they fight furiously. The present species is found chiefly in the Sahara, on the plains where *Stipa tenacissima*, L., abounds. Its nest is carefully concealed, and is most difficult to find. It lays four or five eggs, in shape elongated, greenish white in colour, covered with numerous small brownish red spots, and measuring about 30 by 21 millimetres. It is always found on the ground, and never perches; its food consists of insects and small seeds. Both male and female incubate in turn."

The specimen figured (on the same Plate with *Galerita isabellina*) is one in my collection, obtained in Algeria by Loche, and sent to me by Mr. E. Fairmaire.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Sahara (*J. H. Gurney, jun.*). *b*, ♀. Algeria (*Fairmaire*). *c*, ♂. Algeria (*Verreaux*).

E Mus. H. B. Tristram.

a, ♂, *b*, ♀. Laghouat, November 11th & 12th, 1856, nos. 896, 897, types (*H. B. Tristram*).

E. Mus. Berol.

a. Sor (*Ehrenberg*), no. 5460.

GALERITA ISABELLINA.

(ISABELLINE LARK.)

Galerida isabellina, Bp. Consp. Gen. Av. p. 245 (1850).? *Galerita flava*, A. Brehm, Cab. Journ. 1854, p. 77.*Galerita lutea*, O. Brehm, Naumannia, 1858, p. 210 (nec C. L. Brehm, Vogelfang, p. 121).

Ad. suprà rufescenti-isabellinus, subtùs albus: pilei plumis elongatis, pallidè isabellinis, medialiter rufescente brunneo notatis: nuchâ albicante: dorso, uropygio, supracaudalibus, scapularibus et tectricibus alarum rufescenti-isabellinis, albicante marginatis et apicatis: remigibus saturatè brunnescenti-isabellinis, in pogonio externo cervino limbatis: caudâ saturatè brunneâ, pennis duabus centralibus rufescenti-isabellinis, rectrice extimâ ad basin brunneâ, in pogonio externo et ad apicem isabellinâ: facie laterali et regione paroticâ vix pallidè brunneo notatis: pectore indistinctè brunneo guttato: subalaribus albis vix rufescente lavatis: subcaudalibus albis: rostro et pedibus pallidè carneis: iride brunneâ.

Adult Male (El Ouibed, Souf, 1st of January, 1857). Rufescent isabelline above; underparts white; feathers on the crown elongated, forming a crest, pale cream-colour, with rufous brown centres; nape dull white; back, scapulars, wing-coverts, rump, and upper tail-coverts pale rufous cream-colour, margined and tipped with pale creamy white; quills pale creamy brown on the inner web, rufescent cream-colour on the outer web; outermost tail-feathers dull brown at the base, especially on the inner web, the terminal portion and outer web being pale sandy cream-colour, remaining rectrices, except the central ones, dull blackish brown, marked with rufescent isabelline on the outer web; the two central tail-feathers rufescent isabelline; underparts white; face and auriculars marked with very pale sandy brown; breast indistinctly spotted with pale sandy brown; under wing-coverts white, with a faint rufous tinge; under tail-coverts white; bill and feet very pale flesh-colour; iris brown. Total length 6·3 inches, culmen 0·62, wing 3·8, tail 2·7, tarsus 1.

THIS, the representative in the arid sandy deserts of Northern Africa of our Common European Crested Lark, differing merely in colour, and in being, as a rule, smaller than average specimens of the latter species, is hitherto only known from Northern Africa; and out of a large and varied series of specimens of Crested Larks from India I have seen none that at all resemble it, though I should have expected to find specimens similar, or nearly like it, from the sandy desert plains of India.

It was first described by Bonaparte, from Nubia, where, and also in Egypt, it is said to be common in the deserts. Bonaparte remarks that the feathers forming the crest are greatly elongated; but I do not observe this character in the specimens I have examined from Algeria, and I have not been able to examine one from Nubia. Dr. Leith Adams, who met with it in Egypt, records it as "common in waste and stony deserts—for instance, around the Necropolis and valley leading to the Tombs of the Kings of Thebes. The transparency of its wings, and their pale isabella colour, are very noticeable. I saw it often in Nubia." Antinori speaks of it as "common on the sandy low hills near Cairo, near the Pyramids, and in Nubia to above

Assuan. It runs swiftly, and when standing is not easily distinguishable from the sand, owing to its pale creamy tint of plumage." In Algeria it does not appear to be common. Major Loche writes that he "only met with this species in the south of Algeria, near Gardhaiä. It differs from the Crested Lark, not only by its different plumage, but also by its different habitat, its range being a very restricted one. We met with the Common Crested Lark not only in the same locality as the present species, but likewise in every other part of Algeria, whereas the Isabelline Lark is exclusively a Saharan bird. In its habit it differs very little from *G. cristata*, but is wilder, and appears more sprightly; its song is flute-like, and its flight heavy. It places its nest in the oasis, under shelter of a tussock, a low bush, or a bunch of herbage, and deposits four eggs, which are yellowish white, covered with small brownish or reddish spots, and measuring 21 by 17 millimetres."

Mr. Taczanowski records it as rare in the desert, inhabiting the sand dunes and stone-covered hillocks; and Canon Tristram, who obtained the specimens I have described, states that "this very distinct variety is far less abundant than the last (*G. abyssinica*), being confined to the most desolate districts. It is much smaller, shorter by at least an inch, with its hues more uniformly pallid, and the darker mark down the centre of each feather almost obliterated. Its bill is of similar proportions, in no way differing from that of *G. cristata*. I do not find the remark of Prince Bonaparte as to the crest being longer, to hold good uniformly. I obtained one nest, the eggs of which resemble pale-coloured varieties of *G. cristata*, but are scarcely larger than those of *Calandrella brachydactyla*." Of the bird referred to by Canon Tristram under the name of *G. abyssinica* I have examined several specimens obtained by him, and have referred them all to *G. cristata*, not having been able to find any distinctive character by which I could separate them from that species, though at the first glance, and before I examined a large series of specimens, I was inclined to consider it a good species. In size it is smaller, and has a more feeble bill than typical specimens of *G. cristata*, the measurements being the same as those of the present species, from which it differs in being much darker and more rufous in colour. A. Brehm describes a bird under the name of *Galerita flava*, from East Sudan, which, I think, will prove to be the Isabelline Lark; but I cannot be quite sure of this without seeing the specimens described. On the other hand, I feel convinced that the *Galerita lutea* of O. Brehm is referable to the present species, and have accordingly placed that name amongst the synonyms.

The specimen figured and described is in the collection of the Rev. Canon Tristram; and in the preparation of the above article I have examined the following specimens:—

E Mus. H. B. Tristram.

a, ♂, *b*, ♀. El-Ouïbed, January 1st, 1857 (*H. B. T.*).

Genus ALAUDA.

Alauda, Linnæus, Syst. Nat. i. p. 287 (1766).

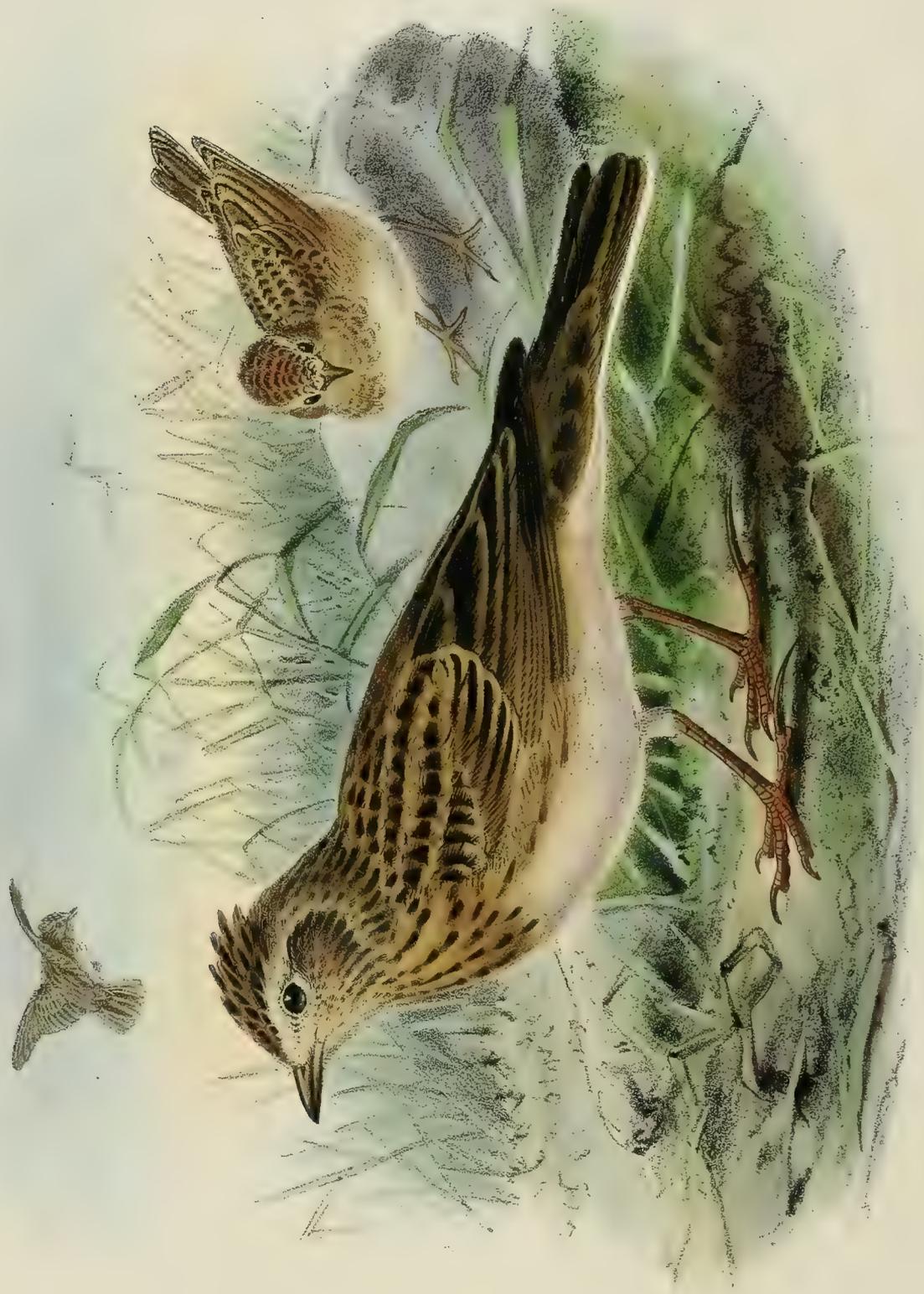
Lullula apud Kaup, Natürl. Syst. p. 92 (1829).

Galerida apud C. L. Brehm, Vög. Deutschl. p. 316 (1831).

Galerita apud C. L. Brehm, Naumannia, 1855, p. 279.

THE true Larks inhabit the Palæarctic, Oriental, and Ethiopian Regions, two species being resident in the Western Palæarctic Region. They inhabit open country and woodlands, especially non-evergreen groves, and in the autumn and winter collect together in large flocks and range over the open country in search of food. One species, the Wood-Lark, differs in frequenting groves during the breeding-season, perching on the trees; but the Sky-Lark affects fields and meadows at all seasons, and but seldom perches on bushes or trees. They are good songsters, uttering their sweet notes whilst circling in the air or when perched on some slightly elevated place. They feed on seeds, berries, insects, and worms, and build a cup-shaped nest of grass-straws lined with finer bents, hair, &c., and deposit several dull white eggs marked with purplish grey and brown.

Alauda arvensis, the type of the genus, has the bill moderately long, straight, somewhat conical and compressed, the upper mandible without notch; nostrils basal, oval, concealed by bristly feathers directed forward; crown with the feathers elongated, forming a crest; wings long, rather pointed, the first quill small, the next three nearly equal, the second or third longest; secondaries elongated; tail moderate, slightly emarginate; legs moderately long, tarsus covered in front with six large and three inferior scutellæ, and posteriorly also scutellate; claws rather short, curved, slightly blunt, except that of the hind toe, which is much elongated and nearly straight.



SKY LARK.
ALAUDA ARVENSIS.

ALAUDA ARVENSIS.

(SKY-LARK.)

- Alauda arvensis*, Linn. Syst. Nat. i. p. 287 (1766).
Alauda italica, Gm. Syst. Nat. i. p. 793 (1788).
Alauda vulgaris, Leach, Syst. Cat. Mamm. &c. Brit. Mus. p. 21 (1816).
Alauda cælipeta, Pall. Zoogr. Ross.-Asiat. i. p. 524 (1831).
Alauda segetum, Brehm, Vög. Deutschl. p. 318 (1831).
Alauda montana, id. tom. cit. p. 319 (1831).
Alauda agrestis, id. tom. cit. p. 320 (1831).
Alauda cantarella, Bonap. Comp. List. B. Eur. & N. Am. p. 36 (1838, descr. nulla).
Alauda montana, Crespon, Faun. mérid. p. 319 (1844).
 “*Alauda triborhynchus*, Hodgs.,” Gray, Cat. Mamm. &c. Nep. Hodgs. p. 109 (1846).
 “*Alauda dulcivox*, Hodgs.,” Gray, tom. cit. p. 109 (1846).
Alauda isabellina, Mummery, Zool. 1st ser. p. 1697 (1847, nec Temm.).
Alauda crassirostris, Brehm, Vollst. Vogelf. p. 125 (1855).
Alauda bugiensis, id. tom. cit. p. 125 (1855).
Alauda albigularis, id. tom. cit. p. 125 (1855).
Alauda tenuirostris, id. tom. cit. p. 125 (1855).
Alauda minor, id. tom. cit. p. 125 (1855).
Alauda japonica, Swinh. Ibis. 1861, p. 333 (nec T. & S.).
Alauda pekinensis, Swinh. P. Z. S. 1863, p. 89.
Alauda intermedia, Swinh. P. Z. S. 1863, p. 89.

Sky-Lark, *Laverock*, *Larrock*, English; *Alouette des Champs*, French; *Zurriaga*, Spanish; *Calhandra*, *Laverca*, Portuguese; *Lonara*, Sicilian; *Heidelerche*, German; *de Leeuwerik*, Dutch; *Sånglärka*, Swedish; *Lærke*, Norwegian; *Kivenviha*, Finnish; *Sanglærke*, *Graslærke*, *Marklærke*, *Lærke*, Danish.

Figuræ notabiles.

Werner, Atlas, *Granivores*, pl. 5; Gould, B. of Eur. iii. pl. 166; Yarr. Brit. B. i. p. 409; Naum. Vög. Deutschl. iv. Taf. 100; Kjærb. Orn. Dan. Afb. xviii. fig. 5; Schl. Vog. Nederl. pl. 148; Gould, B. of Gt. Br. pt. xv.

♂ *æstiv.* suprâ brunnea, plumarum parte medianâ saturatiore, marginibus fulvescentibus: pileo valdè cristato, cristæ plumis paullò rotundatis, rariùs acutiusculis: collo postico et laterali magis fulvescentibus, plumis medialiter brunneo striatis: uropygio quoque fulvescenti-brunneo et supracaudalibus vere rufescentibus: scapularibus dorso concoloribus: tectricibus alarum fulvescenti-brunneis, medianis et majoribus aurantiaco-fulvis, clarè albo terminatis: remigibus brunneis, primariis extus albido limbatis, secundariis rufescente versus apicem albicante marginatis, pennis dorsalibus cinerascente lavatis, pennis minimis

conspicuè albo terminatis: caudâ brunneâ, pennis centralibus versus apicem cinerascentibus ad basin fulvescentibus, rectrice extimâ omninò albâ præter marginem internam fumosum pogonii interni, penultimâ brunneâ, pogonio externo albo, tertiâ fere omninò brunneâ, extûs versus apicem angustissimè albido limbatâ: loris et supercilio distincto albidis: regione auriculari rufescente, brunneo mixto: genis fulvescentibus rufescente lavatis et punctulis parvis brunneis notatis: gutture toto fulvescenti-albido punctulis brunneis maculato: pectore superiore obscuriore fulvo, brunneo medialiter striato, pectoris lateribus magis rufescentibus lineis medianis latioribus: corpore reliquo subtus fulvescenti-albido, hypochondriis et cruribus rufescenti-brunneis, illis brunneo longitudinaliter striatis: subalaribus fumosis, paullò fulvescente tinctis: rostro brunneo, mandibulâ carneâ: pedibus flavicanti-brunneis: iride brunneâ.

♂ *hiem.* similis ptilosi æstivæ, sed obscurior et fulvescentior: plumis omnibus latè fulvo marginatis: subtus fulvo distinctè tinctus.

Pull. rufescens: plumis medialiter nigricanti-brunneis, fulvo marginatis et albo terminatis: tectricibus alarum brunneis, angustè nigro et latiùs fulvo marginatis: caudâ ut ala coloratâ, sed rectricibus externis præter marginem pogonii interni albis et penultimis latè albo marginatis: subtus lactescenti-fulvus, pectore superiore latè brunneo striato: subalaribus fulvescentibus paullò fumoso tinctis.

Adult male in spring plumage. Above brown, here and there tinged with rufous, the edges to the feathers sandy, especially on the hind neck, where this colour predominates, so as to make this part appear entirely of a sandy colour with little brown markings interspersed; crown of the head crested, the plumes of the crest rounded, and seldom pointed, except where the edges have been somewhat abraded, the feathers dark brown down the centre, with edgings of sandy brown; the rump clearer ashy grey, and the upper tail-coverts rufous brown; scapulars coloured exactly like the back; wing-coverts more decidedly sandy, the greater and median coverts brown, strongly washed with orange-buff and edged with white; quills dark brown, the primaries narrowly edged with white on the outer web, the secondaries very clearly edged with rufous near the base of the feather, verging into whitish towards the tip, the smallest secondaries conspicuously tipped with white, the innermost ones nearest the back washed with ashy grey; tail brown, the two central feathers washed with buff near the base, verging into ashy grey towards the tip; the outer feather entirely white, excepting the inner edge of the inner web, which is smoke-coloured, the penultimate feather quite brown, excepting the outer web, which is white, the third feather very narrowly margined with white on the outer web; lores and a very distinct eye-brow whitish; ear-coverts more brown, washed with sandy and tinged with rufous; cheeks buffy white, strongly tinged with sandy, and minutely spotted with little brown specks; throat white, marked here and there with tiny little specks of brown, which collect on the sides of the throat and form an irregular moustache; upper part of the breast more obscure, strongly tinged with sandy and streaked with brown, the sides of the chest more distinctly rufous and more broadly streaked with brown; rest of the under surface of the body creamy white, the flanks more dusky, and the thighs inclining to rufous; under tail-coverts white; under wing-coverts smoky grey; bill greyish brown, yellowish along the edge of the upper mandible, lower mandible flesh-colour; legs yellowish brown; iris brown. Total length 7·7 inches, culmen 0·6, wing 4·4, tail 2·8, tarsus 0·9. hind claw 0·5.

Adult male in summer plumage. Paler than in spring, except on the back, where the abrasion of the buff margins to the feathers causes the brown centres of the plumes to show more clearly, and thus the back appears darker; hind part of neck much paler and more distinctly sandy in colour than in spring; the white edgings to the wing-coverts almost entirely worn off, so that the general appearance of these feathers is greyish brown; the tail-feathers also much worn, and scarcely a trace of white margin to

the third feather; the little stripes on the breast much less frequent, and the general appearance of the under surface of the body much paler than in spring; sides of the neck more white.

Adult male in winter plumage. Plumage more glossy than at any other season of the year; the whole of the feathers of the upper surface broadly margined with greyish sandy colour, and all the characters of the spring-dress above described very clearly indicated and thoroughly developed, so that all the markings are very distinct. At this season of the year, the breast is strongly tinged with creamy buff.

Nestling. Upper surface of the body covered with little blue-shafted plumelets, from which protrudes a brown feather with a very distinct fulvous tip; throat and crop quite bare; breast-feathers also in a rudimentary condition, white, and on the sides of the body small brown feathers growing in the direction of the flanks, which they are intended to cover; on the head and lower back some long threads of yellow down; bill brown, yellow along the gape; feet yellowish. In a few days the feathers become developed, and the whole upper surface rather inclines to rufous, which is prettily relieved by little white edgings to the feathers, which are most conspicuous on the hind part of the head. The white eyebrow is distinctly indicated at a very early stage. Some nestlings are darker than others.

On leaving the nest. Upper plumage sandy tinged with buff, the centre of the feathers dark brown with a very broad edging of sandy colour, becoming white at the tip of the feather; crown of the head a little darker and more rufous; lores, feathers in front of and round the eye, eyebrow, and sides of the neck behind the ear-coverts buffy white; ear-coverts sandy, slightly marked with brown; wing-coverts and quills sandy brown, with a broad margin of buff, before which is a narrow line of blackish, both inner and outer webs being margined in this manner; tail-feathers sandy brown with buff edgings, within which is seen the same black line running parallel to the outer margin as on the wings; outer tail-feather all white, except the margin of the inner web; outer web of the penultimate white; under surface of the body creamy buff, the upper breast prettily marked with longitudinal streaks of brown, which colour occupies the centre of the feather, and is margined with buff on each side; under wing-coverts buffy white with a slight grey tinge.

Obs. By the time that the second brood have left the nest and can fly, which takes place about the end of July, the young of the first brood are in full moult and putting on their adult plumage. The quills and tail-feathers are cast and renewed; and at this season of the year it is not uncommon to see Larks without tails or scarcely able to fly for want of their strong pinions: the last feathers to be resumed are the primary coverts; and bird-catchers can tell at a glance, by an examination of these feathers, whether they have caught an old or a young bird; for in the latter the edges to these plumes are buff, and not rufous like the rest of the margins to the wing-feathers. The young bird, when his plumage is completed, is more rufescent than at any other time of its life; but, in addition to this, it may nearly always be told by the rounded feathers of the crest, which are always distinctly margined with rufous or buff; the spots on the throat, too, are more numerous.

Varieties.

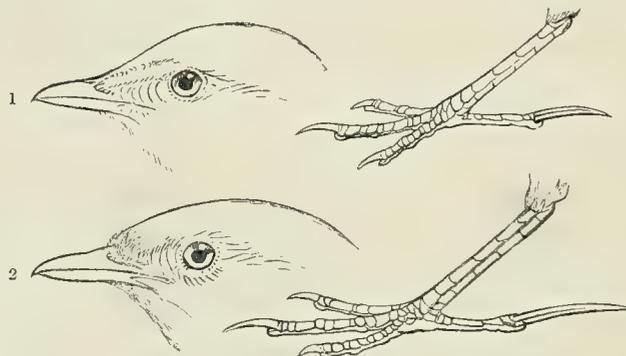
Perhaps no bird varies more than the Common Sky-Lark, and scarcely a week passes without some *lusus naturæ* in connexion with this bird being recorded. White, black, and party-coloured specimens are not uncommon, the second more often happening to be birds kept in cages; but perhaps the best-known variety is the cream-coloured one, which is far from uncommon. Mr. Mummery, of Margate, believed that the latter constituted a different species, and named it *A. isabellina*, declaring that he could prove it to be distinct on anatomical grounds; no one has

since determined that it is any thing else than the Common Sky-Lark, and we cannot see any difference in structure in the specimens lent us by Mr. Gurney.

Obs. The Sky-Larks which inhabit the Old World are one and all closely allied to each other; and so nearly do some of these species approximate, that in many cases it is almost impossible to draw the line of demarcation. Mr. G. R. Gray, in his 'Hand-list,' enumerates sixteen species of true *Alauda*, of which we may at once dismiss six peculiar to Africa as unnecessary to the present discussion. Those that remain are the following:—*A. arvensis*, *A. triborhyncha*, *A. gulgula*, *A. japonica*, *A. malabarica*, *A. hermonensis*, *A. reboudia*, *A. cantarella*, *A. cælix*, and *A. montana*, of Cresson (nec Brehm). Of these we consider *A. hermonensis* and *A. reboudia* to belong to *Calandrella*; but none of the remaining Larks can be passed over by any one who desires to write a true history of the Common Sky-Lark. We may at once observe that all the above-mentioned species are credited with a peculiar habitat, with the exception of *A. cantarella*, which was originally described from Italy, and has been recorded by various writers as an inhabitant of nearly every country eastward as far as China. Our experience of this so-called species convinces us that a specific separation of *A. cantarella* from *A. arvensis* is impossible. After a careful examination of a large series of Sky-Larks, from all portions of the known world, we are fain to admit that from Egypt and South-eastern Europe, along the whole line of the desert region, a Lark is met with which, in comparison with that of Northern Europe, is rather smaller, more mealy in plumage, with slightly more grey on the hind neck, and with the stripes of the breast rather more plainly indicated; but we have been able to find among our examples from other parts of Europe specimens that agree with every variation of this so-called *A. cantarella*. We have therefore no hesitation in adding Prince Bonaparte's name as an undoubted synonym of *A. arvensis*. That there are variations in plumage we freely admit; but of how little value these differences are as specific characters will be gathered from the following analysis of the birds now before us, which will illustrate the geographical distribution of *A. arvensis* and its allies over the Palæarctic and Indian regions:—

British Islands. Examples agree with the descriptions above given. Scotch specimens seem to be a trifle more dingy; but the darkest in colour are those found in the counties of Northumberland and Durham, owing probably to the smokiness that pervades those localities. In the south of England the birds which arrive during very severe weather are much darker than the resident species, and are called by the country people "Snow-Larks," "Scotch or Northern Larks." Total length 6·5–7·4 inches, culmen 0·5–0·55, wing 3·9–4·5, tail 2·8–3·1, tarsus 0·9–1·0, hind claw 0·5–0·7.

Germany. We are indebted to the kindness of Professor Peters for the loan of a specimen of Brehm's *Alauda agrestis* from the Berlin Museum; and as we have received from Herr W. Schlüter, of Halle, a fine series of ordinary German specimens, we have been enabled to institute a comparison between Brehm's subspecies and the true Sky-Lark. Most of the German birds are precisely similar to English examples, measuring as follows:—Total length 6·8–7·3 inches, culmen 0·5–0·6, wing 4·4–4·6, tail 2·8–3·0, tarsus 0·95–1·0,



1. *A. agrestis*.

2. *A. arvensis*.

hind claw 0·5–0·65. The specimen of *A. agrestis* measures:—Total length 7 inches, culmen 0·55, wing 4·4, tail 2·8, tarsus 0·8, hind claw 0·4. Great as is the variation in the dimensions of Sky-Larks, it will be noticed that this specimen is as small as the smallest bird we have yet measured, while it is less than any as regards the length of the tarsus and hind claw. It would be wrong to base any conclusion on one single specimen; but the specific characters given by Brehm hold good to a certain extent; viz. the lores and fore part of the face are purer white, and the head is of a different shape, the crown being much higher, as the accompanying woodcut will show. The legs are also smaller in every detail.

The specimen lent us from Dr. Peters is from Thuringia; and we cannot help remarking that *A. agrestis* seems to be at least as good a subspecies as *A. cantarella*.

Italy. The characters given by Bonaparte for his *A. cantarella* are merely that it is smaller in size and more obscure in colour, distinctions which can be drawn between Sky-Larks in any country at different seasons of the year. Thanks to our good friend Count Salvadori, we have received specimens from Piedmont killed in summer, at which season of the year, if the Italian bird were really distinct, the differences would be most apparent; but there is not one of the skins in our collection which has not its prototype from other localities, and we cannot find the slightest characters in which the Italian Sky-Lark differs. Total length 6·5–7·0 inches, culmen 0·5–0·55, wing 4·0–4·4, tail 2·5–2·9, tarsus 0·85–0·95, hind claw 0·55–0·65.

Spain. Scarcely any variation appears in the Sky-Larks of this country; but, as is often the case in birds from Southern Europe, the colours are rather purer: one lent us by Major Irby, from Seville, is in full winter dress, but is more grey than we have usually observed them; this, however, may be a variety. Total length 6·5–7·0 inches, culmen 0·5–0·55, wing 3·9–4·4, tail 2·5–2·9, tarsus 0·9–0·95, hind claw 0·4–0·5.

Northern Africa. Two specimens collected by Dr. Sclater in Tunis measure:—Total length 6·3–6·5 inches, culmen 0·5, wing 4·1–4·3, tail 2·6–2·8, tarsus 0·95, hind claw 0·5–0·6. Another in Major Irby's collection from Tangier gives the following measurements:—Total length 6·5 inches, culmen 0·5, wing 4·3, tail 2·7, tarsus 0·95, hind claw 0·7. This latter bird is in full breeding-plumage, and is very black on the back with scarcely any fulvous edgings left, while the throat is more thickly spotted than in any other specimen we have ever seen. We fancy that in the southern countries of Europe the breeding-plumage is more fully assumed than in the northern part; for we never get such dark birds in summer in England.

Cyprus. Canon Tristram has a specimen from this locality, which has the form of true *A. arvensis*, but yet has the plumage of the so-called *A. cantarella* (auct. nec Bonap.); that is to say, the lines on the breast and flanks are very distinct, and the throat and abdomen rather of a purer white than usual. Total length 7·4 inches, culmen 0·5, wing 4·5, tail 2·9, tarsus 0·9, hind claw 0·55.

Turkey. One specimen, killed in March by Mr. Robson, seems to be absolutely undistinguishable from English examples in spring plumage; but another, procured in April, differs somewhat from the ordinary birds of Northern Europe, being much paler in plumage, with the stripes on the breast very small, but distinct, and has the general appearance of the desert subspecies found in Egypt. The under wing-coverts are much paler and more tinged with isabelline, having scarcely any smoky grey appearance. This last bird measures in total length 6·8 inches, culmen 0·55, wing 4·15, tail 2·8, tarsus 0·9, hind claw 0·55.

Crimea. Here we get a bird which has very much the appearance of the Turkish specimen above described, but yet varies in the direction of the English Sky-Lark, and is one of those examples which completely unite the subspecies of South-eastern Europe to the northern bird, and render it impossible to separate them specifically. The under wing-coverts are more white than is usual in British specimens, but have more of a smoky grey tinge than the Turkish bird, being in this respect perfectly intermediate between the two. Total length 7·4 inches, culmen 0·55, wing 4·5, tail 2·9, tarsus 0·95, hind claw 0·7.

Egypt. Captain Shelley has a Sky-Lark procured at Alexandria on the 3rd of March 1871, which is absolutely undistinguishable from the British bird. Total length 7·4 inches, culmen 0·55, wing 4·6, tail 2·9, tarsus 0·9, hind claw 0·6. But the same gentleman himself procured at Fayoom three specimens of a Lark which we cannot affirm to be the true *A. arvensis*, but still they do not present enough characters to enable

them to be distinguished as a species. They are rather smaller, have a more distinct white eyebrow, and have the stripes on the breast more plainly developed. This race is the *Alauda cantarella* of authors, but not of Bonaparte, as we conceive; for we believe that his Italian bird is a myth. Total length 6·1–6·8 inches, culmen 0·5–0·55, wing 4·1–4·4, tail 2·6–2·8, tarsus 0·9, hind claw 0·4–0·5. Two of these birds have very short hind claws, owing probably to the nature of the ground they frequent. In speaking of this subspecies in future we shall employ the name of *E. intermedia* of Swinhoe, which we know to be applicable to it, rather than the very doubtful appellation of *E. cantarella*, Bp., by which it has been previously known.

Palestine. Four specimens obtained in this country by Canon Tristram must be referred to *E. intermedia*; but they all vary much, two only being exactly similar to Captain Shelley's Egyptian birds in the white eyebrow and distinct breast-spots. Total length 6·5–6·9 inches, culmen 0·5–0·55, wing 4·1–4·6, tail 2·6–2·8, tarsus 0·9–0·95, hind claw 0·4–0·55.

Cashmere. Two specimens in Lord Walden's collection seem to be smaller than the usual Sky-Lark, more rufescent in plumage, and have the stripes on the breast much narrower. The under wing-coverts are dark chocolate-brown with a distinct tinge of isabelline. Total length 7·0–7·5 inches, culmen 0·55, wing 4·0 (one wing injured by shot, and not measured), tail 2·5–2·9, tarsus 0·9–0·95, hind claw 0·5.

India. The species of true *Alauda* included by Dr. Jerdon in his 'Birds of India' are only three in number, viz. *A. triborhyncha*, *A. gulgula*, and *A. malabarica*. The first of these is an inhabitant of the Himalayas, and is, in our opinion, nothing but *A. arvensis* of Europe. The wing is supposed to be shorter; but an Indian specimen now before us has the wing 4·3 in length, and does not differ from the common European Sky-Lark in winter plumage. Dr. Henderson has lately brought home from Yarkand a bird which Mr. Hume has referred to the above species; but this bird exactly agrees with one of Mr. Swinhoe's typical examples of *A. intermedia*, and we believe that neither of them can be separated from the small form of *A. arvensis* occurring in Europe, though they are slightly more rufous in appearance. This small race also occurs in North-western India, and is absolutely undistinguishable from Egyptian examples. We have in our own collection one from Lahore, collected by Captain C. H. T. Marshall; and Canon Tristram has another, procured by the late Captain Beavan at Umballah. *A. gulgula* is very closely allied to *A. intermedia*, but is smaller, and has the under wing-coverts rather more isabelline; it is a perfect diminutive of our Sky-Lark, and has much the same habits, varying also as much in measurements. The tail-feathers seem to be more pointed, and the outer feathers more washed with isabelline than in European skins. Total length 5·5–6·3 inches, culmen 0·6, wing 3·4–3·8, tail 2·2–2·6, tarsus 0·9, hind claw 0·4–0·6 (*e mus. Walden, S. & D., A. O. Hume*).

Ceylon. We have seen two specimens of *Alauda* from Colombo, collected by Mr. W. Vincent Legge, which we suppose belong to *A. malabarica*. They are exceedingly like the last-named bird, possessing the isabelline colour on the outer tail-feathers and under the wing. They are a little more rufous than the Indian specimens we have examined, and measure as follows:—Total length 5·4–5·7 inches, culmen 0·5–0·6, wing 3·35–3·4, tail 2·1, tarsus 0·9, hind claw 0·65.

North China, Peking. Mr. Swinhoe, when he first met with this bird, considered it to be new, and called it *A. pekinensis*; but he now refers it to the true *A. arvensis*, in which we quite agree with him. The specimens in his collection, two in number, consist of an old bird in full winter dress, and a bird of the year, still possessing some remains of its young plumage; they were both procured in November 1860. We notice nothing very peculiar about the plumage of either of these birds; the old example is very pale, but this is owing to the sandy edgings to the feathers assumed during the winter. Both old and young birds have the third outer tail-feather very broadly bordered with white, and the latter has the throat more spotted than is usual. Total length 6·8–7·3 inches, culmen 0·5–0·55, wing 4·5–4·6, tail 2·8–3·0, tarsus 0·9–1·0, hind claw 0·7–0·8 (*spec. 2 in mus. R. Swinhoe*).

China and its dependencies. Besides our Common Sky-Lark, which only occurs in the northern part of the country, Mr. Swinhoe includes four others, viz. *A. cantarella*, *A. cælix*, *A. sala*, and *A. wattersi*, of which we speak in detail as follows:—

1. *A. cantarella*, potius *E. intermedia*. This we consider to be rightly named, but still adhere to our opinion that it is a nothing but a small and undistinguishable race; and we believe that when Mr. Swinhoe has a larger series of skins from China he will be of the same conclusion. The two specimens are rather more rufescent than western examples, one of them particularly so. They are both from Shanghai, and measure as follows:—Total length 5·8 inches, culmen 0·5, wing 4·0–4·3, tail 2·4–2·7, tarsus 0·9, hind claw 0·5–0·6.

2. *A. calivox*. Mr. Blyth, who has examined this species with us, and compared it with *A. gulgula*, cannot separate the two birds. On an afterexamination of a large series, we notice, however, that *A. calivox* is duller in plumage, and has not such distinct edgings to the wing-coverts, but has a much broader eyebrow, and the outer tail-feather of a purer white. Total length 5·5–5·75 inches, culmen 0·45–0·5, wing 3·2–3·6, tail 2·2–2·4, tarsus 0·9–1·0, hind claw 0·45–0·65. The habitat is given by Mr. Swinhoe as Amoy, Canton, Hainan.

3. *A. sala*. This name was proposed by Mr. Swinhoe last year for the Sky-Lark of Northern Formosa and Western Hainan, which differs from true *A. calivox* in having a very long hind claw, as well as a longer and more arched bill.

4. *A. wattersi*. This bird Mr. Swinhoe further separates from *A. calivox* on account of its “shorter and more conical bill, long hind claw, large and more numerous pectoral spots, and its want of rufescence. By its long hind claw and markings it comes nearer to *A. sala*; but the long curved bill of the latter serves at once to separate it. It is the Sky-Lark of South Formosa and the Pescadores.”

Japan. Here the variations are of specific importance, and the bird constitutes a distinct species, which will stand as *A. japonica*, T. & S. (Faun. Japon.). Compared with true *A. arvensis* it is smaller and much more rufous on the upper surface, and the black centres to the feathers are more distinct, and thus the back looks far more distinctly mottled than in the Common Sky-Lark. It has the wing-coverts and edgings to the quills very deep rufous, this character being a very conspicuous feature in the Japanese bird. Total length 6·6–7·0 inches, culmen 0·65–0·7, wing 3·85–4·1, tail 2·65–2·75, tarsus 0·95–1·0, hind claw 0·55–0·7. (*Spec. 1 in mus. S. & D.*; 3, *Walden*; 1, *H. B. Tristram*.)

THE Sky-Lark is found all over the Palæarctic Region, from the British Islands eastward into Siberia and Northern China. As will be seen by the above *résumé*, a smaller subspecies is met with in South-eastern Europe, but does not present any characters by which it may be permanently separated.

In Great Britain it is distributed everywhere, “breeding even in the extreme north of Scotland and its isles,” according to Mr. A. G. More. The late Mr. John Wolley observed it in the Faroe Islands during his visit there; and Herr Sysselmand Müller says it is “not rare on the Faroes in April, May, September, and October: a pair bred here.” Von Droste doubts its passing the Faroes regularly, as it is not found on Iceland, and in America and Greenland it has been only twice recorded. In Norway Messrs. F. and P. Godman found it breeding on May 25th, at Bodö, where it was “abundant in the marsh.” Collett says that it arrives in the neighbourhood of Christiania in March, leaving again in October; and Nilsson states that it is numerous at Trondhjem and in the Stördale, extending up as high as Ranenfiord. Löwenhjelm found it breeding in Lapland, in the parish of Stensele, 65° N. latitude, and Malm at Karesuando. It occurs at the Varanger Fiord, as Pastor Sommerfeldt records his having heard it singing at Tana in 1851, and found a nest there the same year. The late Mr. Wheelwright, in his ‘Spring and Summer in Lapland,’ writes as follows:—“The Sky-Lark was one of the earliest spring migrants; for I saw a pair in the end of April. They kept close to our house for a few days, when they disappeared; and I never saw any more, nor did I hear of a nest being taken here (Quickjock).” Von Wright says it is a summer visitor to Finland, and very common, arriving at

Helsingfors late in March or early in April. In Denmark Kjærbölling records it as abundant, arriving the earliest of the spring migrants, and leaving in November; a note by our friend Mr. Benzon is also given below.

Mr. H. M. Labouchere writes as follows:—"Although not so common as in England, this bird is found in all the different parts of Holland, in the fields, moors, and also in the dunes. In autumn large flocks of these birds visit us at the same time as the Chaffinches and other migratory birds, when large numbers of them are netted. I have seen as many as seven hundred caught in one day. It is chiefly on the dunes or sand hills that this kind of sport, if it deserves that name, is indulged in."

Godron states that it is very common in the fields of Lorraine, and partly sedentary; and Kræner gives it as resident from March to September, living in the fields, but sometimes met with on the plateaux of Vosges. Degland and Gerbe say that it is common throughout France, leaving in the month of October in large numbers, though a considerable number remain; in the winter quantities are found upon the coast. In Germany they are chiefly migratory, but in mild winters a considerable number will stay. Seidensacher states, "It arrives in Styria late in February or early in March, and is common in all fields in the valleys to the end of October, or even later. I have seen stragglers in December. I cannot say if it occasionally winters with us. At Neustadt, in Krain, this was certainly the case in the winter of 1859-60."

Mr. Howard Saunders says that in Spain it is very abundant in winter in large flocks, and he found it breeding in Aragon. Major Irby tells us that in Andalusia it is chiefly seen as a winter migrant in great numbers, but some are resident, and breed there. Mr. Vernon Harcourt records it as a straggler to Madeira.

Mr. C. F. Tyrwhitt Drake found it plentiful in Tangier and Eastern Morocco; and Mr. Salvin observes:—"The Sky-Lark is very common about Tunis in February; but it occurs rarely in the salt-lake country, the head quarters of *A. calandra*, *A. cristata*, and *A. brachydactyla*." Canon Tristram writes to us as follows:—"I have found it breeding on the steppes of the Eastern Sahara—that is, on the Hauts Plateaux south of the Atlas. It occurs also in the Sahara in flocks in winter." Dr. Taczanowski has published the following account of the species as observed by him in Algeria:—"Still more numerous than the Calandra, and, like it, keeping in flocks and in the same localities. Only once, in December, I saw a male, which rose and began singing; otherwise they remained quiet. Towards the end of January they became scarcer, and at the end of February they were only to be met with here and there." In Malta, Mr. Wright says, it is "abundant in flocks in October, when great numbers are taken in nets or shot. A few remain the winter till the beginning of February. It repasses in March and April." Count Salvadori states that large quantities come down into Sardinia, some remaining to breed: and in Italy it abounds during winter, according to Dr. Giglioli; and likewise in Corfu and Epirus, as observed by Lord Lilford. Mr. W. H. Hudleston found it "breeding in the Dobrudscha in company with *A. cristata* and *A. brachydactyla*." Von der Mühle does not appear to have noticed it breeding in Greece, as he only remarks that "large quantities are found all over the meadows and fields of the Morea from November to April." In Turkey Messrs. Elwes and Buckley found it common on the plains; and for the following note we are indebted to Mr. T. Robson, of Ortakeuy:—"This species is numerous in Turkey in Asia and

Europe; and although widely spread over mountain and plain, it changes its situation as cultivation proceeds, and builds its nest amongst corn fields, meadows, vineyards, &c.; but in this extensive empire the wilds are their chief abode." Strickland says that in the neighbourhood of Smyrna "immense flocks of this bird arrived from the northward at the commencement of the severe weather at Christmas." From Trebizond it was sent by Mr. Keith E. Abbott; and Messrs. Dixon and Ross observe:—"Shot on the 30th of November 1843, in the vicinity of Lake Tajoora, where they were collected into large flocks in the stubble-fields, apparently migrating. They were very shy." Canon Tristram, in his essay on the 'Ornithology of Palestine,' writes:—" *A. arvensis* we found only in winter, on the sea-coast in large flocks; and it does not appear to remain in any part of the country in spring. Probably these flocks are migrants from the far north, as they never penetrate inland. There their place is taken by the closely allied species of *A. cantarella*, Bp.*, of which there were myriads in vast flocks about Beersheba in winter, where there were none of *A. arvensis*." As we have already stated, Captain Shelley has obtained both races of the Sky-Lark in Egypt; and Dr. von Heuglin regards it as "occasional, and probably not a regular winter visitor to North Arabia and Lower Egypt." In Persia De Filippi observed it in cultivated fields.

Pallas says that the Sky-Lark is abundant through all Russia and Siberia in temperate lands, and especially on the grassy plains. Steller observed it not only in Kamschatka, but equally in the Kurile Islands and in those which lie between Asia and America. Mr. H. Goebel says that in the province of Uman, in Southern Russia, it is common in summer, being one of the first birds to arrive in spring. Lehmann, during his journey to Bokhara, says it is found on the Emba steppes and on the east coast of the Caspian Sea, as for instance on the island of Peschnoi, on the 23rd of April. Dybowski and Parrex state that it is common in Dauria; and Radde found the Sky-Lark nesting on the southern slope of the Munku-Sardik up to an altitude of 6000 feet, but did not see it on the borders of tree-growth or on the marshy Alp tundras on the north-east Sajan. On those high mountains and on the Kossogol plateau they were singing on the 12th (24th) of July. He further records it as found on the east of the Chingan mountains, common at the mouth of the Dseja, on the Amoor, in the Bureja mountains, and very common in Mongolia.

Von Middendorff records them from several localities, amongst others, the Sea of Ochotsk. He says that his birds agree with the European species. In Northern China it also occurs in winter, having been procured by Mr. Swinhoe at Peking.

Captain C. H. T. Marshall discovered the Sky-Lark in North-western India; and Mr. Hume writes as follows concerning the bird found in that locality:—"A specimen of a Sky-Lark sent me from near Lahore by Captain C. H. T. Marshall appears to me to be precisely identical with the European species. I sent it to M. Verreaux, who remarks, 'This, as you rightly conjectured, is *Alauda arvensis*. I have compared it with more than a hundred European specimens, and cannot discover the slightest difference.'" We have also one of Captain Marshall's specimens in our collection, and indorse M. Jules Verreaux's opinion so far, that it consists of the small subspecies, and not the large northern form. We have already expressed our belief that *A. triborhyncha* is nothing more than *A. arvensis*; and we now add a note published by Mr. Blyth

* *A. intermedia* of this work (S. & D.).

in his commentary on Dr. Jerdon's 'Birds of India':—"A specimen lately received from Dr. Jerdon thus marked by him, differs in no respect that I can perceive from the European *A. arvensis*, not even in the proportions of its primaries; and the closed wing measures 4·5 inches. Mr. Gould, however, refers it to *A. moreatica*, Bonap., in which I fail to perceive sufficient distinction." When this last-named title was published we have been unable to discover.

The Sky-Lark occasionally visits Greenland, and has been met with in the Bermudas. Canon Tristram writes to us:—"I do not know whether I ever mentioned in print that I got the Sky-Lark (a storm-tryed waif) in Bermuda after an easterly gale."

Macgillivray's account of the habits of this species is excellent, as usual; and we cull the following remarks from his work:—"Towards the end of autumn the Sky-Larks congregate in large straggling flocks, generally keeping by themselves, although occasionally mingling with small birds of the Passerine and Bunting families. In open weather they frequent the stubble and ploughed fields, where they pick up the seeds of oats, wheat, barley, polygona, and other plants. Like the Deglubitores and many of the Cantatores, they use a large quantity of sand and gravel, consisting chiefly of grains of quartz, to aid the process of digestion. I believe their food during the winter consists almost entirely of seeds, although remains of insects may now and then be found in their gizzards. At this season they employ only their ordinary flight, which bears some resemblance to that of the Fieldfare, being performed by slight undulations, and several consecutive flaps of the wings, with short alternate cessations. They generally hover over a field, or fly about in curves, before they alight, which they do in rather an abrupt manner, but not so rapidly as the Corn- and Yellow Buntings. On alighting they disperse, and move about, not by leaps, like most small birds, but by an alternate action of the feet, in a half-gliding, half-startful manner, keeping their legs bent and their breasts consequently close to the ground. When in any degree alarmed, they crouch, draw in their neck, and remain motionless until the object of their apprehension has disappeared. Should a person walk up to a flock, he may get quite close to it before the birds think it necessary to rise; and on such occasions they do not all take flight at once, a few here and there rising in succession. Indeed, unless the ground be all gone over, many will remain and allow their companions to fly off. Their movements while rising are rapid and wavering, so that, until they are at some distance, it is difficult to shoot them. Owing to their habit of crouching, it is by means easy to perceive them while on the ground, especially if they are among stubble; and as their motions are quick, they traverse a considerable space in a short time. When there is snow on the ground, they betake themselves to corn-yards, and search the tops of the stacks for seeds; but in frosty weather, when the ground is clear, they prefer settling on the spaces between or around the stacks. If disturbed and forced to fly off, they do not, like the Buntings, Chaffinches, and Sparrows, with which they then associate, perch on the neighbouring trees or walls, but remove to a distance. During this season they merely utter a short chirping note as they fly, although occasionally a bright day, even as early as January, will elicit their song. The song of the Sky-Lark is familiar to most persons, even those who in cities have exchanged the love of nature inherent in humanity for the love of gain, fashion, and vicious excitement; but were it not, it would be as difficult for me to describe it as it would be for a musician to imitate it. Sometimes the Lark sings on the ground, perched on a clod, or even crouched among the grass; but generally in commencing its song it starts off, rises

perpendicularly or obliquely in the air, with a fluttering motion, and continues it until it has attained its highest elevation, which not unfrequently is such as to render the bird scarcely perceptible. Even then, if the weather be calm, you hear its warble coming faintly on the ear at intervals. It has been alleged that the Lark ascends in a spiral manner; but my observation does not corroborate the statement. It rising it often passes directly upward, but with the body always horizontal or nearly so, then moves in a curve, and continues thus alternately, but without a continued spiral motion. At first, the motion of the wings is uniformly fluttering, but afterwards it shoots them out two or three times successively at intervals, and when at its greatest height exhibits this action more remarkably. When it descends, the song is not intermitted, but is continued until it approaches the ground, when it usually darts down headlong, and alights abruptly. Frequently it resumes its song after alighting, and continues it for a short time, but more commonly it stops when it has reached the ground. Often the Lark may be seen hovering over a field, in full song, for a considerable time, at a small height. On the 4th May 1837, I observed a Lark perched on a half-burnt whin branch, where it remained singing a long time. I have often seen it perch on a wall, and several times on a hawthorn bush in a hedge; but it never, I believe, alights on tall trees.

“The song of the Lark is certainly not musical; for its notes are not finely modulated, nor its tones mellow; but it is cheerful and cheering in the highest degree, and protracted beyond all comparison. In a sunny day in April or May, when the grass-fields have begun to resume their verdure, it is pleasant to listen to the merry songster that makes the welkin ring with its sprightly notes; in the sultry month of July, still more pleasant is it to hear its matin hymn while the dew is yet on the corn; and in winter should you chance to hear the well-known voice on high, it reminds you of the bright days that have gone, and fills you with anticipation of those that are to come. No doubt much of the pleasure derived from the Lark’s song depends upon association; and to him who finds delight in wandering over the green fields, along the daisied margin of the clear stream that winds in the bottom of the pastoral glen, or upon the ferny brae, where ‘the lang yellow broom,’ and ‘blossomed furze unprofitably gay,’ shoot up amidst the wild thyme, yarrow, and blue bell, it is pleasant to listen even to the ‘skirl’ of the Corn-Bunting, the see-saw song of the Tit, the creaking cry of the Partridge, or the singular crake of the Land Rail; but, independently of circumstances and associations, the song of the Lark imparts an elasticity to the mind, elevates the spirits, and suspends for a time the gnawing of corroding care. The mellow song of the Merle or Mavis is apt to inspire melancholy, especially if heard in a sequestered valley toward the close of day, and the feelings which it excites have perhaps as much of a depressing as of a soothing tendency; but the carol of the Lark, like the lively fife, excites pure cheerfulness, and might with propriety be prescribed as an antidote to dulness. It is not merely music that we look for in the song of birds, but variety, and the expression of passions, feelings, and wants. Were all our warblers to tune their throats according to rule, we should become sickly and sentimental, fill the valleys with sighs, and groan from the mountain-tops; but the loud war-whoop of the Eagle, the harsh scream of the Heron, and the croak of the Raven are antidotes to the bewitching melody of the Black-cap and Nightingale. I have endeavoured to trace a repetition at regular intervals in the strains of the Lark; but its modulations seem to have no rule. In confinement this bird sings every whit as well as when at large; and when

rapidly perambulating the square bit of faded turf in its cage, it enacts its part with apparently as much delight as when mounting 'towards heaven's gate.' This bird always reposes on the ground at night, squatting frequently in the barest places. Its principal enemies, besides Man, are Polecats, Weasels, Merlins, Sparrow-Hawks, and Kestrels. The latter sometimes devour the young birds, which also fall a prey to the quadrupeds mentioned. I remember seeing in a grass-field many years ago, a number of Larks hovering over a particular spot, and incessantly uttering cries that seemed to me indicative of anxiety or distress. On going up, I observed a Polecat rush through the grass and disappear. It had been disturbed while in the act of eating the young birds in a nest, and had killed the whole; for those which remained had the head bitten through."

Yarrell gives the following particulars:—"The strong attachment of the parent Lark to its eggs and young has long been known; and a remarkable instance is thus described by Mr. Blyth in the second volume of 'The Naturalist.' 'The other day some mowers actually shaved off the upper part of the nest of a Sky-Lark without injuring the female, which was sitting on her young; still she did not fly away, and the mowers levelled the grass all round her without her taking further notice of their proceedings. A young friend of mine, son of the owner of the crop, witnessed this, and about an hour afterwards went to see if she was safe, when, to his great surprise, he found that she had actually constructed a dome of dry grass over the nest during the interval, leaving an aperture on one side for ingress and egress, thus endeavouring to secure a continuance of the shelter previously supplied by the long grass.' Two or three instances are recorded of the Sky-Lark moving its eggs under the fear of impending danger; and Mr. Jesse, in the fourth edition of his 'Gleanings,' adds the following communication made to him by a clergyman in Sussex, who, during a previous harvest, 'was riding gently towards Dell Quay, in Chichester Harbour, with two friends, where, having passed the toll-bar, the road is of good elevation, and separated by a short quickset-hedge on each side from the fields, over which there is a commanding view. When in this situation, their attention was attracted by a shrieking cry; and they discovered a pair of Sky-Larks rising out of the stubble, and crossing the road before them at a slow rate, one of them having a young bird in its claws, which was dropped in the opposite field at a height of about thirty feet from the ground, and killed by the fall. On taking it up, it appeared to have been hatched about eight or nine days. The affectionate parent was endeavouring to convey its young one to a place of safety; but its strength failed in the attempt.'"

Regarding the migration of the Sky-Lark, the following note is given by Thompson:—"In the 'Annual Register,' under the date of January 10, 1814, it is stated that 'the *Hillsborough* packet, on the passage from Portpatrick to Donaghadee, was literally covered, on the rigging and deck, by a flock of Larks." Messrs. Gray and Anderson also state, in their 'Birds of Ayrshire,' "some winters ago immense flocks of Larks appeared during hard weather in some fields close to the town of Girvan. On rising from the ground, the cloud of birds appeared so dense as to obscure objects in the line of their flight. Large numbers were killed on the telegraph-wires; and after the flocks had passed it was found that many birds had been mutilated, their wings being torn off by the wires." Mr. Stevenson, in his 'Birds of Norfolk,' likewise writes as follows:—"Our home-bred birds also perform, during the winter months, a kind of partial migration, shifting their ground repeatedly, according to the state of the weather. Not unfrequently after severe

frosts, when scarcely a Sky-Lark has been visible for weeks, we find on the first bright sunny day the stubbles are filled with them; but these soon leave again with the least indication of returning cold; and thus they come and go till spring has fairly commenced and all our northern visitants have again passed over us to their distant homes. Yarrell, referring to the migration of this species, mentions having received a communication from the Rev. R. Lubbock, of his having witnessed from Caister Point, near Yarmouth, 'the arrival of Sky-Larks from the sea;' and the same has been noticed on several occasions during the month of October, by the Rev. E. W. Dowell, at Blakeney. They arrive, he says, 'all day long in small flocks; and I have observed that these birds, and indeed most of the small land-birds, reach our shores in greater number towards the afternoon. Larks frequently burst into song when they make the land.' On the Suffolk coast they have also been seen to arrive in the same manner; and their return in February, in 'innumerable flocks,' is remarked by Messrs. Sheppard and Whitear. It would seem, moreover, that these flocks are not merely confined to the daytime, from the fact of specimens being frequently picked up dead, having flown against the windows of the lighthouses on the coast."

Mr. A. Benzon sends us a note on the Sky-Lark in Denmark:—"This bird, called in Danish *Sanglærke*, *Graslærke*, and *Marklærke*, is everywhere common in the flat country, and places its nest on the ground, forming it of straw lined with fine grass, the eggs being placed with the points inwards. Its first sitting, deposited in April, never exceeds four in number, whereas in June, when the weather has become milder, and the supply of food more ample, it often lays five eggs. I have never seen an albino of this species; but I know that one has been seen on Jutland."

Dr. E. Rey writes to us that he observed it in Portugal from March to May, and in Germany has taken eggs of this bird from the 16th of April to the 25th of July. The average size of one hundred eggs in his collection is 24.1 by 16.8 millims., the largest measuring 25.5 by 17.0, and the smallest 20.6 by 16 millims. respectively. In number they vary from four to seven.

Mr. Hewitson gives the following particulars:—"The eggs of the Sky-Lark, though very rarely differing so much as to cause a difficulty in identifying the species, are nevertheless subject to much variety, both in form and colour: some are large and oval; others are pyriform, like those of the Waders; some are of the deep sombre brown which marks the eggs of the Titlark; others are tinted with green, and are, I think, the most characteristic of the species; whilst a few, and these are of rare occurrence, are so much less closely freckled, as to leave a light ground-colour. In a nest, which I found in Derbyshire some years ago, were two of these varieties: one of them resembled a good deal the eggs of the Woodlark, both in size and colour; the other was still lighter, the markings smaller, and not unlike eggs of the Pied Wagtail. These were in the same nest with three others of the usual size and colour. There is yet another variety, which I had almost forgotten to mention, on which the chief part of the colouring is concentrated in a deep zone round the larger end; and in two or three specimens which I have seen, the same deeper colouring was centred in a finger-like mark on one side only. Like the eggs of many of our smaller birds, they are occasionally white."

We have a series of the eggs of this bird, out of Dresser's collection, before us, all British-taken. The ground-colour of these eggs is dull grey, occasionally with an olive tinge; the underlying shell-markings are pale purplish and light brown; and the overlying surface-blotches,

which are closely scattered all over the egg, sometimes forming a ring round the larger end, are dark nut-brown.

The birds figured in the Plate represent an adult male and a young bird just able to fly, in our own collection. The bird in spring plumage is described from a specimen received from Mr. W. Schlüter, of Halle, to whom we are much indebted for a beautiful series of Sky-Larks in all states of plumage; and the different stages of nestlings are chiefly taken from examples lent by him and specimens procured by ourselves in England.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a. Durham (*H. E. Fox*). *b.* Leeds (*J. McLeannan*). *c.* Oxfordshire (*P. L. Sclater*). *d, e, f, g, h, i.* Hampstead (*C. R. Davy*). *j, k.* Cookham, Berks (*W. Briggs*). *l, m, n, o, p, q.* Cookham, Berks (*R. B. Sharpe*). *r.* Hoddington, Hampshire (*P. L. Sclater*). *s, t, u, v, w, x, y.* Pagham, Sussex (*R. B. Sharpe*). *z, a', b', c', d', e', f', g', h', i'.* Germany (*W. Schlüter*). *j', k', l', m'.* Piedmont (*Salvadori*). *n', o'.* Tunis (*P. L. Sclater*). *p'.* Constantinople (*T. Robson*). *q'.* Asia Minor (*T. Robson*). *r'.* Crimea (*H. Whitely*).

E Mus. H. B. Tristram.

a, b. Orkneys (*H. B. T.*). *c.* Castle Eden, Durham (*H. B. T.*). *d.* Larnaka, Cyprus (*H. B. T.*). *e.* Palestine (*H. B. T.*).

E Mus. Lord Walden.

a. Beersheba, Palestine (*H. B. Tristram*).

E Mus. J. H. Gurney, jun.

a, b, c, d. Leadenhall Market, var. (*J. H. G.*). *e.* Stockton-on-Tees (*Green*). *f, g, h, i.* Seaton, Durham (*J. H. G.*). *j, k, l, m, n.* Greatham, Durham (*J. H. G.*). *o.* Norwich (*Gunn*). *p.* Northrepps, Norfolk (*J. H. G.*). *q.* Hampstead (*Davy*). *r.* Eastbourne, Sussex (*J. H. G.*). *s, t.* Spain (*J. H. G.*). *u.* Moscow (*J. H. G.*).

E Mus. Howard Saunders.

a. Cookham, Berks (*J. Ford*). *b.* Seville (*H. S.*).

E Mus. R. G. Wardlaw Ramsay.

a, b. Whitehill, Lasswade (*R. G. W. R.*).

E Mus. L. H. Irby.

a. Seville (*L. H. I.*). *b.* Tangier (*Olcesse*).

E Mus. G. E. Shelley.

a, b. Avington, Hampshire (*G. E. S.*). *c.* Alexandria, Egypt (*G. E. S.*). *d, e, f.* Fayoom, Egypt (*G. E. S.*).

E Mus. R. Swinhoe.

a, b. Peking (*R. S.*). *c, d.* Shanghai (*R. S.*). *e.* Wilderness of Judæa (*H. B. Tristram*).

E Mus. Berolinensi.

a. Schleswig (*Gloger*). *b.* Thuringia (*Brehm*, var. *A. agrestis*, Br.).



WOOD-LARK.

ALAUDA ARBOREA.

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ALAUDA ARBOREA.

(WOOD-LARK.)

- Alauda arborea*, Linn. Syst. Nat. i. p. 287 (1766).
Alauda nemorosa, Gm. Syst. Nat. i. p. 797 (1788).
Alauda cristatella, Lath. Ind. Orn. ii. p. 499 (1790).
Lullula arborea, Kaup, Natürl. Syst. p. 92 (1829).
Galerida nemorosa, Brehm, Vög. Deutschl. p. 316 (1831).
Galerida arborea, Brehm, Vög. Deutschl. p. 317 (1831).
Galerita musica, Brehm, Naumannia, 1855, p. 279.
Galerita anthirostris, Brehm, Naumannia, 1855, p. 279.

Alouette lulu, French; *Baumlerche*, *Heidelerche*, German; *Boom-Leeuwerik*, Dutch; *Alondra de Monte*, Spanish; *Trädlärka*, Swedish; *Skoolærke*, *Hedelærke*, Danish; *Trælærke*, Norwegian; *Mehtaleivo*, Finnish; *Javronok liesnoi*, Russian; *Skowronek borowy*, Polish.

Figuræ notabiles.

Montb. Pl. Enl. v. 503. fig. 2; Naum. Vög. Deutschl. iv. taf. 100. fig. 2; Gould, B. of Eur. iii. pl. 167; Yarr. Brit. B. i. p. 417; Kjærb. Orn. Dan. Afb. xviii. fig. 4; Schl. Vog. Nederl. pl. 149; Fritsch, Vög. Eur. tab. xvi. fig. 3; Gould, B. of Gt. Br. pt. xvi.; Bettoni, Ucc. Lomb. ii. tav. 61; Sundev. Sv. Fogl.

♂ *ad.* suprâ brunneus, collo postico pallidiore, pilei cristati dorsique plumis medialiter nigris utrinque fulvo vel pallidè rufescente marginatis: uropygio et supracaudalibus cinerascenti-brunneis unicoloribus: tectricibus alarum brunneis, fulvescente lavatis, minimis extûs conspicuè albis: remigibus et alâ spuriâ saturatè brunneis, extûs albido limbatis, secundariis fulvescente marginatis: caudâ saturatè brunneâ, rectricibus duabus centralibus cineraceo lavatis, reliquis vix cinerascenti-albo terminatis, exterioribus gradatim terminatis et marginatis: loris et supercilio distincto pileum circumeunte fulvescenti-albis: regione paroticâ rufescenti-brunneâ, suprâ nigricante: genis et collo laterali albicantibus minutè nigro longitudinaliter striatis: subtûs albicans, mento ipso immaculato: pectore superiore nigro longitudinaliter striato: hypochondriis cinerascentibus angustissimè brunneo lineatis: subalaribus albicantibus, imis cinerascentibus, plumis carpalibus brunneo notatis: rostro brunneo, mandibulâ carneâ: pedibus pallidè carneo-brunneis: iride saturatè brunneâ.

♀ mari haud dissimilis.

♂ *autumn.* magis fulvescens, et lineis pectoralibus obscuratis: remigibus magis conspicuè rufescente marginatis: abdomine magis distinctè fulvescente tincto.

Juv. obscurior: pilei et dorsi plumis latè medialiter nigricantibus conspicuè albicante limbatis: tectricibus alarum et primariis latè fulvescente marginatis et terminatis, secundariis fasciâ marginali nigrâ et fulvâ limbatis: subtus similis adultis, sed clariùs albescens, et lineis pectoralibus minoribus: cinctu capitali conspicuè albo.

Male adult, spring. Above brown, each feather with a central stripe of blackish brown, and edged with rufous; feathers of the head striped down the centre with dark brown and edged with rufous, forming a short, full crest; a light spot behind each nostril and a broad yellowish-white stripe from the back of each eye to the nape, where they form an irregular and indistinct collar; rump- and upper tail-coverts greyish brown; tail dark brown, the two central feathers much lighter in colour, and broadly edged with light brown, the outer feather on each side dirty white towards the tip, and having the outer web bordered with white, the next feather on each side with a large white spot at the tip, and the next with a similar smaller one; quills dark brown, narrowly edged on the outer web with white; secondaries tipped and edged with dull rufous; primary coverts blackish brown, tipped with light buff; lesser coverts the same as the back, but lighter, and having the entire centre dark; lores grey; ear-coverts rufous, edged with dark brown, the feathers on the side of the neck bordering the auriculars being dirty white; underparts dull yellowish-white; sides of chin, throat, and breast profusely spotted with dark brown; flanks indistinctly striped; under tail-coverts white, buff at the base of the feathers; under wing-coverts white, the lowest ones ashy; beak dark brown; under mandible pale flesh-coloured; legs pale flesh-brown; iris dark brown. Total length 5·5 inches, culmen 0·45, wing 3·9, tarsus 0·8, hind toe, with claw, 0·85, hind claw 0·4.

Male, autumn. Upper parts more fulvous, the rufescent edgings to the feathers being much broader; underparts tinged with buff, the pectoral stripes being rather more obscured, and tinged with rufous.

Female. Similar in plumage to the male.

Young. Above generally darker than the adult, each feather being very dark brown in the centre, and narrowly edged with pale yellowish-buff; primaries similarly margined, the secondaries with a double margin of black and fulvous, and having a gloss of metallic purple; underparts clear white; pectoral markings smaller than in the adult; the band round the head, cheeks, and sides of the head clear white.

THE present species is generally distributed throughout Central and Southern Europe, rarely penetrating far north, and ranging to the east to the Ural, or at least but very rarely occurring beyond that range of mountains. With us in England it is a local species, occurring in some parts and not observed in others, but everywhere rather rare than otherwise.

According to Yarrell, it inhabits Sussex, Hampshire, Dorsetshire, Somersetshire, Devonshire, and a few occur in Cornwall; it is also found in Wales. North of London it is found in Suffolk, Norfolk, Lincolnshire, Yorkshire, Derbyshire, and Lancashire; in Norfolk Mr. Stevenson finds it by no means numerous, and now confined almost entirely to the western parts of the county. As regards its range in Scotland, Mr. Robert Gray refers to instances on record of its having occurred in Forfarshire, Ayrshire, Dumbartonshire, Caithness, Banffshire, and Aberdeenshire, and even as far north as Orkney, a specimen having been shot in Mr. Dunn's garden, at Stromness, on the 20th of February, 1844. In Ireland it is resident, but very local; Thompson states that it is found in the counties of Down and Antrim, in well cultivated and wooded parts. During the breeding-season it is to be met with, according to Mr. More (*Ibis*, 1865, p. 124), "chiefly in the south of England, and is apparently rare or wanting in some of the eastern counties. It nests only occasionally in Essex, and is not included in either of the lists which I have received from Lincolnshire, though the county is mentioned by Yarrell." Respecting its nidification in Scotland we are indebted to our friend Mr. J. A. Harvie Brown for the following note:—"That *Alauda*

arborea has bred in Stirlingshire once there is no doubt, and that it has bred oftener there is every reason to believe, though unfortunately there is no corroborative evidence of its having actually done so on more than one occasion. In 1863 I took four eggs in Torwood, about two miles from our house, and satisfied myself at the time of the bird's identity. Before that date I had also seen the bird in Torwood; but since then, having almost invariably been from home during the nesting-season, and not having any sufficiently reliable person to search for the nest in my absence, I have neither seen the birds nor again procured the nest, although one containing four eggs was brought in by our gamekeeper's son, which I believed to be those of *Alauda arborea*. I quote the following note from my 'Egg-Book' in reference to the above capture:—"The bird scuttled away along the ground from the nest from almost beneath my feet. . . . On taking wing it flew away into the wood. The nest was placed in the face of a sloping bank in a "ride" in the wood.' Mr. Robert Gray has seen this species also at the Bridge of Allan, in the same county, as mentioned in his 'Birds of the West of Scotland' (p. 124), and it has been observed in various other parts of Scotland. I am not aware, however, that any other eggs beside the above have been procured."

In Norway, Mr. R. Collett informs us, it is found in the most southern and south-eastern districts, as in Aremark, Edsberg, and at Fredrikshald, where it is tolerably numerous. At Christiania it is rare, but is found there annually, and breeds in certain favourable localities, as on the open parts bordered by fir-woods above Riis, Gaustad, and Haugerud, and at Fornebo and Næsodden. It arrives in April, in flocks of eight or ten individuals. Professor Rasch has observed it late in September. In Sweden it is found in the southern portion of the country, but, according to Professor Sundevall, ranges only as high as Gefle, where Dresser also met with it. Nilsson, on the other hand, places its northern limit at the island of Gottland, where it is rare. It has been met with breeding in Skåne, where it arrives in March and leaves again in September. In Finland it is not a common bird; but, according to Von Wright, a few appear every spring near Helsingfors, and leave after a stay of a week or two; however, in the autumn it has not been observed. It breeds at Uskela, in Åbo Län. Dresser never observed it during his stay in that country. With regard to its range in Russia, Mr. Sabanäeff writes to us that it is found throughout Central Russia, but more often seen during migration. It breeds in Kazan and Simbirsk, and, according to Cherkazo, in the Government of Kharkoff, as also in that of Kieff, as stated by Kessler. Sabanäeff did not observe it on the Ural, but considers that it may be met with on the western slope. Eversmann found it breeding in the Governments of Kazan and Viatka; but Meshakoff records it as rare in the Government of Vologda. Meves only observed it once near Schlüsselburg.

On the northern coasts of Germany and in the Baltic provinces it is not a common bird; and Naumann even refers to it as not occurring there. However, Mr. Hintz refers to it as a regular summer visitor to Pomerania, arriving in March and remaining to breed. It has been known to occur thus far north in the winter season; and Mr. Taczanowski writes that he has twice seen this Lark in Poland during the winter—on one occasion in January, when the bird was observed for several days on the outskirts of a wood at Lubartow, and rose singing in the air during the time the sun was shining, as if it were spring, although the ground was covered with snow. As regards its occurrence in Denmark, Mr. Benzon writes to us as follows:—"In

Denmark it is called *Skovlærke* and *Hedelærke*, and sometimes *Lijnlærke*, and is not common with us; even during migration in March and April it is only occasionally observed. "I do not know any instance of its breeding on the islands; but it breeds here and there on Jutland." It is found throughout Northern and Central Germany, but it is nowhere as common as the Sky-Lark. In no locality is it really plentiful, but restricts itself to certain small districts. It is a true migrant, leaving in the autumn to winter in the south, and returning again in the spring. Dr. E. Rey, in his 'Ornis von Halle,' states that it generally arrives there early in March, but only a few remain to breed. From Bitterfeld to Dessau it becomes more numerous. He procured nests from the 4th to the 27th of May, containing four and five eggs.

In Holland and Belgium it is likewise much rarer than the Sky-Lark; and in the latter country it occurs regularly during migration in autumn, and again in March, when it is found in small flocks in the fields and meadows. Baron von Droste Hülshoff includes it in his work on the ornithology of Borkum as rare; but he found it breeding on the dunes; and Mr. Labouchere writes that it breeds in some parts of Holland.

According to Degland and Gerbe it is common throughout France, sedentary in some parts, as in the Landes and in the department of Var, and migratory in others, as near Paris and in some of the northern departments. In Provence it is, according to MM. Jaubert and Barthélemy-Lapommeraye, very common during the autumn migration, but rare in spring. In the far south of France it is rarely seen in summer; and in Spain, as we are informed by Major Irby, it seldom remains to breed. In this latter country, he writes, it is not at any time abundant, and appears to be, as in England, very local. They are more numerous in the spring, from February to the end of April, when they leave for the north. Mr. Howard Saunders found it tolerably common in Southern Spain during the autumn and winter, some few breeding near Granada. In Portugal it is, according to the Rev. A. C. Smith, local and not common. Canon Tristram, who compared the specimens obtained by Mr. Smith with British and continental specimens, remarks that the Portuguese bird is rather darker than these latter.

Passing eastward again we find this species (according to Bailly) not so common in Switzerland and Savoy as the Sky-Lark, and frequenting especially the bushy localities and vineyards. It leaves Savoy during the cold season, but does not migrate far, as it arrives back in Southern Europe early in February. Dr. Girtanner writes that it breeds in Switzerland. In Modena, according to Doderlein, it is resident throughout the greater part of the year, and breeds; but on the approach of winter, its numbers being increased by accession from the north, the majority take their departure for the south. Almost the same occurs in Sicily, where a few pairs remain to breed in spring, the majority returning to the north.

In Malta (Wright, Ibis, 1864, p. 60) it is less rare than the Crested Lark, but cannot be considered common. It appears at the same season, and Mr. Wright has observed it offered for sale with Sky-Larks. Lord Lilford observed it commonly at Corfu during the winter; and large flocks remain to winter in Greece, where it is, strictly speaking, a winter visitant, though, according to Dr. Krüper, a few pairs are occasionally found breeding in the mountains; and Lord Lilford likewise states that a few remain to breed in Corfu. It is common in Turkey during the winter season, and is said by Mr. Robson to be resident near Constantinople. On the coasts of the Black Sea it is recorded by Professor Nordmann as rare; and he only twice

observed small flocks of six or eight individuals, near Odessa. Although a migrant throughout Central Europe, it is, strange to say, a resident not only (as above stated) near Constantinople, but also in Palestine; for Dr. Tristram, who procured it there, writes (*Ibis*, 1866, p. 287) as follows:—"Of the typical *Alaudinæ*, *Alauda arborea*, L., is the only one which we found breeding; it remains all the year in the country, wintering in the hills about Jerusalem in small flocks, and dispersing into the neighbourhood of oliveyards and woods in the breeding-season. It is not an uncommon bird." It ranges as far south as Lower Egypt, but is rare there, as the only instance we know of its occurrence is one recorded by Brehm. It is, however, according to Loche, common in Southern Algeria, especially in the winter, where it frequents the bush-covered localities, and is found in small bands of about fifteen individuals, but never in large flocks. Mr. Tyrwhitt Drake does not include the Wood-Lark in his list of the birds of Morocco; but we are informed by Major Irby that it occurs during the winter season in the vicinity of Tangiers. It has not been found on the Canaries or the Azores.

Unlike the Sky-Lark, which frequents the open treeless and bushless plains and fields, the Wood-Lark affects less-cultivated ground where trees and bushes partially cover the country. As its German appellation, *Heidelerche* (Heath-Lark), implies, it frequents the heath-covered plains where trees are in the immediate neighbourhood; and, according to many observers, it appears to prefer conifer growth to non-evergreen groves. In localities where the soil is sandy and partially covered with second growth, larger trees being sparsely scattered here and there, this species is generally numerous; but it does not frequent the dense forest. In its habits it is lively and sprightly, fond of the society of its congeners, and not quarrelsome, but rather more shy than the Sky-Lark. It frequents the ground far more than is commonly supposed, and indeed only perches occasionally on the outer branches, chiefly during the breeding-season when singing. It seeks its food almost, if not solely, on the ground, and runs with celerity and ease. It roosts on the ground in open places close to the woods, under weeds or grass, or in the old weed-covered furrows, and retires early to rest. It is more affected by the cold weather than the Sky-Lark, and migrates earlier to the southward than that species. Its song is sweet and flute-like, more melancholy than that of *A. arvensis*, and is generally uttered from the top of some tree, or else when the bird is on the wing. It rises to some height before commencing, then ascends, singing, higher and higher, throwing itself from side to side, hovers and floats in the air, and, when the song is ended, drops with closed wings to the ground again. It sings not only in the mornings and evenings, but also at other times of the day and in the night, especially at midnight.

The Wood-Lark, like the Sky-Lark, places its nest on the ground, usually in some place where it is well concealed. The nest is constructed of grass, straws, and moss, lined with fine bents, hair, and wool, and is a more compact structure than that of the last-named bird. The eggs, usually four or five in number, vary somewhat in colour and markings. In a series now before us out of Dresser's collection the ground-colour is white, in some with a grey, and in others with a slight reddish tinge, and the markings, which are minute and scattered closely over the egg, generally collecting somewhat at the larger end, are reddish brown, olive-brown, or dark nut-brown. In one or two specimens there is a blotch at the larger end, and besides these surface-spots there are

generally a few light brown and purplish shell-spots. In size they vary from $\frac{3.2}{4.0}$ by $\frac{2.4}{4.0}$ to $\frac{3.4}{4.0}$ by $\frac{2.6}{4.0}$ of an inch.

The figure of the adult bird in the Plate is taken from a specimen in Dresser's collection obtained near Bristol in October 1869, that of the young bird from one in Canon Tristram's collection, obtained at Safed, the descriptions being taken from the same specimens; the description of the male in spring plumage is taken from an example in Dresser's collection, obtained in Sjælland in March 1871 by Mr. A. Benzon.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, c. Bristol, October 1869 (*Davy*). *d.* Wales, October (*Davy*). *e, ♂.* Sjælland, March 1871 (*A. Benzon*).
f. Ortakeuy, Turkey, April 29th (*Robson*). *g.* Genoa, October 1857 (*H. E. D.*).

E Mus. J. H. Gurney, jun.

a, b. Pembroke. *c.* Near London. *d, e.* Avranches.

E Mus. H. B. Tristram.

a. Jericho. *b, juv.* Safed, 20th of May (*H. B. T.*). *c.* Zebdany, 13th of June. *d.* Boghar, 30th of May (*H. B. T.*).

E Mus. A. B. Brooke.

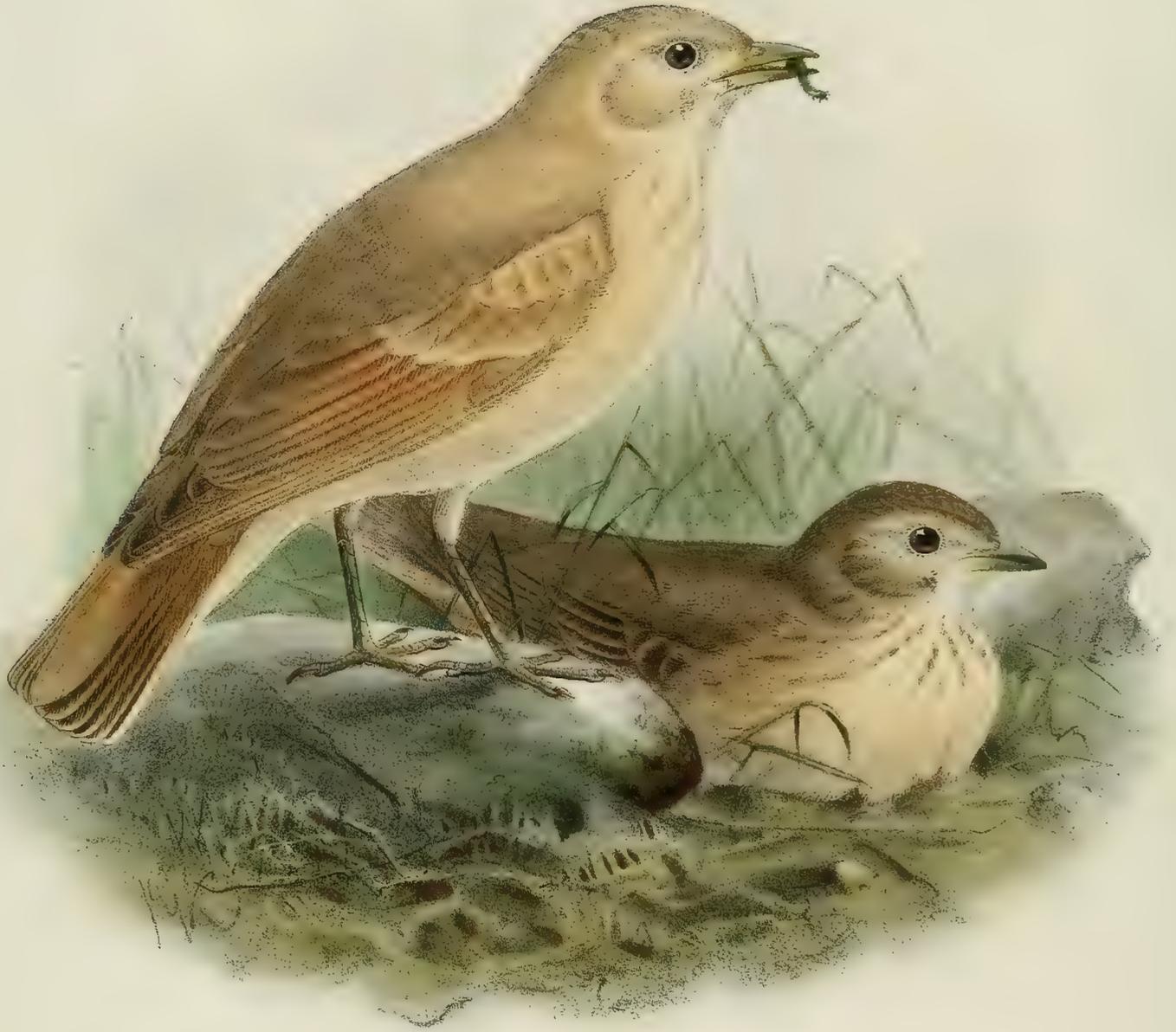
a. Riviera, spring (*A. B. B.*). *b.* Riviera, winter (*A. B. B.*).

Genus AMMOMANES.

- Alauda* apud Lichtenstein, Verz. Doubl. p. 28 (1823).
Melanocorypha apud Gould, Voy. Beagle, Birds, p. 87 (1841).
Phileremos apud Von der Mühle, Orn. Griechenl. p. 38 (1844).
Mirafra apud G. R. Gray, Gen. of B. ii. p. 383 (1844).
Calandrella apud Bonaparte, Consp. Gen. Avium, i. p. 244 (1850).
Ammomanes, Cabanis, Mus. Hein. i. p. 125 (1850-51).
Annomanes apud Bonaparte, Cat. Parzud. p. 8 (1856).

THE Desert-Larks approach more closely to the true Larks than to any other genus, and form a natural link between them and *Calandrella*, to which they are also very closely allied. They inhabit the sandy desert portions of the Palæarctic, Ethiopian, and Oriental Regions, two species being found in the Western Palæarctic Region. Affecting arid deserts, they are shy and wild, but otherwise to a large extent resemble the Crested Larks. Their flight is weak; but they run with great speed, and squat and hide when frightened. Their song is agreeable, though somewhat monotonous, and is said to resemble that of *Calandrella*. They feed on insects and seeds, and build a slight, neatly formed, cup-shaped nest of grass, which they place on the ground, and deposit several rich cream-coloured eggs blotched with brown and dull rufous.

Ammomanes deserti, the type of the genus, is a uniform greyish or rufescent isabelline-coloured bird; it has the beak moderately strong, rather long, the upper mandible overlapping the lower one, and curved downwards towards the tip; nostrils round, placed in the fore part of the nasal depression; wings rather long, the first quill short, but much longer than the coverts, the second shorter than the sixth, the third, fourth, and fifth nearly equal, the fourth generally the longest; tail moderately long, very slightly emarginate; tarsus covered in front with five indistinct large and three inferior scutellæ, and posteriorly also scutellate; claws weak, except the hind claw, which is elongated and nearly straight.



DESERT LARK.
AMMOMANES DESERTI.

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AMMOMANES DESERTI.

(DESERT-LARK.)

- Alauda deserti*, Licht. Verz. Doubl. p. 28 (1823).
Alauda isabellina, Temm. Pl. Col. 244. fig. 2 (1838).
Phileremos isabellina (Temm.), Von der Mühle, Orn. Griechenl. p. 38 (1844).
Mirafra deserti, G. R. Gray, Gen. of Birds, Subfam. vi. (1844).
Melanocorypha isabellina (Temm.), Rüpp. Syst. Uebers. p. 78. no. 307 (1845).
Alauda lusitania (Gm.), Degland, Orn. Eur. i. p. 405 (1849, nec Gm.).
Calandrella deserti (Licht.), Bp. Consp. Gen. Av. i. p. 244 (1850).
Ammomanes deserti (Licht.), Cab. Mus. Hein. i. p. 125 (1850).
Mirafra phœnicuroïdes, Blyth, J. A. Soc. Beng. xxii. p. 583 (1853).
Melanocorypha deserti (Licht.), C. L. Brehm, Vogelfang, p. 121 (1855).
Melanocorypha isabellina, C. L. Brehm, tom. cit. p. 121 (1855).
Melanocorypha arabs, C. L. Brehm, tom. cit. p. 122 (1855).
Melanocorypha galeritaria, C. L. Brehm, tom. cit. p. 122 (1855).
Annomanes deserti (Licht.), Bp. Cat. Parzud. p. 8 (1856).
Annomanes isabellina (Temm.), Bp. tom. cit. p. 8 (1856).
Ammomanes isabellina (Temm.), Tristram, Ibis, 1859, p. 34.
Ammomanes fraterculus, Tristram, P. Z. S. 1864, p. 434.
Ammomanes lusitanica, Blyth, Ibis, 1867, p. 45 (nec Gm.).
Ammomanes lusitana (Gm.), Salvadori, Ucc. d'Ital. ii. p. 133 (1872, nec Gm.).

Figuræ notabiles.

Temminck, Pl. Col. 244. fig. 2; Bree, B. of Eur. ii. pl. to p. 188.

♂ *ad.* corpore suprâ pallidè rufescenti-isabellino, subtùs albo vix isabellino tincto: gutture nigrescente indistinctè striato: remigibus pallidè fuscis extus rufescente isabellino marginatis, secundariis intimis et tectricibus alarum superioribus dorso concoloribus: rectricibus centralibus rufescenti-isabellinis, versus apicem griseis et centraliter brunneo notatis, reliquis ad basin rufescentibus, versus apicem sordidè brunneis, duabus externis in pogonio externo fere ad apicem rufescentibus: subalaribus pallidè rufescenti-isabellinis: rostro pallidè et sordidè flavo, pedibus pallidè schistaceis vix viridi tinctis: iride fuscâ.

♀ *ad.* haud a mare distinguenda.

Adult Male (Egypt). Upper parts pale rufescent isabelline; underparts white, slightly washed with isabelline on the abdomen and flanks, and with very indistinct dark stripes on the throat; quills pale sandy brown with a greyish tinge, margined on the outer web with rufescent isabelline; innermost secondaries and wing-coverts coloured like the back; rump and upper tail-coverts rather more rufous than the back; central rectrices reddish isabelline or pale sandy rufous, becoming grey towards the

tip, and marked with dull brown in the centre, remaining rectrices pale rufous at the base, and gradually darkening till they become dull sooty brown toward the tip, the two outer feathers on each side with the outer web rufous nearly to the tip; under wing-coverts pale rufescent isabelline; bill dull yellow, with a greenish shade; legs pale greenish slate; iris brown. Total length about $6\frac{1}{2}$ inches, culmen 0·6, wing 3·9, tail 2·8, tarsus 0·85, hind toe with claw 0·55, hind claw 0·27; first primary short, only 0·33 longer than the coverts, and 1·7 less than the second, second 0·25 less than the third, third and fourth equal, being also the longest.

Female. Similar to the male.

Young. According to Mr. Blanford the young differ from the adult in being generally more rufous, in having the basal portion and margins of all the rectrices pale dull ferruginous, with only the terminal portion dark brown, the size of the dark spot being smallest on the outer pair. The greater portion of the quills too, including all the basal part, is the same dull pale rufous; and there are pale rufous edgings to the feathers of the upper parts and breast.

Obs. Some authors have used Gmelin's name of *Alauda lusitana* (Syst. Nat. i. p. 798, 1788) for the present species; but I have not done so, for the following reasons:—Gmelin founded his species on the Portugal Lark of Latham (Syn. ii. pl. ii. p. 393), which the latter author describes as having "the upper part of the plumage cream-colour; each feather dusky brown in the middle; coverts and quills edged with grey; underparts yellowish white, deepest on the breast; tail as the upper parts, some of the outer feathers yellowish white." This description, which it is stated in a footnote was taken from a drawing, does not agree with *A. deserti*; and I think it probable that the bird described was a cream-coloured variety, or partial albino, of one of the commoner species. Nor does it appear that any authentic specimen of the true *A. deserti* has ever been obtained either in Portugal or Spain. I have seen two so-called specimens of *A. deserti* from Spain, both of which were nothing else but cream-coloured varieties of the common Sky-Lark and the Crested Lark, and Mr. Saunders tells me that he entirely disbelieves its occurrence there.

THE present species inhabits Northern Africa, straggling but rarely, if ever, to Europe proper, and is found eastward to Cashmere.

It is said to have occurred in Portugal and Spain; but I have failed in tracing any authentic instance of its occurrence in those countries, and think that pale cream-coloured varieties of other Larks have been mistaken for this species. Indeed its occurrence in Europe north of the Mediterranean appears to be somewhat doubtful and uncertain. Cara recorded it from Sardinia; but Salvadori never met with it, and doubts its occurrence, stating that specimens in the Cagliari Museum labelled as being this species are nothing but varieties of *Alauda arvensis*. It is stated to have occurred at Malta by Mr. C. A. Wright, who writes (Ibis, 1864, p. 61) that the capture of a single specimen, of which the skin is in the possession of Signor Schembri, entitles it to a place in his catalogue of the birds found there; but I am in some doubt as to whether this may not refer to the Lesser Desert-Lark (*Ammomanes cinctura*, Gould), of which species I obtained a specimen from Mr. Wright with some other birds some years ago. Temminck (Man. d'Orn. iv. p. 638) speaks of it as being common in Greece; but Von der Mühle (*l. c.*) states that it is very rare on the elevated plains of Tripolitz and elsewhere, and by no means common as Temminck says. Erhardt records it from the Cyclades; but Lindermayer writes that he never met with it in Greece. I do not find it recorded from anywhere else in Europe proper; but it is

common in Palestine, where, however, according to Canon Tristram (*Ibis*, 1866, p. 287), "it is confined to the Dead-Sea region and the southern wilderness." He considers that the greyer and darker form constitutes a distinct species from the paler rufescent-isabelline bird, and says that the latter "is the least common, being found only in the highlands close to the Dead Sea in very small bands." As above stated, however, I am unable, after having examined a series of specimens from various localities, to find any specific distinction between the dark and the light race. Mr. C. W. Wyatt met with this species in the Sinaitic peninsula, where, he says, it is common amongst the higher parts of the mountains, but less abundant lower down.

In North-east Africa the Desert-Lark is abundant; and Von Heuglin (*Orn. N.O.-Afr.* p. 685) says that "it appears to be a resident in Egypt, Northern Arabia, and Nubia, southwards to 15° N. lat., and likewise occurs in the Abyssinian coast region, possibly as far as the Somali country, but is not found in the mountains of Habesch. It is found in pairs on the border between the cultivated country and the desert, as well as in the desert itself, especially near the caravan roads. Its song is poor, and the call-note lisping; it is generally seen on the ground, but occasionally on a low bush; it runs swiftly, and usually quite straight; and it feeds on insects, durrah seeds, and the seeds of the various desert-plants." Mr. E. C. Taylor writes (*Ibis*, 1867, p. 64) that he found it abundant near Cairo in January, and shot it close to the walls of the city. Near Assouan he found only the darker form (*A. fraterculus*, Tristr.). Dr. Leith Adams speaks of it (*Ibis*, 1864, p. 25) as being "not uncommon on the deserts of Nubia, and usually seen in small flocks." Mr. Jesse obtained a specimen at Koomaylee in June 1868, where it was not plentiful, but more so at Amba in August; and Mr. Blanford speaks of it (*Geol. & Zool. of Abyss.* p. 390) as "not rare to the west and north-west of Massowa on rocky and stony ground amongst thin bushes."

In North-western Africa it is common in the sandy plains; and Major Loche, who considers that there are two distinct species of the larger-sized Desert-Larks in Algeria, and describes the one under the name of *Annomanes isabellina* and the other under that of *Annomanes deserti*, states that it is common in the Algerian Sahara, but does not occur near the coast. Canon Tristram says (*Ibis*, 1859, p. 422), it "occurs first on leaving the Hauts Plateaux in small numbers, but is more plentiful further south, inhabiting the open plains, where it is difficult to conceive how it finds subsistence. Its lateral range is wide. I have obtained it from the frontiers of Morocco to Arabia Petræa. It is sedentary, and breeds both in the Algerian Sahara and in the wilderness of Judæa." Mr. Taczanowski says (*J. f. O.* 1870, p. 42) that "it is met with on the south side of the Atlas, and about midway between Batna and Elkantara it is numerous;" and Mr. J. H. Gurney, jun., speaks of it as having been found by him at Laghouat, and thence as far as Gardaia on the bare stony plains, and less commonly on the hill-sides.

To the eastward it is found as far as India, and was met with in Persia by Mr. Blanford, who says that "it is extremely common in Baluchistan and on the coast of the Persian Gulf, but it becomes scarce and local in the highlands of Persia. Among the barren hills of Baluchistan this was almost the only bird which was abundant." It is not recorded from Turkestan by Severtzoff; but Dr. Jerdon (*B. of India*, i. p. 423) speaks of it as inhabiting Afghanistan and Central Asia, and spreading into Cashmere and the Punjab Salt range; and Mr. A. O. Hume, who found it in Sindh, writes (*Stray Feathers*, i. p. 211) as follows:—"This in and about the

hilly portions of Sindh is the Lark *par excellence*; in the barest and most desolate hills, absolutely devoid of the slightest trace of vegetation (all about Duryalo they had had no rain for more than two years when I was there), this bird was abundant. From the very northernmost to the extreme southern point of Sindh it was equally plentiful in suitable localities; and all the way up the Mekran coast I met with it whenever and wherever we landed. It is a perfectly fearless and familiar bird, and, when shot at, generally drops, if not wounded, at a few yards distance and seeks safety by squatting, when it is impossible, even at a couple of yards distance, to make out its whereabouts, so perfectly does its sober garb harmonize with the barren localities it affects. Further north it is equally common in the Salt range, in the hills that encircle the Peshawur valley, and Hazara."

In its habits the present species is essentially a desert-bird, being found in the desolate, sandy, and wild localities, where its sober, dull, isabelline garb harmonizes closely with the soil; and it appears that its plumage always assimilates with the nature of the soil, being darker and greyer in some localities and more isabelline or rufescent isabelline in others, according to the prevailing tinge of colour of the surroundings; and like most of those birds whose plumage closely resembles the colour of the soil, it squats at the approach of danger and trusts to the concealment afforded by the difficulty in distinguishing it. Mr. Taczanowski says that in its habits it most closely resembles the Crested Larks, being met with in pairs during the breeding-season, and at other times found in small companies, often seeking for food on the roads. Major Loche states that it frequents the sand plains, to the colour of which its plumage assimilates closely, so much so that it is almost impossible to distinguish it. It is shy and difficult of approach, runs with great speed, and can squat and hide in any uneven part of the ground with ease. Its flight is weak; and it seldom flies any distance. It feeds on insects and small seeds. Its song is, he says, agreeable, but not varied, and to some extent resembles that of the Short-toed Lark. He does not speak of its building any nest, but merely says that the eggs are deposited in a small depression in the soil, generally under shelter of a stone, and that they are usually four in number. Dr. Tristram, however, gives more concise details respecting its nidification, and says (*l. c.*) that the nest is neatly formed of grass, and placed in a depression in the ground, under a tuft of grass, and that the eggs, four in number, in size are nearly equal to those of the Crested Lark, but never so elongated, measure 11 lines by 8 lines, and are of a rich cream-colour, blotched, especially towards the large end, with brown and red spots.

Three eggs of this Lark in my collection, two obtained by Mr. Cochrane near Jericho on the 24th April, 1864, and one obtained by Major Loche in Algeria, most nearly resemble the eggs of the Crested Lark, are creamy grey, closely marked with purplish grey underlying shell-markings and dull brown surface-spots. The one from Algeria has the surface-spots of a darker and more greyish brown, they being chiefly collected at the larger end. In size they measure from $\frac{3.6}{40}$ by $\frac{2.5}{40}$ to $\frac{3.7}{40}$ by $\frac{2.6}{40}$ inch.

In shade and tone of coloration the Desert-Lark is subject to great variation; and I can only account for it by supposing that they vary in colour according to the nature of the soil where they are found. From Algeria, as well as from North-eastern Africa, I find rufous and grey birds, some striated on the throat, and others without any striations; and from Palestine I find both forms and some specimens which are fairly intermediate; but from Cashmere I have only

the darker and greyer form; and the two specimens from Abyssinia in the collection of Lord Walden are peculiarly dark, both on the upper surface of the body and also on the underparts, and the tail and wings are darker: but one of the Cashmere birds is nearly as dark as either of these Abyssinian specimens. The following table will show the variation in measurements of specimens from different localities:—

	Culmen.	Wing.	Tail.	Tarsus.
	inch.	inches.	inches.	inch.
Algeria	0·55–0·7	3·80–3·9	2·80–2·9	0·85–0·9
Palestine	0·55–0·65	3·70–3·8	2·65–2·7	0·85
Egypt	0·60–0·67	3·55–3·82	2·65–2·7	0·85–0·9
Abyssinia	0·7	3·65–3·8	2·75–2·85	0·9
Cashmere	0·55–0·65	3·70–4·0	2·70–2·85	0·85–0·9

The specimens figured are an adult male from Egypt, of the pale isabelline form, this being the specimen described, and a dark grey bird from Cashmere, both of which are in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀, b, c, ♂. Algeria (Fairmaire). d. Egypt (H. B. Tristram). e, f. Egypt (Taylor). g, h. Egypt (Rogers). i. Egypt (Shelley). k, ♂. Nubia, March 1850 (A. Brehm). l. Cashmere, August 1st, 1870. m, ♀, n, ♂, o, ♀, p, ♂. Kheura, Cashmere, April 1870 (Henderson). q. Assouan, Nile, January 31st, 1863 (Cochrane).

E Mus. Salvin and Godman.

a. El Kantara, Palestine, January 1857 (H. B. Tristram). b, ♂, c, ♀. Palestine, January 13th, 1864 (H. B. Tristram).

E Mus. Lord Walden.

a, ♂, b, ♂. Amba, Abyssinia, August 19th, 1868 (W. Jesse). c, ♂. Jordan, January 12th, 1864 (H. B. Tristram).

E Mus. Howard Saunders.

a. Egypt (Captain Shelley). b. Algerian Sahara (Loche).



GOULD'S DESERT LARK.
AMMOMANES CINCTURA

AMMOMANES CINCTURA.

(GOULD'S DESERT-LARK.)

- Melanocorypha cinctura*, Gould, Voy. Beagle, B. p. 87 (1841).
Alauda arenicolor, Sundev. Öfv. Vet. Ak. Förh. 1850, p. 128.
Ammomanes pallida, Cab. Mus. Hein. i. p. 125 (1850).
Alauda elegans, C. L. Brehm, Vogelfang, p. 122 (1855).
Annomanes regulus, Bp. Compt. Rend. xliv. p. 1066 (1857).
Annomanes elegans (Br.), Bp. tom. cit. p. 1066 (1857).
Ammomanes elegans (Br.), Tristram, Ibis, 1859, p. 34.
Ammomanes regulus (Bp.), Tristram, Ibis, 1859, p. 423.
Ammomanes arenicolor (Sund.), Shelley, B. of Egypt, p. 137 (1872).

Figura nulla.

Ad. A. deserti similis, sed minor et gracilior: caudâ emarginatâ, rufescenti-isabellinâ, rectricibus centralibus valdè et distinctè, lateralibus gradatim angustius nigro-fusco terminatis, rectrice extimâ in pogonio externo immaculato et in pogonio interno maculâ minore nigro-fuscâ instructâ: remigibus nigro-fusco terminatis: rostro et pedibus griseis: iride fuscâ.

Adult Female (Malta, April 1867). In general colour of plumage resembling *A. deserti*, but smaller in size, with the tail differently marked, and the arrangement of the primaries rather different; first primary short, fully 1·85 inch shorter than the second, which is the longest, the third and fourth, however, being almost equal to it in length; all the primaries with dark tips; tail slightly forked, reddish isabelline in colour, the central rectrices broadly and distinctly terminated with blackish brown, this terminal band gradually diminishing until on the outermost feather it is merely a dark patch on the inner web; bill greyish; legs pale greyish; iris brown. Total length about 5½ inches, culmen 0·48, wing 3·5, tail 2·2, tarsus 0·85, hind toe with claw 0·42, hind claw 0·23.

Adult Male (Algeria). Closely resembles the female.

THIS small Desert-Lark, readily distinguishable from *A. deserti*, not only by its small size, but by the distinct band at the end of the tail, inhabits Northern Africa and the Cape-Verd Islands, and has once occurred at Malta.

In 1869 or 1870 Mr. C. A. Wright told me to get from a friend of his some few skins he had left with him, and which, having been left out, had been so torn by a cat as to be probably useless. On obtaining and examining them I found them very much torn, but still all there. Not caring very much for them in their dilapidated state, I put them carefully aside, and forgot about them until quite lately, when, turning out some old cases, I discovered the box containing these remnants, and set to work to see if they could not be turned to some use. Amongst them I was delighted to find a specimen of *Ammomanes cinctura*, very much torn, but

still in such a state that, after working together the pieces, I succeeded in making it up into quite a respectable skin, much better than many which are sent over by collectors. The label was still attached to it; and on it was written "*Alauda lusitania*, rare in Malta," in Mr. Wright's handwriting. I lost no time in writing to that gentleman to inquire if he could give me any further particulars, and asking if the specimen was obtained at Malta, and have just received his letter in reply, in which he writes as follows:—"The Lark in question was obtained in Malta. I picked it up myself from one of the stalls in the market, and took it to England in 1868 with other rare birds to determine satisfactorily. The parcel was left with a friend in Northampton, and some of the skins were, as you know, destroyed by a cat. I am glad the Lark has been saved from the wreck."

In North Africa it is tolerably common; and is stated by Loche to inhabit the Algerian Sahara, where, however, it is somewhat rare. Canon Tristram writes (*Ibis*, 1859, p. 423) that "it is more strictly confined to the southern Sahara [than *A. deserti*], never being found in the northern or rocky districts, and, though not scarce in its localities, is rather solitary in its habits, not more than two or three being, very rarely, observed together." Referring to it again in the same article (p. 424) under the name of *Ammomanes regulus*, he states that it occurs near Waregla and in the southern portion of the Chamba territory. Mr. J. H. Gurney, jun., shot it in the Mزاب country. Mr. G. R. Gray, in his Hand-list (ii. p. 122), gives Lower Egypt as the habitat of this Lark; but Captain Shelley did not meet with it in that country. Professor Sundevall, however (*l. c.*), states that it is found in Lower Egypt and Arabia Petræa; and Von Heuglin writes (*Orn. N.O.-Afr.* p. 686) that it inhabits the warmer portions of Arabia, being met with in pairs, occurs in Central and Southern Nubia, probably also at Kordofan and North Sennaar, on the confines of the cultivated country, and appears to be a resident.

After a careful examination of specimens in the British Museum, and a comparison between them and a series of examples from North Africa, I cannot discover any specific distinction between the Cape-Verd and the North-African birds. It is true that the former is, as a rule, darker and more rufous; but it does not differ in any other respect; and as the individual variation in colour in specimens of this species from different localities, as in *A. deserti*, is by no means small, I cannot look on a shade of colour as a fairly distinctive character, and therefore unite *A. pallida* of North Africa with *A. cinctura*, the latter name taking precedence. First described by Gould (*l. c.*) from a specimen obtained at Santiago, it was also observed there by Dr. A. Dohrn, who writes (*J. f. O.* 1871, p. 5) that "it occurs not uncommonly on the plateau, near Porto Praya;" and Mr. Keulemans sends me the following note:—"It is very common in the plains near the town of Porto Praya, in Santiago, and also on the mountains in the interior of the island; but I never observed it in any cultivated district. It seems to avoid vegetation as much as it does water, and occurs nowhere save in desert sandy localities. It is usually met with in flocks of from three to seven individuals, or in company with another small Lark (*Pyrrhulauda nigriceps*, Gld.). During my sojourn in the island I collected about twenty-five specimens, all of which differed somewhat in tint of plumage. In March I obtained several young birds, which resembled the old ones, but had a tendency to become spotted on the breast and sides of the head. The breeding-season is from December to March; but I never succeeded in finding its nest. It feeds on seeds and insects, and in the stomachs of most of those I

examined I found seeds, the remains of termites, and small coleoptera. Its song is weak, and resembles rather the warbling of the Whitethroat than the notes of a true Lark. Like the true Larks it rises to some elevation in the air, though rarely above about thirty to forty feet. Its native name is *Pastor*. On any of the other islands I never met with it."

Canon Tristram (*Ibis*, 1859, p. 423) describes its flight as jerking and short, and says that he never noticed it poise itself on the wing. Its notes, he says, "are very varied and melodious, but not powerful. The egg is peculiar, similar in shape to that of *Calandrella brachydactyla*, measuring 9 lines by 7, the ground-colour dingy white, and covered over its whole surface by very minute brown spots, but never blotched."

I possess one egg of this species, collected in Algeria by the late Major Loche, which in general character and colour resembles those of *Ammomanes deserti*; but the markings are rather darker, and more clearly defined, and it is smaller in size.

The specimen figured and described is the one above referred to as having been obtained at Malta.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀. Malta Market, April 1867 (*C. A. Wright*). *b*, ♂. Algeria (*Fairmaire*).

E Mus. H. B. Tristram.

a, ♂. Laghouat, Algeria, November 26th, 1856. *b*, ♀. Guerrera, December 13th, 1856. *c*. Algeria, December 20th, 1856. *d*, ♂. Desert, near Hadjira, Algeria, December 23rd, 1856. *e*. Desert of Souf, January 1857 (all *H. B. Tristram*).

E Mus. Salvin and Godman.

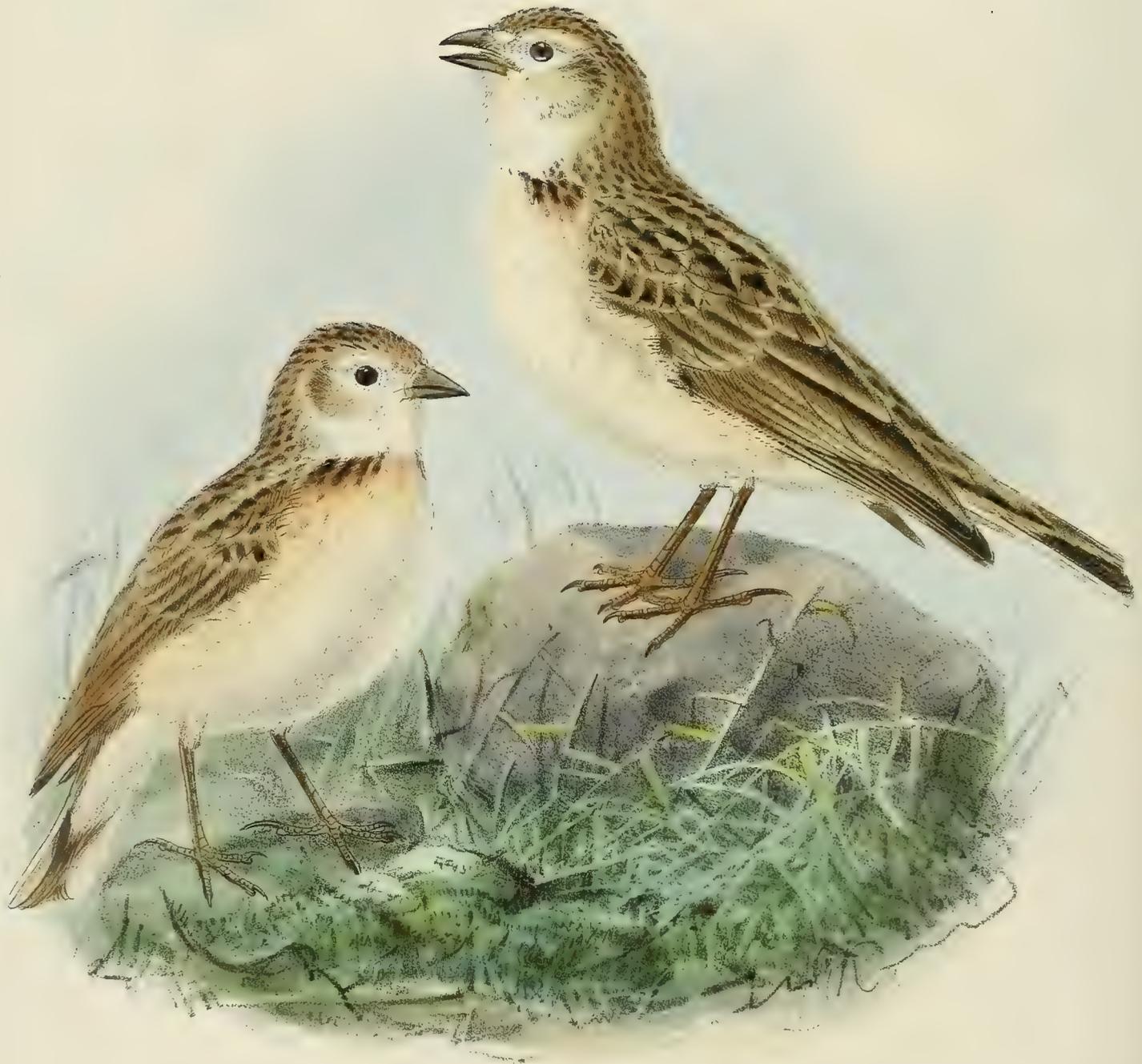
a, ♀. Laghouat, Algeria, November 26th, 1856 (*H. B. Tristram*).

Genus CALANDRELLA.

- Alauda* apud Leisler, Wetterauer Ann. iii. p. 557 (1814).
Calandrella, Kaup, Natürl. Syst. p. 39 (1829).
Melanocorypha apud C. L. Brehm, Vög. Deutschl. p. 311 (1831).
Emberiza apud Franklin, P. Z. S. 1831, p. 119.
Phileremos apud Keyserling & Blasius, Wirbelth. Eur. p. 37 (1840).
Calandritis apud Cabanis, Mus. Hein. i. p. 122 (1850-51).
Alaudula apud Swinhoe, P. Z. S. 1871, p. 390.

THE Short-toed Larks inhabit the Palæarctic, Ethiopian, and Oriental Regions, four species being found in the Western Palæarctic Region. They frequent open country, both wild and cultivated; and in the autumn and winter they collect in large flocks, and, like the Sky-Lark, range about the plains in search of food. They are very good songsters, their song, which is uttered in the air, being even more melodious than that of the Sky-Lark. They feed on insects, seeds, &c., and build a cup-shaped nest of grass-bents, which they place on the ground, and deposit several greyish white or buffy white eggs spotted and blurred with hair-brown.

Calandrella brachydactyla, the type of the genus, has the bill rather stout, short, compressed, the upper mandible slightly arched, gape-line nearly straight; nostrils basal, oval, concealed by bristly feathers directed forwards; crown without elongated feathers; wings rather long, the first quill obsolete, the next three nearly equal, the third longest; inner secondaries much elongated, and nearly as long as the primaries; tail moderately long, slightly emarginate; legs rather long, the tarsus covered in front with six large and three inferior scutellæ, and posteriorly also scutellate; claws short, slightly curved, except the hind claw, which is elongated and nearly straight.



SHORT-TOED LARK.
CALANDRELLA BRACHYDACTYLA

CALANDRELLA BRACHYDACTYLA.

(SHORT-TOED LARK.)

- Alauda brachydactyla*, Leisl. Wett. Annal. iii. p. 357, "Germany" (1809).
Alauda arenaria, Vieill. Nouv. Dict. Hist. Nat. i. p. 343, "France" (1816).
Alauda arenaria, Vieill. Steph. in Shaw, Gen. Zool. vol. x. p. 515, "France" (1817).
Alauda testacea, Steph. tom. cit. p. 521, "Gibraltar" (1817).
Alauda calandrella, Bonap. Savi, Orn. Tosc. ii. p. 67, "Tuscany" (1829).
Melanocorypha itala, C. L. Brehm, Vög. Deutschl. p. 311, "Italy, Sardinia" (1831).
Melanocorypha brachydactyla (Leisl.), C. L. Brehm, ut suprà, "Germany" (1831).
Emberiza baghaira, Franklin, P. Z. S. 1831, p. 119, "Ganges, between Calcutta and Benares."
Alauda dukhunensis, Sykes, P. Z. S. 1832, p. 93, "Dukhun."
Emberiza olivacea, Tickell, Journ. As. Soc. 1833, p. 578, "Borabhúm and Dholbúhm."
Alauda kollyi, Temm. Man. d'Orn. 1st Suppl. p. 202, "Dijon" (1835).
Melanocorypha arenaria (Vieill.), Bonap. Comp. List B. of Eur. & Am. p. 38. no. 256, "Southern Europe" (1838).
Phileremos brachydactyla (Leisl.), Keys. & Blas. Wirbelth. Eur. p. 37, "Mediterranean, steppes of the Caspian" (1840).
Phileremos kollyi (Temm.), Keys. & Blas. op. cit., "Dijon."
Allauda brachidactyla, Cara, Orn. Sard. p. 69, sp. 102, "Sardinia" (1842).
Phileremos moreatica, Von der Mühle, Orn. Griechenl. p. 38, "Greece" (1844).
Alauda calandrella, Bp. Conspectus, i. p. 244, "South and East Eur., Asia, Afr." (1850).
Calandritis brachydactyla (Leisl.), Cab. Mus. Hein. i. p. 122, "Greece" (1850).
Calandritis kollyi, Cab. tom. cit. p. 123, "N.E. Africa" (1850).
Melanocorypha macroptera, A. E. Brehm, Cab. Journ. 1854, p. 77, "N.E. Africa."
Melanocorypha brachydactyla (Leisl.), A. E. Brehm, ut suprà, "N.E. Africa."
Melanocorypha brachydactyla (Leisl.), C. L. Brehm, Vogelfang, p. 121, "S.E. Europe" (1855).
Melanocorypha itala, C. L. Brehm, ut suprà, "Italy" (1855).
Melanocorypha obsoleta, C. L. Brehm, ut suprà, "Bokhara" (1855).
Melanocorypha macroptera, C. L. Brehm, ut suprà, "Greece; in Senaar in winter" (1855).
Calandrella hermonensis, Trist. P. Z. S. 1864, p. 434, "slopes of Hermon and Lebanon."
Alauda calandra, Bonelli, Salvad. Cab. Journ. 1865, p. 271, "Sardinia."
Calandritis macroptera (Br.), Heugl. Orn. N.O. Afr. p. 695. no. 580, "Lakah and Central Nubia" (1871).
Calandrella immaculata, C. L. Brehm, E. F. von Homey. Cab. Journ. 1873, p. 194, "Spain."
- La Calandrelle*, French; *isabelle Lerche*, German; *Carreirola*, Portuguese; *Terrera*, *Ter-rerilla*, Spanish; *Calandrino*, Italian; *Skowronek krotkopalcowy*, Polish.

Figuræ notabiles.

Leisler, tom. cit. pl. 19 (fide *Naumann*); Werner, Atlas, *Granivores*, pl. 8; Naumann, Vög. Deutschl. pl. 98. fig. 2; Gould, B. of Eur. pl. 163; Fritsch, Vög. Eur. pl. 16. fig. 9.

♂ *ad.* suprâ fulvescenti-arenarius, plumis omnibus medialiter nigricante brunneo notatis: pileo paullò saturatiore et vix rufescente lavato: remigibus nigricanti-fumosis, primario primo in pogonio externo cervino, reliquis vix cervino marginatis: secundariis et tectricibus alarum superioribus nigricanti-brunneis, rufescente cervino marginatis: caudâ brunnescenti-nigrâ, rectricibus centralibus conspicuè rufescente brunneo marginatis, extimis albis, in pogonio interno areâ magnâ longitudinali fuliginoso-nigricante, sequentibus in pogonio externo cervino marginatis: subtùs albus, pectore et hypochondriis rufescente cervino adumbratis: facie laterali et regione paroticâ brunneo notatis: superciliis albicantibus: pectore laterali nigricante brunneo notato: rostro pallidè corneo: pedibus pallidè brunneis: iride brunneâ.

Adult Male (Turkey). Upper parts sandy grey, the centre of the feathers blackish brown, giving a striated appearance, crown rather darker than the back, and slightly inclining towards rufous in tinge: quills blackish brown, the outer web of the first primary dull isabelline, or rufous buff; secondaries narrowly margined and tipped with isabelline, the inner secondaries very dark in the centre, elongated, nearly reaching to the tip of the wing; wing-coverts dark brown, margined with rufous buff; tail blackish brown, the central feathers broadly margined with rufous buff; the outermost on each side white on the outer web, this colour extending over half the inner web, the next in order having the outer web margined with creamy white, upper tail-coverts dull sandy brown; underparts generally white, washed with buff on the breast; sides of head marked with blackish brown, auriculars dark brown; a creamy white stripe extending over and behind the eye; on each side of the upper part of the breast an irregular blackish brown patch; flanks washed with buff; bill dull horn-brown; legs pale brown. Total length 5½ inches, culmen 0·5, wing 3·7, tail 2·25, tarsus 0·85.

Female. Similar to the male.

Young (Baalbec, June 14th, 1864). Upper parts variegated with light reddish brown, black, and white, the feathers being light reddish brown at the base, then black, and finally tipped with white; quills blackish brown, edged and tipped with dull creamy yellow; elongated inner secondaries having a purplish gloss, and being broadly margined with rufous buff; tail as in the adult, but tipped with pale buff, the central feathers dull rufous brown, indistinctly banded with dark brown, outer tail-feathers whiter than in the adult; underparts as in the adult, but duller.

Obs. As this species has been described from so many localities it may be well to give a short review of the specimens I have examined, in order to show the variations to which it is liable. From Germany I possess no specimens, so commence with

France. A specimen kindly lent to me by Professor Peters, of the Berlin Museum, agrees with skins from Turkey, Egypt, and the Crimea, as also with the duller-coloured specimens from Portugal. Two birds, however, from the Basses-Alpes are, again, more rufous, and agree generally with the specimen I myself obtained at Barcelona, in Spain. They are, however, small.

Spain. Specimens from here agree generally with those from Portugal, excepting that they are a trifle duller and greyer in colour.

Portugal. Thanks to Mr. W. Schlüter I am enabled to examine six specimens collected in this country by our friend Dr. E. Rey in April and May 1869. All these specimens have a tendency to become rufous on the head and breast, and in coloration range from the ordinary average of the French specimens to nearly as

rufous as the bright rufous-tinged birds obtained by Canon Tristram at Lebanon; one in particular, obtained in May, and labelled *Alauda cinnamomea*, Bp., is identical with Canon Tristram's *C. hermonensis*. In several of these specimens the black on the side of the neck is very fully developed.

Italy. Two specimens from Genoa agree with typical examples; one has a few small striations on the chest similar to those in *C. pispoletta*, but the black markings on the sides of the throat are also well defined.

Greece. One specimen, lent to me by Mr. Seebohm, is peculiarly dark and rufescent; in measurements it agrees with those from Turkey.

Turkey. Seven specimens obtained in this country by Mr. Robson differ in no respect from typical European examples; one has the black on the sides of the neck very fully developed; and another, a male, killed in April, has the head washed with rufous, therein resembling Canon Tristram's specimens of so-called *C. hermonensis*.

Asia Minor. Seven birds obtained near Smyrna by Dr. Krüper all agree with specimens from Turkey, except that two males, shot in April, are more rufous in coloration, and agree precisely with examples from Palestine labelled *A. hermonensis* by Canon Tristram.

Palestine. Those obtained by Canon Tristram all belong to the variety described by him as *C. hermonensis*. He not only obtained the present species but also *C. minor*, of which he has lent me two specimens obtained by him at Beersheba, which, compared with Algerian examples, are rather paler, and on the back washed with sandy rufous, the spots on the breast being more clearly defined.

Egypt. Specimens from here agree very closely with those from Turkey; and amongst the series I have before me I do not see any that are marked with rufous like those from Asia Minor.

North-west Africa. As with the Crested Larks, I find again a great variety of Short-toed Larks in this part of Africa. Of the true *C. brachydactyla* I have one from Tangiers and another from Algeria, the latter having the head slightly rufous, and otherwise approaching closely to the variety described as *C. hermonensis*. Besides these I have before me seven examples of *C. minor*, three of which are labelled by Canon Tristram *C. deserti*, the remainder being marked *C. reboudia*; but I have carefully compared them with the type of *C. minor* and have no hesitation in referring them all to that species.

Persia. Eleven specimens obtained in Persia by Mr. Blanford and Major St. John agree closely with Spanish and Asia-Minor examples; several have the rufous head of the variety described by Canon Tristram as *C. hermonensis*; and others have the head greyish brown.

India. Seven specimens, from localities mentioned below, agree precisely with Persian examples, except in being slightly paler; and two, having been kept in confinement, are somewhat abnormally coloured.

So far as I can judge, there appear to be within the limits of the Palæarctic Region the following species of Short-toed Larks:—

1. *Calandrella brachydactyla* (Leisl.), the present species, which inhabits Southern Europe, Northern Africa, Persia, and India.
2. *Calandrella minor* (Cab.), which inhabits Northern Africa, Malta, and Palestine; full particulars respecting this species are given in the last part of the present work, as also respecting
3. *Calandrella batica*, mihi, which appears to be confined to Southern Spain;
4. *Calandrella pispoletta*, Pall., which inhabits South-Eastern Europe, Persia, India, China, and Siberia.
5. *Calandrella leucophæa*, Severtzoff (Turkestanskje Jevotnie, p. 142). In Mr. Swinhoe's collection is a specimen of a Short-toed Lark collected in Turkestan by Mr. Severtzoff, and labelled by him *C. leucophæa*, which appears to be a distinct species. I have also obtained one of these birds from Mr. Severtzoff through Mr. Meves, and I saw one in the Berlin Museum which was obtained by Eversmann in the Kirghis steppes. All these specimens agree *inter se*, and are of a peculiar light grey colour, looking very much like very pale grey specimens of *C. pispoletta*, as they have signs of striations on the breast, and the wings also resemble those of that species in having the inner secondaries very short.

Amongst those species which I am unable to make out satisfactorily I may name the following :—

Alauda longipennis, Eversmann, Cab. Journ. 1853, p. 283, which is stated to be considerably smaller than the Short-toed Lark, but to have an equally long wing, reaching nearly to the end of the tail; the bill is small, and the legs very slender, the mark over the eye being clearly defined. Unfortunately no measurements are given; so that it is almost impossible to decide to what species it must be referred. I think it not improbable that *C. leucophæa* may be found to be identical with this bird. Mr. E. von Homeyer, who has placed in my hands the proof of his paper on the Short-toed Larks which will appear in the next number of 'Cab. Journal für Ornithologie,' considers, I find, that the bird to which I have above referred under the name of *C. leucophæa* is the true *Calandrella pispoletta* (Pall.), and describes the species which I have figured in my last number as *C. pispoletta* under the name of *Calandritis heinei*, as a new species. In this, after a most careful examination of what Pallas writes, I cannot agree with him, but still hold to the opinion that the Volga bird is Pallas's *C. pispoletta*.

Alauda testacea, Pall. Zoogr. Rosso-As. i. p. 526. sp. 153, from Southern Russia, is by some naturalists included as a synonym of *C. brachydactyla*; but I cannot consider that Pallas's description refers to a Short-toed Lark, and think it more likely to be a Pipit, perhaps *Anthus cervinus*.

In order to show the relative measurements of the various species of Short-toed Larks from various localities, I give the following Table :—

		Culmen.	Wing.	Tail.	Tarsus.	Middle toe with claw.
		inch.	inches.	inches.	inch.	inch.
<i>Cal. brachydactyla</i>	France.	0·45–0·5	3·4 –3·65	2·2 –2·4	0·8 –0·85	0·5 –0·52
"	Spain.	0·45–0·5	3·3 –3·7	2·35–2·5	0·75–0·8	0·55–0·6
"	Portugal.	0·48–0·55	3·4 –3·75	2·35–2·55	0·7 –0·75	0·55–0·6
"	Italy.	0·45–0·48	3·5 –3·6	2·25–2·5	0·75–0·8	0·6 —
"	Turkey.	0·4 –0·5	3·5 –3·7	2·3 –2·5	0·7 —	0·5 –0·6
"	Asia Minor.	0·42–0·5	3·6 –3·75	2·4 –2·6	0·7 –0·8	
"	Egypt.	0·5 –0·55	3·4 –3·8	2·2 –2·6	0·75–0·85	0·55–0·65
"	N.W. Africa.	0·48 —	3·6 –3·65	2·4 –2·5	0·75 —	0·52–0·55
"	Persia.	0·48–0·55	3·4 –3·7	2·3 –2·6	0·7 –0·85	0·5 –0·65
"	Turkestan.	0·5 —	3·75 —	2·4 —	0·85 —	0·6 —
"	India.	0·45–0·52	3·4 –3·7	2·15–2·4	0·7 –0·8	0·55–0·6
<i>Cal. pispoletta</i>	China.	0·45–0·5	3·4 –3·6	2·45–2·7	0·75–0·8	0·5 –0·55
"	Volga.	0·45–0·48	3·8 —	2·5 —	0·8 –0·82	0·6 —
"	Persia.	0·5 –0·6	3·6 –3·8	2·4 –2·6	0·85 —	0·55–0·6
<i>Cal. leucophæa</i> ♂	Turkestan (<i>Severtzoff</i>).	0·5 —	3·8 —	2·55 —	0·75 —	0·55 —
<i>Cal. batica</i>	Spain.	0·4 –0·42	3·0 –3·4	1·95–2·1	0·78–0·8	0·6 –0·65
<i>Cal. minor</i>	Algeria.	0·38–0·45	3·45–3·6	2·1 –2·3	0·7 –0·8	0·45–0·5
"	Beersheba.	0·45 —	3·55 —	2·3 –2·35	0·7 —	0·5 –0·6

THE Short-toed Lark inhabits Southern Europe, Northern Africa, and India, but does not appear to occur in Siberia.

It is included in the British list as a straggler. Yarrell (vol. i. p. 488) records an "example of the Short-toed Lark having been caught in a net," near the town of Shrewsbury, "at the end of October 1841;" and since then several have been met with. Mr. J. E. Harting, in his 'Handbook,' refers to the above occurrence, and also to five others:—two near Brighton, one in 1854 and another in 1858; one in Scilly in September 1854; and two near Southampton, in 1852

and 1862 respectively. The two occurrences near Brighton are also recorded by Mr. G. Dawson Rowley (*Ibis*, 1859, p. 330) as follows:—"Two specimens of the Short-toed Lark (*Alauda brachydactyla*) have been obtained near Brighton. I saw one alive on September 26th, 1854, which had been caught by boys on the downs, and kept in confinement some time, not being distinguished from the Sky-Lark. This bird cracked seeds like a Canary, instead of swallowing them whole; it was very tame, and ultimately killed and stuffed. The second specimen was killed in April 1858, by a person on the seashore, who saw it come to land, and light, after a short rest, upon the road, where it immediately began dusting itself. I did not see this bird; but my informant was the person who killed it, and one who is quite trustworthy: it was afterwards preserved."

It does not appear ever to have been met with in Scandinavia or Northern Germany; nor has it been recorded from Belgium; but Godron speaks of it as rare in Lorraine, and says that it has been killed near Metz. It is found in France; Degland and Gerbe mention its occasional appearance near Paris, and state that it occurs in Champagne and Burgundy, and is abundant in Provence. This last information is also given by Jaubert and Barthélemy-Lapommeraye, who state that it "arrives in Provence in March, and leaves in September, collecting into large flocks before leaving, and is never met with in winter." In Portugal it must be very common, judging from the number of specimens sent to me by Dr. E. Rey, all of which belong to the race or variety described by Canon Tristram under the name of *C. hermonensis*. Lord Lilford writes to me, "the Short-toed Lark is exceedingly common in Southern and Central Spain, particularly affecting rough fallows and the dried edges of the marisma. Another, allied species frequents the wheat-fields of the marisma, and, as I am fully convinced, a third species the bare open marisma, where it breeds under the shelter of clods of dry dung of horses and cattle, doubtless with a view to the concealment of its eggs and young from the innumerable Harriers which are perpetually quartering over these great plains." Mr. Howard Saunders also speaks of it as abundant in the plains of Southern Spain.

Von Homeyer found it exceedingly numerous on the Balearic Islands, frequenting every part of the country, except the mountains and forests. He writes that it sings sometimes in the air, sometimes when sitting on a stone or clod, generally in the morning or evening; the song is not particularly good. In Italy it is common; but Bailly remarks that, although found in Piedmont, it had not in his time extended to Savoy. Savi says that it is common in Tuscany in the spring and autumn; and Lord Lilford informs me that he found it very common in Sicily in November 1856. Mr. C. A. Wright writes (*Ibis*, 1864, p. 60), "this is one of the most characteristic birds of Malta in spring, and does duty among English residents as the Sky-Lark, with which it has some habits in common. In the breeding-season, from April to June, it is abundantly spread in pairs all over the island; and the song of the male is then constantly heard, encouraging its mate in the labours of incubation. Its mode of ascending in the air is different from that of the Sky-Lark, consisting of a succession of jerks, which may be peculiar to the species. It delights in the wastes and desert tracts of the island. At the commencement of autumn it gathers together in flocks, which appear to be joined by numerous fresh comers from the north; but all speed away long before the winter sets in." Lord Lilford met with it commonly in Corfu and Epirus in winter; and Lindermayer records it as "numerous in Greece during the summer, appearing in April, and frequenting the flats near the sea, and

fields, especially pastures." Messrs. Elwes and Buckley write (*Ibis*, 1870, p. 194) that, "according to Mr. Robson it is only a summer visitor to Turkey; but we shot specimens at Athens in January during a sharp frost, and in the Crimea in March. A Short-toed Lark flew on board the steamer which took us to Kustendji from Odessa."

From Asia Minor I have many specimens, collected near Smyrna by Dr. Krüper; and in Palestine it is recorded by Canon Tristram (*Ibis*, 1866, p. 286) as a common summer migrant, revisiting the central country late in spring, and not occurring in the plains or desert in the winter; but referring again to it under the name of *C. hermonensis*, he speaks of it as a permanent resident.

It is met with throughout Northern Africa. A. E. Brehm, who divides the Short-toed Lark of N.E. Africa into two species under the names of *Melanocorypha brachydactyla* and *M. macroptera*, writes that it is "numerous throughout the whole of N.E. Africa. I observed it on the 17th of March, 1850, at Esneh, in Upper Egypt, and on the 18th, 19th, and 20th between Esneh and Assuan, migrating towards Europe—again on the 13th of November, on its return journey, in Chartum; on the 24th and 25th of November and 3rd of December I observed flocks of several thousand individuals below Woled-Medineh,—and in 1851, on the 3rd and 4th of March, near Kamlihn, in 15° N. lat., in immense swarms migrating northwards—on the 27th and 28th of September at Wadi-Halfa—on the 20th of November on Sinai, in Arabia Petræa, singly. In 1852 I saw it on the 9th of January at Fayoum, on the 23rd in Central Egypt, and from the 2nd to the 6th of March near the ruins of Thebes." Dr. Th. von Heuglin writes that "in North-eastern Africa it is a migrant, and appears in the autumn early in September, usually in large flocks, frequenting the fields, the desert lands, and the steppe. During the winter they collect in enormous flocks at Kordofan, Senaar, and Takah, and in February and March migrate northward in scattered parties or singly. In Northern Arabia and on the coast of Abyssinia it is not rare during the seasons of migration." Mr. Blanford found it not uncommon on the shores of Annesley Bay, but he did not meet with it in the highlands of Abyssinia; and Captain Shelley states that it arrives in Egypt in March, and is then met with in large flocks. It is found in North-western Africa at all seasons of the year. Mr. Taczanowski observed it in the winter in Algeria, where, he writes, it is rare, but is found to the edge of the desert; in the spring it is more common: and Canon Tristram states (*Ibis*, 1869, p. 422) that "many flocks occur in winter in the neighbourhood of the oases and on the northern limits of the Sahara. It breeds abundantly under the slopes of the Atlas, but not, as far as I am aware, in the desert." Mr. Salvadori also (*tom. cit.* p. 315) says that it is "more local in its distribution than *C. cristata*, its range being confined to a few favoured spots in the elevated plains. About Aïn Beïda it is abundant, and throughout the great plain of El Tharf it may be commonly met with; in the neighbourhood of Djendeli it also occurs." Mr. C. T. Tyrwhitt Drake met with it on the open plains of Tangier and Eastern Morocco; and Mr. T. H. Chambers shot a specimen in Tripoli. Finally it is said by Dr. Carl Bolle (*Cab. Journ.* 1857, p. 290) to occur on the Canaries, where it "is a resident, and distributed over all the islands, at least in Canaria and Teneriffe, where it is numerous, and to be met with in every field near Santa Cruz, and inhabits not only the grain-country, but desert places where the vegetation is poor."

To the eastward it occurs throughout Persia, from which Mr. Blanford lately brought home

many specimens. De Filippi records it as being found there in all the desert country; and Messrs. Dickson and Ross (P. Z. S. 1839, p. 119) speak of it as seen at Erzeroom "in large flocks. Only noticed from 21st of April to 28th of May. Frequents fields and the hills." According to Dr. Jerdon the Short-toed Lark is "found throughout India, more rare to the extreme south; and it has not been observed in Ceylon, but is numerous in the Deccan, and thence northwards to the foot of the Himalayas, but not in the countries to the eastward." Major Irby also speaks of it as exceedingly numerous in Oudh and Kumaon.

It does not appear to occur in China, being there replaced by *C. pispoletta*, which is referred to by Mr. Swinhoe (Ibis, 1861, p. 255) under the name of *Alauda brachydactyla*. Nor does it appear to occur in Siberia, so far as I am able to ascertain, though in a letter just received from Mr. Taczanowski it is spoken of as "uncommon in the Daurian steppes;" but he doubtless refers to *C. pispoletta*, and not to the present species. I have only on one or two occasions had an opportunity of seeing the present species in a wild state, and cannot say much respecting its habits from my own experience. It appears to resemble the Calandra far more than any other species of Lark in its habits, frequents open places, generally dry and arid plains, and is essentially a ground-Lark. Mr. Saunders states that "in Spain it is abundant in the plains, where it makes its nest at the side of a small tuft or bush;" and Dr. Jerdon writes that it "appears in India in October and November in flocks, frequenting the bare grass downs, frequently damp spots near tanks, also grain-fields and ploughed land; and it almost always retires to corn-fields or grass for shelter during the heat of the day, whence it does not in general issue again till next morning; for they are seldom seen flying about or feeding in the afternoon or evening. It feeds almost entirely on seeds, both runs and hops on the ground, and has a call-note like that of the real Larks. Towards the end of March in the south, April in the north of India, different flocks often unite in vast troops containing many thousand birds and quite darkening the air; so close do they keep together, even when flying. Great numbers are netted in some parts of the country, or taken by bird-lime, or shot; for when feeding they keep close to each other. On one occasion, on the cavalry parade-ground at Kamptee, I bagged twelve dozen birds after discharging both barrels; and many wounded birds escaped. They get quite fat about this time, and are really very excellent eating, and they are always called Ortolan by Europeans in India. They leave the north of India about the end of April or beginning of May; and they breed in the steppes of Central Asia, Eastern Russia, and also in Northern Africa, placing their nest on the ground at the edge of a scrub or bush, and laying four to six eggs, usually marked with grey or rufous spots, but sometimes, it is said, unspotted yellow-brown." Mr. Osbert Salvin, who found it breeding in the Eastern Atlas, writes also (Ibis, 1859, p. 315) that, like the rest of its congeners, it "places its nest on the sheltered side of a bush, the scrubby vegetation which clothes the whole of that arid district affording the necessary protection for its offspring. The eggs of this species vary much; even in the same nest hardly two similar ones are to be found. So different were some of the varieties, that the greatest care was necessary in identifying their true parentage."

Its song is said to be sweet and clear, and even more melodious than that of the Sky-Lark; but it does not rise so high in the air, when singing, as that bird. Dr. Carl Bolle (Cab. Journ. 1857, p. 290) states that "in the spring the males chase each other in the air, uttering broken

strophes of song. In general the song bears resemblance to that of the Sky-Lark, and, like that, is uttered when on the wing; but it is scarcely so loud or continuous."

The eggs of this species are not unlike those of the Wood-Lark, but are smaller, and the spots are much more minute and less distinct. I have specimens from Asia Minor in my collection which in size average $\frac{3}{4}\frac{1}{0}$ by $\frac{2}{4}\frac{5}{0}$ inch, and are on a greyish-white ground, dotted all over with small hair-brown spots, these being rather dull and blurred in one or two of the specimens. One has the spots collected in a ring round the larger end, as is so often the case in eggs of the Wood-Lark.

It feeds on small seeds of various descriptions, and, during the spring, to some extent also on insects.

The adult specimen figured and described is in my own collection; and the young bird described is in that of Canon Tristram.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, c, d, ♂, e, ♀. Basses-Alpes, France (*Schlüter*). *f.* France? (*Gardner*). *g, ♀.* Barcelona, Spain, May 9th, 1866 (*H. E. D.*). *h, i, j, k, l, m.* Portugal, April 1869 (*Dr. Rey*). *n, ♀, o, ♂.* Ortakeuy, Turkey, April 1869 (*Robson*). *p, ♂.* Maslak, Turkey, April 24th, 1869 (*Robson*). *q.* Crimea (*Whitely*). *r, s.* Egypt, (*Rogers*). *t.* Tangiers (*Olcese*). *u.* Algeria (*Verreaux*). *v, w, x, y, ♂, z, ♀.* Smyrna, April (*Dr. Krüper*). *aa, ♂.* Chemkend, Russian Turkestan, March 21st, 1866 (*Severtzoff*). *bb, ♂, cc, ♀.* Etawah, N.W. India (*W. E. Brooks*).

E Mus. Lord Walden.

a, ♂, b. Ortakeuy, Turkey (*Robson*). *c, ♂, d, ♀.* Smyrna, April 14th, 1863 (*Dr. Krüper*). *e, f.* Maunbhoom, India, March 1864 (*Beavan*). *g.* Punjab, February 1869. *h.* Alma, near Huleh, Palestine, May 26th, 1864 (*H. B. Tristram*.)

E Mus. H. B. Tristram.

a, ♀. Merom, May 19th, 1864; *b, ♂.* El Sahra, Damascus, June 11th, 1864; *c, ♀.* Merom; *d, ♂.* Palestine, June 1st, 1864; *e, juv.* Baalbec, June 14th, 1864; *f, juv.* Foot of Hermon, June 4th, 1864 (*H. B. T.*). *g, h.* India (caged specimens).

E Mus. Howard Saunders.

a, ♂. Malaga, Spain, April 6th, 1872; *b, ♂ juv.* Malaga, July 29th, 1872; *c, ♂.* Valencia, May, 7th; *d.* Granada; *e, ♀.* Prat, Mallorca, May 17th, 1870 (*H. S.*). *f, g.* Genoa, August 30th, 1869; *h, ♂.* Constantinople, April 16th, 1866 (*Robson*).

E Mus. G. E. Shelley.

a, b, c, d, ♀. Egypt, March 1871; *e.* Egypt, April 1871 (*G. E. S.*).

E Mus. Ind. Calc.

a, ♂. S.E. Persia, April 26th, 1872; *b, c, ♂, ♀.* S.E. Persia, May 2nd, 1872; *d, ♀.* S. Persia, May 22nd, 1872; *e, juv.* S. Persia, May 29th, 1872; *f, ♂.* S. Persia, June 1st, 1872; *g, h, ♂, ♀.* S. Persia, June 25th, 1872; *i, j, ♂, ♀.* S. Persia, June 28th, 1872 (*W. T. Blanford*). *k, ♀.* Shiraz, November 1870 (*Major St. John*).

E Mus. Berol.

a. France (no. 5403).



LESSER SHORTTOED LARK,
CALANDRELLA MINOR

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ANDALUCIAN SHORT-TOED LARK,
CALANDRELLA BARTICA.

CALANDRELLA MINOR.

(LESSER SHORT-TOED LARK.)

Calandritis minor, Cab. Mus. Hein. i. p. 123, "N.-E. Africa" (1850).

Calandrella ferruginea, A. Brehm, Naumannia, 1856, p. 375, "Kordofan."

Calandrella reboudia, Loche, Revue et Mag. de Zool. p. 148, "Algeria" (1860).

Calandrella deserti, Tristr. Ibis, 1866, p. 286, "Palestine;" Wyatt, Ibis, 1870, p. 16, "Sinai, marshes near Tor."

Calandritis reboudia (Loche), Heuglin, Orn. N.-O. Africa's, p. 696. no. 581, "N.-E. Africa" (1871).

Calandritis minor, Cab., Heugl. tom. cit. p. 697. no. 582, "Arabia, Egypt, Nubia" (1871).

Figura unica.

Loche, tom. cit. pl. 11. fig. 1.

♂ *ad.* *Calandrella pispolettæ* similis sed minor, tertiariis longioribus: suprâ pallidè rufescenti-arenarius, plumis omnibus mèdialiter fusco striatis: subtùs albus: pectore delicatè fusco striato: hypochondriis rufescente cervino adumbratis et indistinctè striatis: rostro flavicanti-corneo, culmine magis fuscescente: pedibus pallidè brunneis: iride brunneâ.

Adult Male in winter (Hadjira, 23rd December). Resembles *C. pispoletta*, but is much smaller in size, and more rufous sandy in colour on the upper parts, not having the grey tinge so characteristic of *C. pispoletta*; the inner secondaries much longer than in that species, reaching to within nearly half an inch of the tip of the first primary; underparts white; breast narrowly striated with dark brown; flanks delicately striped with light brown, and washed with pale rufous buff; soft parts as in *C. pispoletta*. Total length 5.5 inches, culmen 0.45, wing 3.5, tail 2.05, tarsus 0.73, hind toe with claw 0.6.

Adult Female in breeding-plumage (El Djem, May 1857, taken on her nest). Rather duller in colour than the specimen last described, the stripes on the breast less distinct and duller; flanks washed with darker rufous buff; upper parts duller in colour, the feathers being somewhat abraded and worn.

THIS species, closely resembling *Calandrella pispoletta*, but differing in being smaller in size and much more rufous and less grey in colour, is found in Northern Africa and Palestine, and may possibly occur in Europe, as I have a single specimen obtained in Malta in November 1862 by Mr. C. A. Wright, who sent it to me labelled *C. brachydactyla*. In Algeria it is common; and Major Loche, who described it from there under the name of *C. reboudia*, writes that it "is very numerous in the Algerian Sahara, where, after the breeding-season, it collects in small flocks, affecting the dry arid country, and, being shy, is difficult to shoot." Canon Tristram writes that he met with it in Algeria, where it is "a permanent resident in the Desert, and has a wide lateral range, as I have obtained it in the western Sahara, and have received a female, with a nest of

four eggs, taken a little to the south of El Djem, in the Regency of Tunis;" and Mr. J. H. Gurney, jun., found it common, in flocks, about Ain-Oussera.

It is not uncommon in North-east Africa, whence it was first described by Dr. Cabanis; and Captain Shelley writes that it "appears to be a resident in Egypt; for Mr. E. C. Taylor killed some specimens in the month of January near Cairo, out of a flock which he found on the desert. It is, however, of very rare occurrence in the country." Von Heuglin records it as a migrant in spring and autumn in Arabia, Egypt, and Nubia, where it is met with in small flocks wandering in the desert and steppes. Mr. C. W. Wyatt met with it commonly on Sinai, where, he writes, "large flocks frequent the sides of the stream which runs through the marshes."

In Palestine, Canon Tristram writes, "this elegant little bird, the smallest of the group, is a strictly desert bird, frequenting regions similar to those where it was discovered in the Sahara, in which it is a permanent resident, and less gregarious than most of its congeners."

In its habits it closely resembles the Common Short-toed Lark, and, like that bird, feeds on small insects and various kinds of seeds.

Loche writes that it places its nest on the ground, under shelter of a stone or tussock, and deposits four or five eggs, which are described by Canon Tristram as being "like large varieties of *C. brachydactyla*."

The specimen figured is one in my own collection, collected in Algeria, and obtained through Mr. Fairmaire; and those described are in the collection of Canon Tristram.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a. Malta, November 1862 (*C. A. Wright*). *b, c.* Algeria (*Fairmaire*). *d.* Algerian Sahara (*Verreaux*).

E Mus. H. B. Tristram.

a, ♂. Hadjira, December 23rd, 1856 (*H. B. T.*). *b, ♀.* El Djem, May 1857, taken on the nest (*H. B. T.*).
c, ♂. El Baadj, January 16th, 1857 (*H. B. T.*). *d.* Ain-Oussera, Algeria, March 12th, 1870 (*J. H. Gurney, jun.*). *e, ♂, f, ♀.* Near Beersheba, February 2nd, 1864 (*H. B. T.*).

E Mus. Howard Saunders.

a. Algeria (*J. H. Gurney, jun.*).

E Mus. E. Cavendish Taylor.

a. Cairo, January 1864 (*E. C. T.*).

E Mus. Berol.

a, ♂. Egypt (*Ehrenberg*). Type of *Calandritis minor*.

CALANDRELLA BÆTICA.

(ANDALUCIAN SHORT-TOED LARK.)

Calandrella bætica, sp. nov.

C. affinis C. minori, sed multo saturatior, alis brevioribus, rostro paullò major: suprà saturatè nigricanti-brunneo, plumis omnibus pallidè fusco marginatis: remigibus nigricanti-brunneis, primario primo in pogonio externo grisescente arenario marginato, sequentibus vix pallidè brunneo marginatis et apicatis: secundariis in pogonio externo grisescenti-brunneis: scapularibus et tectricibus alarum dorso concoloribus: reatricibus nigricanti-brunneis, vix pallidè brunneo marginatis et terminatis, reatricis externæ pogonio externo pallidè flavicanti-arenario: loris et lineâ indistinctâ per oculum versus nucham productâ sordidè fulvescenti-albis: fasciâ laterali fulvescenti-albidâ saturatè fulvido notatâ: gulâ et gutture albis, fulvido guttatis: pectore ochraceo lavato et conspicuè nigricante brunneo maculato: hypochondriis rufescente cervino lavatis et saturatè brunneo striatis: corpore reliquo subtùs albo, vix cervino adumbrato: subcaudalibus albis medialiter nigricante brunneo notatis: rostro brunnescenti-corneo: pedibus pallidè brunneis: iride brunneâ. Long. tot. 5·5, alæ 3·3, caudæ 2·0, tarsi 0·8, hall. cum ung. 0·6, culminis 0·45.

Adult (Seville, spring of 1872). Upper parts dark blackish brown, each feather margined with dull sandy grey; quills dark blackish brown, the first primary having the outer web broadly margined with light sandy grey; rest of the primaries indistinctly edged and tipped with light brown; secondaries similar, the inner secondaries having the outer web dull greyish brown; scapulars and wing-coverts similar to the dorsal feathers; tail blackish brown, narrowly edged and tipped with light brown; outer tail-feathers having the outer web light yellowish white, this colour extending over the shaft along the centre of the inner web; from the base of the bill an irregular light yellowish streak passing nearly to the nape; sides of the head and face dull buffy white, marked with dark brown; underparts white; throat and breast closely covered with large blackish brown spots, as large or larger than those on the breast of *Alauda arborea*; flanks washed with buff, and streaked with large and broad blackish brown lines; under tail-coverts white, streaked with blackish brown; beak horn-brown; legs dull brown; iris brown. Total length 5·5 inches, culmen 0·45, wing 3·3, tail 2·0, tarsus 0·8, hind toe with claw 0·6.

Obs. After a careful examination of the large series in Lord Lilford's collection, I can discover no difference between the sexes of this Lark.

WHEN collecting in Spain in the spring of 1872 Lord Lilford obtained two Short-toed Larks, which he at first was inclined to describe as a distinct species, but subsequently, in a letter to the editor of 'The Ibis' (Ibis, 1873, p. 98), records as *Calandrella minor*, Cab. (*C. reboudia*, Loche), as follows:—

"During my visit to the south of Spain last spring I fell in, near Seville, with a Short-toed Lark, which I at once recognized as distinct from the ordinary *Calandrella brachydactyla*, from which species it is distinguished by its greyer shade of colouring as well as its distinctly striped upper surface and breast. Mr. Sharpe, to whom I submitted my specimens, has come to the

conclusion, after careful comparison, that the Lark is not new, but is *C. reboudia* in full breeding-plumage.”

Quite lately, when working at the Short-toed Larks, Mr. Howard Saunders brought to me a single specimen which had been sent to him from the south of Spain, and which he thought would prove to be distinct. After comparing it with a large series of Short-toed Larks, I was convinced that it was a perfectly new bird, and advised him to describe it; but on showing it to Lord Lilford he at once pronounced it to be the same as the two specimens above referred to; and on obtaining these specimens from Mr. Sharpe this proved to be the case. That it is a perfectly distinct and good species there cannot be the least doubt, as the present bird is very much darker than any specimen of either *C. minor* or *C. pispoletta*, and has the breast and flanks very strongly striped with broad stripes of blackish brown, larger and more distinct than those on the breast of *Alauda arborea*. Judging from the series of specimens of *C. minor* I have examined, amongst which is one, a female, shot from her nest, and thus in full breeding-plumage, that bird has the markings much duller and less clearly defined in the summer plumage than in the winter dress; and had Mr. Sharpe been able to compare the two specimens of the present species with *C. minor* in full breeding-plumage, he would at once have seen that it could not possibly be that bird. Besides the difference in colour, the present species has on the average a shorter wing than *C. minor*, the average being 3.0 to 3.4 in the present species against 3.45 to 3.6 in *C. minor*.

Besides the above three specimens, a large series has just arrived from Spain, all of which agree *inter se*, thus clearly proving the validity of the species; and Lord Lilford has requested me to describe it in the present part of my work, and proposes for it the name of *Calandrella bætica*, after the river on whose banks it was first met with, under which name it will now stand.

Of the habits of *C. bætica* but little is known; and Lord Lilford informs me that he himself knows “very little about the bird from personal observation, having only seen it in small flocks in March and April in the wheat-lands on the banks of the Guadalquivir, and believes it to be a spring migrant to Southern Spain; its nesting-habits and eggs resemble those of *C. brachydactyla*. Ruiz has sent some eggs as belonging to this species, which he calls ‘carretera oscura de marisma.’ I first met with this bird in the Seville market, hanging amongst a bundle of other allied species and *Passer salicicola*. I always saw it in small flocks about the corn-land, never away in the open ‘marisma,’ properly so called. The first specimens were brought to me in either February or March. Manuel Llano, our chasseur, says that they arrive in the former month; certainly he could get me none during last winter until the month of February. I particularly asked Ruiz to let me know whether it does occur during the winter.” If, as Lord Lilford supposes, this species migrates from Spain during the winter, it will be interesting to find out whither it goes; for out of numbers of Short-toed Larks I have examined, obtained in North-west Africa during the winter months, I have not seen one at all approaching the present species in appearance.

I am indebted to Lord Lilford for the opportunity of examining the eggs of this species and comparing them with those of *C. brachydactyla* and *C. pispoletta*, from either of which they are easily distinguishable. They have the ground-colour pure white, and are blotched with pale purplish-brown underlying shell-patches or spots, and dark hair-brown overlying surface-blotches. Compared with the eggs of *C. brachydactyla*, they are smaller, and have the

markings very much larger and more scattered over the surface of the shell; and I cannot better describe them than by comparing them to very minute eggs of *Galerita cristata*. In size they vary from $\frac{3.0}{4.0}$ by $\frac{2.2}{4.0}$ inch to $\frac{3.2}{4.0}$ by $\frac{2.3}{4.0}$, whereas those of *C. brachydactyla* in my collection vary from $\frac{3.2}{4.0}$ by $\frac{2.4}{4.0}$ to $\frac{3.3}{4.0}$ by $\frac{2.5}{4.0}$, and those of *C. pispoletta*, obtained by Mr. Blanford, from $\frac{3.3}{4.0}$ by $\frac{2.4}{4.0}$ to $\frac{3.5}{4.0}$ by $\frac{2.4}{4.0}$. The eggs were unfortunately sent without any nest, which latter I am therefore unable to describe.

The specimen figured, on the same Plate as *C. minor*, is the one in the collection of Mr. Howard Saunders, which, when the Plate was drawn, was the only one I had. The bird described is one of the two first obtained by Lord Lilford, which, together with the large series he has just received from Seville, he has placed at my disposal for examination.

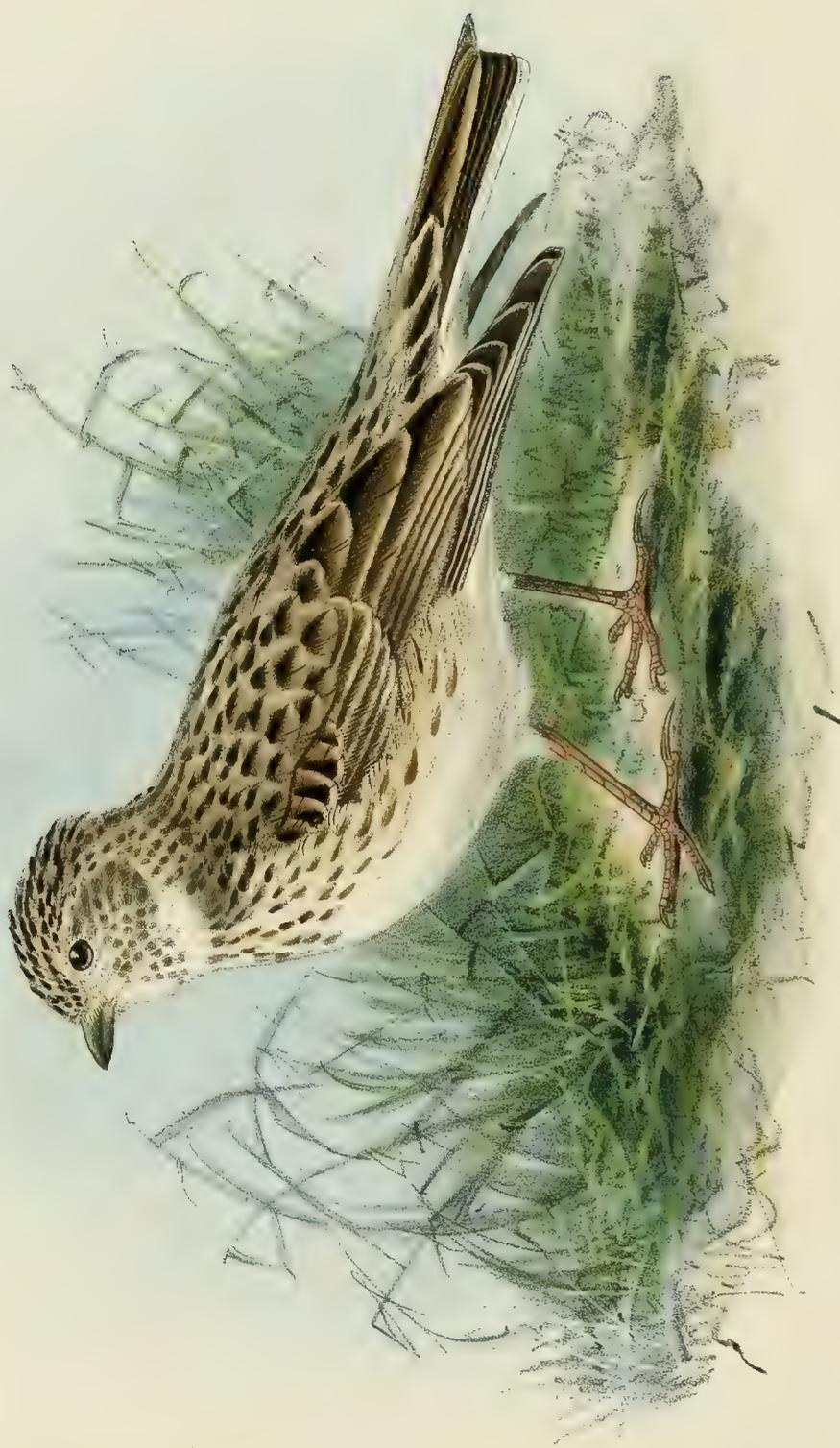
In the preparation of the above article I have examined the following specimens:—

E Mus. Lord Lilford.

a, b. Seville, 1872 (*L.*). *c, d, e, f, g, h, i, j, k,* ♂, ♀. Seville, February 1873. *l, m,* ♀. March 1873. *n, o, p, q, r,* ♂, ♀. April 1873. *s, t, u, v, w, x,* ♀. May 1873 (*Ruiz*).

E Mus. Howard Saunders.

a. Malaga, spring of 1873.



PALLAS' SHORT-TOED LARK.
CALANDRELLA PISPOLETTA.
1868

CALANDRELLA PISPOLETTA.

(PALLAS'S SHORT-TOED LARK.)

Alauda pispoletta, Pall. Zoog. Rosso-As. i. p. 526. no. 154, "Southern Russia" (1831).

Alauda pispoletta, Pall., Bp. Comp. List Birds of Eur. & N. Amer. p. 37. no. 250, "Eastern Europe" (1838).

Calandritis pispoletta, Cab. Mus. Hein. i. p. 122 (1850-51).

Alauda brachydactyla, Swinhoe, Ibis, 1861, p. 255, "Talien Bay, China" (nec Leisler).

? *Alauda (Phileremos) brachydactyla*, Radde, Reis. im Süd. v. Ost-Sibir. ii. p. 150, "Tarei-nor" (1863, nec Leisl.).

Calandrella pispoletta (Pall.), Swinhoe, P. Z. S. 1863, p. 271, "Talien Bay, North China."

Alaudula cheleënsis, Swinhoe, P. Z. S. 1871, p. 390, "Talien Bay; not rare at Pekin; Mongolia."

♂ *ad.* suprâ sordidè fuscus, griseo adumbratus: plumis omnibus medialiter nigro-fusco notatis: remigibus sordidè nigro-fuscis, extus albido marginatis, secundariis medialiter saturatoribus et pallidiùs marginatis, tertiariis brevioribus quam in *Calandrellâ brachydactylâ*: tectricibus alarum fuscis, pallidè brunneo marginatis: rectricibus externis albis, in pogonio interno lineâ nigricante brunneâ notatis, sequentibus in pogonio interno nigricanti-brunneis et in pogonio externo albis, rectricibus centralibus nigricanti-brunneis vix pallidè brunneo lavatis et terminatis: loris et regione ophthalmicâ ochraceo-albidis striâ ejusdem coloris per oculum ad nucham productâ: mento et gulâ albis: facie laterali brunneo notatâ: subtùs albidus, pectore et hypochondriis vix fulvescente adumbratis et fusco striolatis: rostro pallidè corneo: iride brunneâ: pedibus pallidè brunneis.

♀ *ad.* mari similis.

Adult Male (Volga, April). Upper parts dark earth-grey, the feathers having a central dark mark; quills dark brown, edged with dirty white; secondaries darker in the centre and lighter towards the edge, the inner secondaries much shorter than in *C. brachydactyla*, reaching only to within about an inch of the tip of the first primary; wing-coverts dark brown, broadly edged with light earth-brown; outermost tail-feathers white, having a black line on the inner web, the next in order blackish brown on the inner web, white on the outer web, the remainder blackish brown, imperceptibly edged with pale earth-brown, the centre ones washed with light brown; above and below the eye a pale, dull, buff-white stripe; chin white; sides of the neck spotted with dark brown; auriculars marked with brown; underparts white on the breast, and flanks striped with dark brown; beak dull horn-colour; legs light brown; iris dark brown. Total length 6.6 inches, culmen 0.5, wing 3.8, tail 2.3, tarsus 0.85, hind toe with claw 0.6.

Female. Similar to the male, but somewhat smaller in size.

THE present species, closely allied to the Lesser Short-toed Lark, and more distantly related to the Common Short-toed Lark, is found in South-eastern Europe, and ranges eastward to China. Having been confused with *Calandrella brachydactyla* by many naturalists, it is by no means easy

to define its range; but I have fortunately been able to examine a fair series of specimens from various localities, which enables me to state with some degree of certainty where it is met with.

In Southern Russia it is, according to Pallas, very common on the arid steppes adjoining the Caspian, where it arrives in flocks in the month of February and spreads over the steppes. Eversmann writes that he never observed *C. pispoletta* on the eastern steppes of South Russia, but on those of the Caspian, northwards to above Indersk and eastwards to Lake Aral, it is found in millions. It there inhabits only the most desert portions of the steppe, where the soil is clay, and there is scarcely any vegetation except straggling *Artemisia* plants. Again, where the steppe is more fertile *Alauda arvensis* is almost equally numerous; and between these two districts both species occur. Nearer to the Caspian, where the steppe is barren, *C. pispoletta* is extremely numerous, and almost the only bird to be met with. Mr. Sabanäeff, referring to Eversmann's notes, states that a specimen was observed by him on the boundary of the Ekaterinburg and Shadrinsk districts, thus further north than it is recorded by Eversmann to occur. Eversmann describes (Cab. Journ. 1863, p. 283) a Short-toed Lark under the name of *Alauda longipennis*, which may possibly be the present species; but his description is not sufficiently clear, and no measurements are given. He speaks of it as being smaller than the Short-toed Lark, but having an equally long wing, reaching nearly to the end of the tail; the bill is small, and the legs very slender; the mark over the eye is very clearly defined. The locality from which it is described is the "Songarei."

De Filippi speaks of the present species as being found in Russian Armenia; and in Persia it appears to be common during the breeding-season; for Mr. Blanford obtained specimens of the birds, as well as a nest and eggs.

Dr. Jerdon does not record it from India—though, from his stating that some specimens of the Short-toed Lark have the breast spotless and others spotted, it appears probable that he had seen specimens of this bird; but it has since been recorded from the plains of India by Mr. A. O. Hume, who, in a letter to the editor of 'The Ibis' (Ibis, 1870, p. 531), writes that, in a large collection formed for him, in the cold season, in the Sirsa district, by Nizam Oodeen Khan, he found three specimens of *C. pispoletta*. It occurs in China; and specimens thence have been described by Mr. Swinhoe as a distinct species, under the name of *Alaudula cheleënsis*; but having compared Mr. Swinhoe's types with specimens from the Volga, I can detect no differences on which a species could be founded. Mr. Swinhoe records it as found at Talién Bay, not rare at Pekin, and, according to Père David, particularly abundant in Mongolia. I think it probable that this species occurs in the south-eastern portion of Siberia. Dr. G. Radde refers to a Short-toed Lark, which I believe to be the present species, as found on the Tarei-nor. Tschihatscheff met with it in Western Siberia; and Dr. Radde states that he found it in the spring consorting with *A. mongolica*, or in small flocks near others of that species, and that it breeds on the north-eastern end of the lofty Gobi. Von Middendorff writes that Dr. Stubendorff sent him specimens from the Birjussa of a Short-toed Lark, which I also think may probably have been this species; but not having had an opportunity of examining any of these Siberian specimens, I am unable to speak with any degree of certainty.

But little has been recorded respecting the habits of this species, which do not appear to differ from those of *Calandrella brachydactyla*. I am, however, fortunate in being able to

describe the nest and eggs, which have been placed at my disposal by Mr. Blanford. This gentleman took the nest on the 20th of May, 1872, to the south-west of Kerman, in South Persia, and shot the female bird as she left her eggs. The nest is a very slight structure, composed of small faded grass bents, without any regular lining, and was placed on the ground; the eggs, three in number, resemble those of *Calandrella brachydactyla*, but are a trifle larger, have the ground-colour clearer and paler, and the spots somewhat darker and more clearly defined. Placing these three eggs in a series of those of *C. brachydactyla* I find I can distinguish them by the above-mentioned differences. In my collection I have an egg sent to me by Dr. Baldamus as being that of *C. pispoletta*, which, however, does not in the least resemble those taken by Mr. Blanford, and I cannot look on it as genuine.

The specimen figured and described is one from the Volga, in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. Volga, April (*Möschler*).

E Mus. Ind. Calc.

a, ♂. East of Shiraz, Persia, May 1872 (*W. T. Blanford*). *b*, ♀. South-west of Kerman, S. Persia, May 20th, 1872 (*W. T. B.*). *c*, ♂. Shiraz, June 1869 (*Major St. John*).

E Mus. R. Swinhoe.

a, *b*, ♂, *c*, ♀. Talien, China, June 1860 (*R. S.*).

E Mus. E. Hargitt.

a, ♂, *b*, ♀. Volga, April (*Möschler*).

E Mus. Howard Saunders.

a, ♂, *b*, ♀. Volga, April (*Möschler*).

Genus MELANOCORYPHA.

Alauda apud Linnæus, Syst. Nat. i. p. 288 (1766).

Melanocorypha, Boie, Isis, 1828, p. 322.

Saxilauda, apud Lesson, Compl. Buff. (1837).

Phileremos apud Keyserling & Blasius, Wirbelth. Eur. p. xxxvii (1840).

Calandrella apud Brandt, fide Bonaparte, Consp. Gen. Av. i. p. 243 (1850).

Calandra apud Dubois, Ois. de la Belg. pt. 102B (1858).

Pallasia apud E. F. von Homeyer, J. f. Orn. 1873, p. 190.

THE Calandras inhabit the Palæarctic, Ethiopian, and Oriental Regions, four species being found in the Western Palæarctic Region. In general habits they are said to resemble the Sky-Lark, frequenting the open country, and collecting in the winter in flocks. They are very good songsters, uttering their rich and varied notes whilst circling in the air; and they are said to have the power of imitating the notes of other birds. They feed on insects and seeds, construct a somewhat loosely made cup-shaped nest of grass-straws, which they place on the ground, and deposit greyish-white eggs richly blotched with purplish grey and several shades of brown.

Melanocorypha calandra, the type of the genus, has the bill stout, rather short, compressed, subconic, upper mandible curved towards the tip; gape-line nearly straight; nostrils oval, basal, concealed by bristly feathers; crown without elongated feathers; wings long, pointed, the first quill very small, the second longest, the third very nearly as long; inner secondaries moderate, shorter than the sixth quill; tail short, nearly even; legs strong, tarsus covered in front with six large and three inferior scutellæ; claws moderate, slightly curved, except the hind claw, which is elongated and nearly straight.



CALANDRA LARK.
MELANOCORYPHA CALANDRA.

EASTERN CALANDRA LARK
MELANOCORYPHA BIMACULATA.

MELANOCORYPHA BIMACULATA.

(EASTERN CALANDRA LARK.)

Alauda bimaculata, Ménétr. Cat. Rais. p. 37 (1832).*Melanocorypha calandra*, Rüpp. Syst. Uebers. p. 78 (1845, nec Linn.).*Melanocorypha torquata*, Blyth, J. A. S. B. xvi. p. 476 (1847).*Melanocorypha alboterminata*, Cab. Mus. Hein. Th. i. p. 124 (1850).*Melanocorypha rufescens*, Brehm, Naum. 1856, p. 376.*Melanocorypha bimaculata*, Sharpe, Ann. N. H. (4) viii. p. 180 (1871).

♂ *ad. æstiv.* fulvescenti-brunneus, plumis omnibus medialiter saturatiùs brunneis: uropygio et tectricibus supracaudalibus fulvescenti-brunneis, pallidioribus, ferè unicoloribus: collo postico paullò cinerascete: tectricibus alarum ferè dorso concoloribus, paullò rufescente lavatis, majoribus fulvescente marginatis: remigibus brunneis, extùs cinerascete lavatis et fulvo angustè marginatis: caudâ brunneâ, vix rufescente tinctâ, rectricibus omnibus fulvo marginatis et albo terminatis, pennis duabus centralibus exceptis: loris, supercilio, gutture et facie laterali fulvescenti-albidis, hâc rufescente mixtâ: regione auriculari rufescente: corpore reliquo subtùs fulvescenti-albo, pectore et hypochondriis magis rufescentibus: torque pectorali nigrâ: subcaudalibus fulvescenti-albis: subalaribus brunnescenti-griseis: rostro brunnescenti-corneo, mandibulâ flavicante: pedibus flavicantibus: iride saturatè brunneâ.

Av. hornot. paullò rufescentior, torque pectorali minùs distinctâ, punctulis longitudinalibus nigris notatâ: rostro flavicante.

Adult male in summer plumage. Above fulvous-brown, the centres of the plumes much darker brown, giving a somewhat mottled appearance, all the feathers being edged with fulvous, especially on the hinder part of the neck and centre of the back; wing-coverts coloured like the back, but a little more rufous, plainly edged with fulvous, less distinct on the greater coverts; quills brown, with a slight shade of ashy grey on the outer web, all the feathers more or less narrowly edged with fulvous, but none of the feathers tipped with white; tail dark brown, with conspicuous white tips to all the feathers, except the two central ones, all the rectrices edged more or less broadly with fulvous; lores and a distinct eyebrow whitish; cheeks fulvous-white, with a slight mottling of rufous; ear-coverts entirely rufous; throat white; rest of the under surface dull white, the upper part of the breast and flanks rufous; a pectoral gorget black, extending right across the lower part of the throat; on the upper part of the breast are a few indistinct mottled lines below the black gorget; under tail-coverts whitish; under wing-coverts entirely greyish brown; bill horn-brown, the under mandible yellowish; feet fleshy yellow; iris dark brown. Total length 6·6 inches, culmen 0·7, wing 4·75, tail 2·5, tarsus 1·0.

Obs. Some specimens are much greyer than others. Others again are more rufous. Some are more white on the belly, and have the breast much obscured, so that the pectoral gorget is scarcely discernible. This last dress seems to be the winter plumage.

Young. Similar to the adult, but more rufous in the centre of the back; the gorget more obscure, and the stripes on the upper breast more indistinct; the bill likewise seems to be more yellow.

Explanation of the Plate. The front figure represents the typical *M. bimaculata*, as we believe; on the rock to the right is seen a specimen of the rufous race found in Palestine by Canon Tristram. On the left hand a specimen of the true Calandra Lark is seen with wings and tail extended to show the distinctive characters by which it may always be told from its eastern representative.

THIS species is closely allied to the Common Calandra Lark of Europe, but is readily distinguished by two very trenchant characters, viz. by the total absence of white tips to the small wing-feathers, and by having all the tail-feathers tipped with white, whereas in the ordinary European species the outer rectrix is nearly all white, and this colour gradually diminishes towards the centre of the tail.

The acquisition of several specimens from Turkestan, which M. Dode brought over on his recent visit to England, enabled us to identify the true *Alauda bimaculata* of Ménétriés, a bird which has puzzled a great many ornithologists, and which Mr. Blyth and other authors have been disposed to refer to the genus *Calandrella*. A further examination of specimens enabled us to refer the *M. torquata* of North-western India to the same species, as well as *M. albotermi-nata* from North-eastern Africa; so that it was found that the ordinary Calandra Lark is replaced to the eastward by a nearly allied but perfectly distinct species, which ranges from Abyssinia through Palestine into Central Asia and North-western India. The exact range of the Eastern Calandra Lark has to be determined; and future research must show where it meets with *M. calandra*. The latter species occurs in the Crimea, Mr. H. J. Elwes having lent us two specimens procured by himself on the battle-field of the Alma; and since writing our account of that bird, we have received from the same gentleman a specimen from Turkestan. We shall not be surprised to hear that the indefatigable Mr. Hume has added the common species to the avifauna of India; and Captain Marshall and his other excellent correspondents in the North-west Provinces should keep a look-out for the bird; for it is now tolerably certain that the European Calandra Lark extends into Central Asia with *M. bimaculata*, though doubtless in much smaller numbers than the last-named species.

In his recent paper on the present bird (*l. c.*), Sharpe was able to confirm the assumption that *M. rufescens* of Brehm is also referable to the same species; for Canon Tristram possesses specimens from Palestine which appear to represent Brehm's species to a nicety. Concerning these birds he writes in 'The Ibis' for 1868 (p. 208):—

“Before concluding these notes on the Passerine birds of Palestine, I must state that, on going through my collection recently in company with the editor of this journal, we were satisfied that the Calandra Lark of Mount Hermon and Lebanon must be distinguished from the Common Calandra of the plains and of Southern Europe. It is smaller and more slender, with a very decided rufous tint on the whole of its plumage; but especially the outer rectrices are without any white, while in the true *M. calandra* (L.) the outer tail-feathers are wholly white. But before describing the species as new, I am anxious to have an opportunity of examining Persian and Afghan specimens.” One of these birds is figured in our Plate; and it will be seen that it is rather more rufescent in colour than the typical bird in the foreground. Canon Tristram, however, agrees with us that it is not specifically separable, despite its rufous coloration and slightly slenderer bill; and there can be no doubt that a great deal of the red colour is derived from the nature of the ground it frequents.

The following short account of the distribution of this species in North-eastern Africa is given by Dr. von Heuglin:—"This Lark appears in Arabia and North-eastern Africa, southwards to the Blue Nile, and in Abyssinia, as a winter visitant. It wanders in flocks about the fields and steppes, and is very shy."

When Dr. Jerdon wrote his 'Birds of India,' the present bird had not been known to occur within Indian limits. He thus writes concerning it:—"One species, *M. torquata*, Blyth, *M. bimaculata* of Ménétriés, is the Bokhara Lark of some Europeans in the north-west, the *Jull* of the natives. It is a favourite song-bird of the Afghans, and is often brought to the Punjab, Cashmere, and even to Calcutta. It is very like *M. calandra*, but is considered generically distinct by Blyth, and named *Calandrina*, having a longer and less robust bill. . . . It is quite possible that this Lark may yet be found in the extreme North-west Provinces, it being common in Afghanistan." Since that was written, Captain C. H. T. Marshall has procured a large quantity of specimens near Lahore, some of which he was kind enough to give us; and Mr. Hume tells us that he has about one hundred examples in his collection from the North-west Provinces of India. Dr. Henderson, in his account of the birds of Yarkand, states that only one specimen was obtained during the Yarkand Expedition, which he shot on the return journey, at the foot of the hills leading from Cashmere to the plains of the Punjaub. Mr. Hume, in this same work, enters very minutely into the points of distinction between the present bird and *M. calandra*, and gives the following interesting account of the species:—"The Bokhara, or Bugheira Lark, as it is commonly called, swarms during the cold season all over the trans-Sutledge districts of the Punjaub and North-western Rajpootana; and a certain number, which find their way further down, are met with in regularly decreasing numbers as one proceeds southwards and eastwards in the cis-Sutledge Punjaub, the Duab as far down as Futtehpoor, and Southern Rohilcund. Dry, sandy, cultivated lands, sparingly covered with the stubble of the grain crops, the giant and bull-rush millets (*Holcus sorghum* and *Penicillaria spicata*), are the places they affect. They have a very loud and sweet note, and are, I can well believe, grand songsters in the nuptial season; but they leave us with the first breath of the hot wind, and breed, it is believed, in Afghanistan, Bokhara, and Persia."

In conclusion, we may remark that Mr. Blyth's name of *torquata* is by no means inapplicable to the present bird; for the black band is generally complete across the breast, whereas in the Common Calandra there is generally a black patch on each side of the chest, which do not meet across the latter.

The figures in the Plate are taken from specimens in our own collection, with the exception of the right-hand bird, which is lent to us by our friend Canon Tristram. The descriptions of the birds are also from examples in our own cabinet, the adult male being a bird killed on the 8th of May, 1866, by Dode, in Turkestan, the young ones being from Lahore, given us by Captain C. H. T. Marshall, who has done good service towards elucidating the ornithology of the Punjaub, as Mr. Hume's pages will show.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

- a.* Turkestan (*Dode*). *b, c.* Lahore, Punjaub (*C. H. T. Marshall*). *d, ♂.* Punjaub, November 25th, 1867 (*A. O. Hume*).

E Mus. R. B. Sharpe.

- a.* Abyssinia (*Verreaux*).

E Mus. H. B. Tristram.

- a.* Turkestan (*Dode*). *b, c.* Plain below Baalbec, June 15th, 1864 (*H. B. T.*).

E Mus. H. J. Elwes.

- a.* Punjaub, January 1st, 1870 (*H. J. E.*). *b.* Punjaub, December 1869 (*H. J. E.*).



MELANOCORYPHA CALANDRA .

MELANOCORYPHA CALANDRA.

(CALANDRA LARK.)

The Calandra, Edwards, Gleanings, pt. ii. p. 122, pl. 268 (1760).*La Calandre*, Montbeill. Pl. Enl. v. p. 336, pl. 363 (1778).*Alauda calandra*, Linn. Syst. Nat. i. p. 288 (1766).*Alauda collaris*, P. L. S. Müll. Syst. Nat. Suppl. p. 137 (1776, ex Edwards).*Alauda calandre*, P. L. S. Müller, Syst. Nat. Suppl. p. 137 (ex Montbeillard).*Melanocorypha calandra*, Boie, Isis, 1828, p. 322.*Melanocorypha albigularis*, Brehm, Naumannia, 1856, p. 374.*Melanocorypha subcalandra*, id. tom. cit. p. 374.*Melanocorypha semitorquata*, id. tom. cit. p. 374.*Calandre*, French; *Alondra Calandria*, Spanish; *Cochicho*, Portuguese; *Calandra*, Italian; *Aluet*, Maltese; *Kalander-Lerche*, German; *Iavronok stepnoi*, Russian.*Figuræ notabiles.*Werner, Atlas, *Granivores*, pl. 2; Gould, B. of Eur. iii. pl. 162; Naum. Vög. Deutschl. v. Taf. 98; Bree, B. of Eur. ii. p. 195.

♂ *ad. æstiv.* suprâ fusco-umbrina, plumis omnibus medialiter nigricanti-brunneis, marginibus fulvescentibus: uropygio unicolori umbrino, plumis fulvo marginatis, tectricibus supracaudalibus pallidioribus: pilei plumarum parte medianâ brunneâ distinctiore: collo postico plus minusve cinerascete, plumarum lineâ ventrali vix ita distinctè indicatâ: tectricibus alarum minimis dorso concoloribus, majoribus brunneis, rufescenti et fulvo marginatis: remigibus brunneis, primariis extus albido marginatis, secundariis minoribus paullo rufescenti tinctis et versus apicem conspicuè albis, fasciam distinctam albam formantibus, remigibus intimis brunneis, paullulùm griseo lavatis et rufescenti marginatis: caudâ saturatè brunneâ, pennis duabus centralibus latè fulvo marginatis versus apicem albicantibus, rectricibus reliquis albo terminatis, penultimæ pogonio externo et apice latè fulvescenti-albâ, extimâ ferè omninò fulvescenti-albâ ad basin pogonii interni brunnescente: loris et supercilio distincto fulvescenti-albo: genis albidis brunneo paullulùm variegatis: regione auriculari fusco-umbrinâ: corpore subtus albicante, hypochondriis fulvescenti-griseis, pectore antico maculis parvis brunneis irregulariter notato: plagâ magnâ ad latera pectoris summi nigrâ: subcaudalibus albidis: subalaribus nigricanti-griseis: rostro brunneo, mandibulâ rufescente: pedibus livide rufis: iride nigricante.

♀ *mari similis*, sed plagâ nigrâ ad latera pectoris conspicuè minore.♂ *autumn.* paullo rufescentior.*Av. hornot.* similis adultis, sed suprâ saturatior, plumis rufescenti marginatis et albo apicatis: pectoris punctulis minus distinctis: rostro et pedibus flavicantibus.*Male in summer plumage.* Above greyish brown, the centres of the feathers very dark brown, giving some-

what of a striped appearance, all the plumes edged with fulvous grey, more especially those of the interscapular region; least wing-coverts grey like the back, the median and greater coverts dark brown in the centre with very narrow but distinct fulvous edgings; quills dark brown, the primaries margined with dull white on the outer web, the smaller primaries edged with isabelline colour and very conspicuously tipped with white, forming a distinct alar bar, the innermost secondaries tinged with greyish and margined with fulvous; tail for the most part dark brown, the two centre feathers broadly washed with rufous, the two outer feathers white, with a tinge of isabelline, only the basal portion of the inner web pale brown, the next two feathers for the most part dark brown, the outer edge and the tip of the inner web whitish, all the rest of the feathers tipped with whitish; lores and a distinct eyebrow white; feathers round the eye and cheeks greyish white, the latter speckled with brown; ear-coverts greyish brown; sides and back of the neck rather paler greyish brown than the rest of the back; under surface of the body white, the upper breast slightly tinged with fulvous, and covered with minute longitudinal streaks of dark brown; the flanks greyish, strongly tinged with isabelline; on each side of the neck a very large patch of black, which does not meet across the front of the chest; under wing-coverts white, slightly tinged with buff; under wing-coverts greyish black; beak brown, the lower mandible reddish; feet livid red; iris blackish. Total length 7·8 inches, culmen 0·75, wing 5·3, tail 2·8, tarsus 1·05.

Female. Similar to the male in all respects, but having the black patch on each side of the chest smaller.

Autumn plumage. Apparently a little more rufous.

Young. Similar to the adults, but darker above, the feathers margined with buff and tipped with white; the spots on the breast less distinct, and the black patches much less developed; bill and feet yellowish.

THE Calandra Lark is an inhabitant of Southern Europe, only occurring as a rare and accidental visitant in the northern portions of the continent. It has been found in most of the countries along the Mediterranean basin, but is rare in Egypt. It extends into Southern Russia and perhaps Persia, but the species of the latter country may be *M. bimaculata* (Ménétr.). This latter bird, though really very distinct, has never been well identified as an inhabitant of Eastern Europe, and we yet require positive information respecting the ranges of these two species of Calandra Larks.

The present bird has been twice known to have occurred in England. Mr. J. Gatcombe found one in a bird-stuffer's shop at Plymouth, which had been obtained in that neighbourhood, and it is therefore included in Mr. J. Brooking Rowe's book on the Birds of Devon; while the second supposed example is in the collection of Mr. Byne, a gentleman who is fast gathering together a good series of British birds: it was said to have been obtained near Exeter. Mr. C. F. Dubois has recorded a Calandra Lark as having been caught near the town of Brussels, in October 1855. Naumann says it has been several times procured in Austria, and once near Frankfort-on-the-Maine, but never in Holland or northern Germany. Borggreve states, on Dr. Gloger's authority, that it has once been procured in Silesia. In France, Degland and Gerbe say it is "common in certain localities of the departments of Var, Hérault, Bouches du Rhône. According to Lesson it appears sometimes in the departments of Deux-Sèvres and Charante-Inférieure." Jaubert and Barthélemy-Lapommeraye state that it is "found in Provence, in the Camargue and Crau, and on the borders of the Durance and Verdun. Here it is sedentary, nor is it seen migrating at other places." Lord Lilford tells us that he found the present species

common in most parts of Spain, particularly so near Aranjuez in 1865. Mr. Howard Saunders has published the following note, to the effect that it is "abundant in the great plains south of Seville, where it breeds, making its nest in a depression of the ground, often at the depth of three or four inches. The eggs, though small for the size of the birds, are, however, very distinct from those of *G. cristata*. In the Isla Menor, a great place for Bustards, the Calandra is especially abundant." Major Irby finds it plentiful in winter in Andalucia, chiefly arriving in November, and leaving the vicinity of Gibraltar in March. "Some few," he adds, "nest in the plains near Casa Vieja." Mr. Gervase F. Mathew writes to us as follows:—"The *Melanocorypha calandra* is tolerably numerous in some localities near Lisbon, especially on the uncultivated flats in the neighbourhood of Villafranca and Reguengo." The Rev. A. C. Smith likewise says that he found it "common everywhere throughout Portugal, in the open plains and fields."

Count Salvadori writes to us:—"This Lark is a permanent resident in Central and Southern Italy. It is met with on the Maremma Toscana, becoming more abundant in the Maremma Romana and in the Neapolitan provinces. It is extremely common in many suitable places in Sicily. In Northern Italy it is of only accidental occurrence." Bettoni states that in Lombardy it is rare and migratory, but nevertheless has been found breeding in that province. Mr. E. Cavendish Taylor says it is generally to be found in the bird-market of Rome during the winter and early spring. Professor Doderlein, in his account of the Birds of Modena, states that it is almost a resident, though rather rarer about Bologna than near Modena; some individuals nest about the lower part of the Po. The same author says that "in Sicily it is resident, and very abundant in many parts of the island; being a favourite on account of its song, it is frequently captured with nets." Lord Lilford tells us that when in Sicily, in November 1856, he found it in the barren country near Lercar di Friddi in large flocks. In Sardinia it is common and resident, according to Salvadori. Mr. A. B. Brooke also found it plentiful in the last-named island; and Lord Lilford likewise tells us that he perceived it to be very abundant on the plains of the island of Sardinia, "where, curiously enough, the Crested Lark does not occur." It may here be mentioned that Pastor Brehm has made a subspecies of the Sardinian and Algerian Calandra, which he calls *Melanocorypha calandra megarhynchos*, and, again, from Dalmatia, another species, which he names *M. albigularis*, while yet another species is described as distinct, this common to Greece and Dalmatia, called *M. subcalandra*. We are sorry to say that no one since Pastor Brehm seems to have been able to make out these species.

Lord Lilford writes that "a few of this species are to be observed in summer in Corfu, where they breed. I have never observed this bird on the mainland." Von der Mühle considers it to be the commonest Lark in Greece; but Lindermayer differs from him in this respect, and also does not agree with the account of its habits given in the work of the above-mentioned author. He says:—"It arrives in the middle of April, when it is numerous, and leaves late in October. Many, however, winter in Greece, although Erhardt includes it as a summer visitor to the Cyclades." Messrs. Elwes and Buckley found it common and resident in Turkey; and Mr. Robson, of Ortakeuy, writes to us as follows:—"This species is common in Turkey in Europe and in Asia Minor. In the winter they associate in large flocks; and many of them are shot by sportsmen for the table, as they are large plump birds, and are much in request for eating. They affect mountains and large plains, but seem to prefer hilly tracts, and are found both on culti-

vated and on uncultivated ground. They stay over the year and make their nests on the ground. The natives admire their song; and a great many are taken when young and kept in cages. During the storm of February 1871 a large number of these birds were shot; at least two thirds of them were males." Professor von Nordmann gives the following account of the distribution of the species in Southern Russia:—"It is a true inhabitant of the steppes, never visiting the mountainous districts, and is therefore not found in the southern part of the Crimea and in the provinces to the east of the Black Sea, where there are very scanty plains. In Bessarabia and New Russia there are innumerable quantities of these Larks, and in the autumn and spring, when they are in flocks, they are sold by sixties in the Odessa market." Radde also writes that they remain in Southern Russia all the year round. In the Crimea Messrs. Elwes and Buckley found it very common near Sevastopol; and Major Irby, who was present in the locality during the Crimean war, says that it was common and resident there; he also procured its eggs. Specimens are often received through Mr. Moeschler from the Volga; and Pastor Brehm named the bird from this locality *M. semitorquata*; like the other species of this author it has not been since recognized as distinct. Dr. von Middendorff procured a single example between Krasnojarsk and Irkutsk, on the highroad, in April; but his specimen differed considerably from the general type of the European bird. Dr. Cabanis questions whether von Middendorff's bird may not be his *M. alboterminata*, which we consider to be the same as *M. bimaculata* (Ménétr.). We think this most probable; indeed, as we have stated beforehand, many of the eastern birds recorded as *M. calandra* will require re-examination.

At Erzerum it is stated to have been found by Mr. Keith E. Abbott; and the late Mr. Strickland says that it arrived during the cold weather at Smyrna. Russell also recorded it from Aleppo many years ago. Dr. Tristram, writing of the Larks to be met with in Palestine, says, "The most abundant of all was perhaps the large Calandra Lark, *Melanocorypha calandra* (L.), a partial migrant, and wintering in the desert and southern wilderness, but breeding in the corn-plains and in the north, especially under Hermon. It appears that there are two races of this bird:—one larger and darker in plumage, which breeds in the corn-plains, identical with the Calandra of Algeria; the other smaller and more rufous, sometimes almost russet, which remains all winter near Damascus, and breeds in the uplands." Thanks to Dr. Tristram, we have been able to examine the last-mentioned specimens; and we believe that these also are referable to *M. bimaculata*. Next as regards the occurrence of the Calandra in Egypt. Rüppell states that he found it common in winter in Nubia and Egypt; but doubtless *M. bimaculata* is here again intended. "The true *M. calandra*," Dr. von Heuglin says, "I found only on one occasion, in March, in company with Crested Larks and Wagtails on the shore of a lagoon near Alexandria, where a pair rambled shyly about a freshly ploughed field; and again in November, on the road between Cairo and Suez. Hemprich and Ehrenberg procured it in Arabia Petræa and Hedjas." Neither Captain Shelley nor Mr. E. Cavendish Taylor has ever met with it. The latter gentleman writes to us:—"This Lark I have always found to be conspicuous by its absence from the avifauna of Egypt, which is the more remarkable as it is a common species both in the Pashalic of Tunis and in Syria, Egypt being situated about midway between those two countries."

In Tunis Lord Lilford says he found it common in November and December. In Malta Mr. C. A. Wright says it is "abundant in flocks in October, when great numbers are taken in

nets and shot. A few remain the winter, till the beginning of February. It repasses in March and April, but in less numbers than in autumn. I have not heard it sing here. My collection contains a curious cream-coloured variety of this species, with ashy markings on the back and wings." In Algeria Loche says it is abundant. Dr. Taczanowski also observes:—" *Melanocorypha calandra* is very common in cultivated fields of the hill-country, as well as in the desert, on fields round about the oases: less numerous in the districts lying near the sea, and about broad pasture-grounds near Lake Fezzara." Mr. Osbert Salvin found it breeding in the Eastern Atlas; and Canon Tristram has published the following note:—"Though swarming on the coasts, and by far the most common Lark in the Tell, the Calandra soon becomes scarce in the interior, and can only doubtfully claim a place in the Sahara list. The two specimens I obtained on its edge are decidedly larger than those of the plains on the other side of the Atlas, measuring 8 inches in length, with beaks more robust and longer than in other specimens, 0·8 inch from the gape instead of 0·6 inch, but do not exhibit any further specific distinction. The Calandra is in high esteem by French epicures, and ranks as the best *gibier* of the Algerian chasseur." Mr. J. H. Gurney, who has recently travelled in Algeria, observes as follows:—"Occurs in large flocks up to the middle of March. This species is very common at Ain-Oussera and Bougzoul; but I never met with any among the Larks in the Algiers Market. It is quite unknown in the Mzab."

Mr. C. F. Tyrwhitt Drake, in his paper on the Birds of Tangier and Eastern Morocco, says he found it on the open plains.

Swainson has given it a place in the Fauna Boreali-Americana on the authority of a dealer, and afterwards on that of a specimen in the British Museum, said to be from the Fur-countries, and presented by the Hudson's Bay Company. This is undoubtedly an error.

As the Calandra is not found in Northern Europe, but few observers have given notices of its habits. We are indebted to many of our friends for original matter contributed towards the present account of the species. Mr. Gervase F. Mathew has kindly sent us the following letter:—"The male on commencing his song springs from the ground, and with a graceful undulating motion describes a series of large circles until he rises to an immense height; his song is then clear and beautiful, but at close quarters it is piercing and unpleasant. The call-note is loud and harsh, and somewhat similar to that of *E. miliaria*. With the Portuguese it is a favourite cage-bird, and in many of the streets of Lisbon may be seen hanging outside every door in cages that are generally much too small. At Gibraltar it is frequent; and many are caught on the neutral ground by bird-catchers, who use clapp-nets with decoy call-birds. A heavy price is asked for a good singer. Those I shot at Lisbon afforded fair sport, and were capital eating."

The following note is taken from Count von der Mühle's work on the Birds of Greece (p. 38):—"It is undoubtedly the commonest Lark in Greece, and enlivens even before daybreak the flat country with its song. Its favourite resorts in summer are dried-up swamps and meadows where cattle graze and here and there wild flowers grow. Here it is continually running about after insects, and sings incessantly on clods of earth and heaps of mould thrown out of ditches. When it rises singing in the air, it never soars so high as *A. arvensis*. It is very companionable, often going with *A. brachydactyla* and *A. arvensis*; and I have often killed all three species at

one shot. It nests in open fields, making a carelessly formed nest out of grass straws, which contains from four to five eggs. It migrates in October; but many coming to us from more northern localities winter in the Morea. It is highly valued as a cage-bird. Numbers are caught near Patras and Missolonghi, and sold at Constantinople, where a singing Calandra is sold for from six to eight colonnads. They are very obstinate; and, when caught old, many will not sing; therefore young birds are preferred." Lindermayer's experience of the bird is different from that of Von der Mühle: he states that it is never found in large flocks like the Skylark and Short-toed Lark, but according to his observation always in pairs; and he proceeds as follows:—"Their favourite places of resort are freshly manured fields, dried-up swamps, and meadows, where they diligently seek after insects and grain. Their song is powerful and melodious, and they are often used as cage-birds, and, indeed, form an article of trade, and are sent in dark cages to Constantinople, Smyrna, and Alexandria." Loche thus describes the bird and its habits:—"The Calandra Lark is common in Algeria. In its habits it is solitary, and is never met with in large flocks, but only in small families after the breeding-season, and singly at other seasons of the year. It is wild and wary. Its note is loud and agreeable; and to say 'to sing like a Calandra' means to sing well. It has the power of imitating the notes of other birds and, it is affirmed, the cries of some of the mammals. Its food consists chiefly of insects and worms; but it also to some extent eats grain. It is fond of dusting itself in the sand. It rears two broods in the year."

It is evident, however, that the habits of the present species differ at various times of the year; for Dr. Taczanowski, who has also travelled in Algeria, says, "They always kept in large flocks, and seemed in general to be rather shy. In March they had not yet separated themselves from their flocks; but the males were beginning to fly high and sing." Radde, writing from South Russia, says, "A Calandra is rather shy, and builds its nest as early as the end of April. About the end of May the young are fledged. Its song resembles that of the Crested Lark, but is somewhat longer. It flies in short bow-like lines, and does not fly any long distance at once." Von Nordmann gives the following accounts of the species in Demidoff's 'Voyage':—"The Calandra Lark is one of the most variable birds, both as regards size and colour of plumage. I have before me individuals of nearly double the usual size, the beaks of which are thrice as long as usual. I have seen accidental varieties, some white and others cream-coloured, the latter very small. The nests of this bird are always on the steppes, and contain four or five eggs. The young birds are much deeper-coloured than the adults. During the breeding-season the males may be seen pursuing each other with ardour, performing most peculiar aerial evolutions, rising to some distance with very gentle motion of the wings, spreading and quavering the tail, describing large spirals, uttering their sonorous and varied song, which is chiefly borrowed from that of other birds. In the autumn they collect in flocks, of which some only, as it seems, migrate southward; for there are always small flocks wintering in our parts. As *Alauda calandra* does not frequent mountains, I am disposed to believe, contrary to Mr. Gloger's opinion, that *Alauda bimaculata*, discovered by M. Ménétries in the mountains of the Caucasus, is a distinct species from this."

Mr. Osbert Salvin, in his interesting paper, entitled "Six Months' Birds'-nesting in the Eastern Atlas," writes:—"The large size of the Calandra makes it conspicuous among its con-

genera in places where the other species are found. It seeks the pastures and corn-fields more than the above-mentioned species (*Galerida cristata* and *Calandrella brachydactyla*), though in some places all three are found together in equal abundance. The number of eggs varies from three to five; they are laid about the second week in May, but some earlier." Much has been said in the foregoing pages concerning the song of the Calandra, which appears to render it the favourite cage-bird in Southern Europe. Mr. Wright says that in Malta "numbers are yearly imported from Sicily, and kept as cage-birds for their song, which is too powerful for a room. A good songster is much esteemed, and fetches a high price." Major Irby tells us that near Gibraltar "great quantities are caught with a lantern and a bell at night. On a windy night I have known a boy catch seven or eight dozen of this species, along with *Alauda arvensis*, *A. cristata*, and *Emberiza miliaria*, in a couple of hours' time."

The eggs of the Calandra Lark vary considerably in size, and are sometimes as small as those of the Crested Lark. In Dresser's collection are eggs from Spain and from Algeria, the latter collected by Mr. W. H. Hudleston. The largest, a Spanish specimen, measures $1\frac{3}{40}$ by $\frac{32}{40}$ inch, and the smallest, an Algerian specimen, $\frac{38}{40}$ by $\frac{28}{40}$. The ground-colour is dull grey with a buff tinge; and the spots, which are closely scattered over the eggs, are of two sorts—the underlying shell-markings, which are purplish grey and light brown, and the overlying surface-blotches, which are pale umber and nut-brown.

Dr. E. Rey, who found this Lark common in Portugal, writes us that the average size of its eggs is 24·1 millims. by 18·5 millims.

The description of the adult male is taken from a Spanish specimen in Lord Lilford's collection, killed at Aranjuez in May. The changes of plumage are described from MM. Jaubert and Barthélemy Lapommeraye's work, verified to some extent by specimens examined by ourselves.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a. Crimea (*Whitely*). *b, c.* Asia Minor (*Robson*). *d.* Bashan, Palestine (*H. B. Tristram*). *e.* Tangier (*Olcesse*) *f.* Savoy (*P. L. Sclater*).

E Mus. H. B. Tristram.

a, b. Berroughuia, Algeria, May 28th, 1856 (*H. B. T.*). *c.* Plain of Sharon, February 16th, 1864 (*H. B. T.*). *d.* Bashan, March 16th, 1864 (*H. B. T.*). *e.* Sudeir, Wilderness of Judæa, February 1st, 1864 (*H. B. T.*).

E Mus. Lord Lilford.

a, b. Aranjuez, May 9th, 1865 (*L.*).

E Mus. Howard Saunders.

a. Tamak, February 1854 (*G. Radde*). *b.* Malaga, January 2nd, 1868 (*H. S.*). *c.* Seville, March 1st, 1870 (*H. S.*).

E Mus. J. H. Gurney, jun.

a. Madrid, December 30th, 1869 (*J. H. G.*). *b.* Bougzoul, Algeria, March 9th, 1870 (*J. H. G.*).

E Mus. A. B. Brooke.

a, b. Sardinia, March 29th and May 27th, 1871 (*A. B. B.*).



WHITE-WINGED LARK
MELANOCORYPHA TORQUATA

MELANOCORYPHA SIBIRICA.

(WHITE-WINGED LARK.)

Alauda calandra, Linn.?, Pallas, Reise Russischen Reichs, ii. p. 708. no. 15* (1773); op. cit. iii. p. 697, note (1776).

Alauda sibirica, Gm. S. N. i. p. 799. no. 31 (1788), ex Pallas.

Alauda calandra, Linn., var. β , Latham, Ind. Ornith. ii. p. 497. no. 17 (1790).

Alauda arvensis ruficeps, Bechstein, Gemein. Naturgesch. Deutschl. iv. p. 121 (1795).

Alauda leucoptera, Pallas, Zoogr. Rosso-As. i. p. 518. no. 147, pl. xxxiii. fig. 2 (1831).

Phileremos sibirica (J. Fr. Gm.), Keyserl. & Blasius, Wirbelth. Europa's, p. xxxvii. no. 85, p. 153. no. 85 (1840).

Melanocorypha leucoptera (Pallas), Bp. Consp. i. p. 243 (1850).

Calandrella sibirica (Gm.), Brandt, fide Bp. loc. cit. (1850).

Calandra leucoptera (Pallas), Dubois, Ois. de la Belg. pl. 102 B (1858).

Pallasia leucoptera (Pallas), E. F. v. Homeyer, J. f. Orn. 1873, p. 190.

(The above by Lord Walden.)

Belokriloï Javronsk, Russian; *Skowronek białoskrzydły*, Polish.

Figuræ notabiles.

Dubois, tom. cit.; Bree, B. of Eur. vol. ii.; Pall. tom. cit. taf. xxxiii. fig. 2.

♂ *ad.* suprâ grisescenti-brunneus, versûs nucham pallidior, plumis omnibus medialiter saturatoribus: pileo rufescente: suprâ oculos vittâ superciliari albâ: regione paroticâ rufescente, vix albido notatâ: tectricibus alarum rufescentibus, majoribus medialiter fulvido notatis et vix flavicante cervino terminatis: remigibus nigricantibus, primariis vix albido marginatis et apicatis, scapis albidis, secundariis conspicuè albo terminatis, tribus intimis nigricanti-brunneis, in pogonio externo ad basin albis: uropygio et supracaudalibus rufescentibus: caudâ nigricanti-brunneâ, vix grisescente brunneo marginatâ, rectrice externâ albâ, secundâ in pogonio externo albâ: subtûs albus, hypochondriis vix rufescente lavatis: pectore superiore brunneo notato: tibiis rufescentibus: rostro brunnescenti-corneo: pedibus flavicanti-brunneis: iride brunneâ.

♀ *ad.* mari similis, sed obscurior: pileo pallidè rufescente: plumis omnibus medialiter brunneo striatis: corpore subtûs grisescenti-albo.

Adult Male (Constantinople, 17th February). Head rufous; feathers round the eye extending backwards, and forming a tolerably distinct eye-brow, white; ear-coverts rufous, slightly marked with whitish; back greyish brown, paler on the upper part, each feather having a dark centre, giving a striped appearance; rump and upper tail-coverts rufous, each feather with a dark shaft-stripe; wing-coverts bright rufous, the greater ones with a dark centre, and some narrowly edged with yellowish white; quills blackish brown, the primaries narrowly edged and tipped with white, the shafts also being white; terminal half of the secondaries pure white, forming a conspicuous alar patch; the three innermost

secondaries brownish black, except at the base of the inner web, where they are white; tail brownish black, slightly edged with light brown, external feather pure white, second with the outer web white; underparts white; flanks slightly washed with rufous; upper parts of the breast marked with small but distinct triangular brown spots; tibia rufous; beak brownish horn; legs yellowish brown; iris brown. Total length $7\frac{1}{2}$ inches, culmen 0·6, wing 4·7, tail 2·9, tarsus 1·0.

Female (Volga, April). Generally resembles the male, but much duller in colour; crown pale rufous, each feather with a dark centre; under surface of the body dull white, not so pure in colour as in the male.

Nestling (Volga, July). In plumage much resembling the nestling of the common Sky-Lark (*Al. arvensis*), but much larger in size, and having a stouter bill; the breast is also less spotted, the spots being larger and less clearly defined; and the feathers on the upper parts are tipped with pure white.

THIS handsome Lark is found in South-eastern Europe eastward to the Jenesei, and occasionally wanders into Central and even Western Europe, having been met with in Great Britain. Mr. G. Dawson Rowley, of Brighton, exhibited a specimen at a meeting of the Zoological Society in 1870 (P. Z. S. 1870, p. 52), which he stated "was caught near Brighton, November 22nd, 1869, out of a flock of about two dozen of *Emberiza nivalis*, and is a female. This is, as far as I know, the first of this species ever captured in Great Britain." This specimen I then had the pleasure of examining, and was enabled to convince myself of its being the present species. It was recorded from Germany as far back as 1795, when Bechstein wrote (*l. c.*) that he "caught seven in March 1789, in company with a lot of Wood-Larks, during severe snow weather, under a sieve before my door. No others were observed, although hundreds of Larks were caught or died of cold." It has likewise been obtained in Belgium, as recorded by Mr. C. F. Dubois (J. f. O. 1856, p. 505), who states that one was caught near Liége in October 1855; and another was shot the same month in 1856, near Mechlin.

It is said by Count Casimir Wodzicki to be not uncommon in Poland and Galicia; and in Eastern Russia it is, by the various authors on Russian ornithology, said to be comparatively common. Mr. Sabanäeff informs me that, "according to Bogdanoff, it is common in the black-earth steppes in the Zarizin and Kameshinsk districts, occurring as far as Saratoff; Eversmann met with it in the steppes between the Southern Volga and the Ural, and throughout the Kirghis steppes." This latter author further writes (J. f. O. 1853, p. 283), that "its range extends northward to Orenburg, and it is abundant in the neighbourhood of Ilezk." In Southern Russia it is stated by Professor von Nordmann (Demidoff, *Voy. Russ. Mérid.* iii. p. 170) to be "one of the rarest of our Larks, and has hitherto only been observed in the southern portion of the Government of Ekaterinoslaf. I have never seen it alive. Pallas states that it is common on the steppes of the Om and in the Altai country." I have a specimen from the Crimea; and in Turkey, Mr. Robson states, it occurs during severe winters; and, judging from the number of specimens he has sent, it cannot be very rare.

To the eastward it is found as far as the Jenesei, beyond which, Dr. Radde writes, it does not occur; he met with it in flocks in the Baraba steppe in May 1865.

But little appears to have been recorded respecting the habits of this Lark. Mr. Sabanäeff informs me that "it affects grassy and open districts, and when singing often soars aloft like the Sky-Lark (*Alauda arvensis*), but does not ascend so high, and soon returns to the earth again.

It arrives in Southern Russia in the spring, much later than *Alauda arvensis*, and not until the grass is green. It places its nest on the ground, and lays from four to five dark grey eggs, spotted with dark brown." Mr. Artzibascheff (Bull. Soc. Mosc. 1859, ii. p. 58) writes that it is "tolerably numerous in the low steppes of the Sarpa, less so in those of Erghéni; it nests on the ground, under a tussock or tuft of grass, in any slight depression in the soil, and deposits, about the middle of April, from three to five eggs, which are white, dirty grey, or yellowish, spotted with olive-brown, grey, or reddish markings of different shades, and of greater or smaller size, and usually more numerous at the larger end; sometimes the spots collect and form a ring round the larger end of the egg; in size they vary from 22 to 24 millimetres in length and 16 to 17 millimetres in diameter."

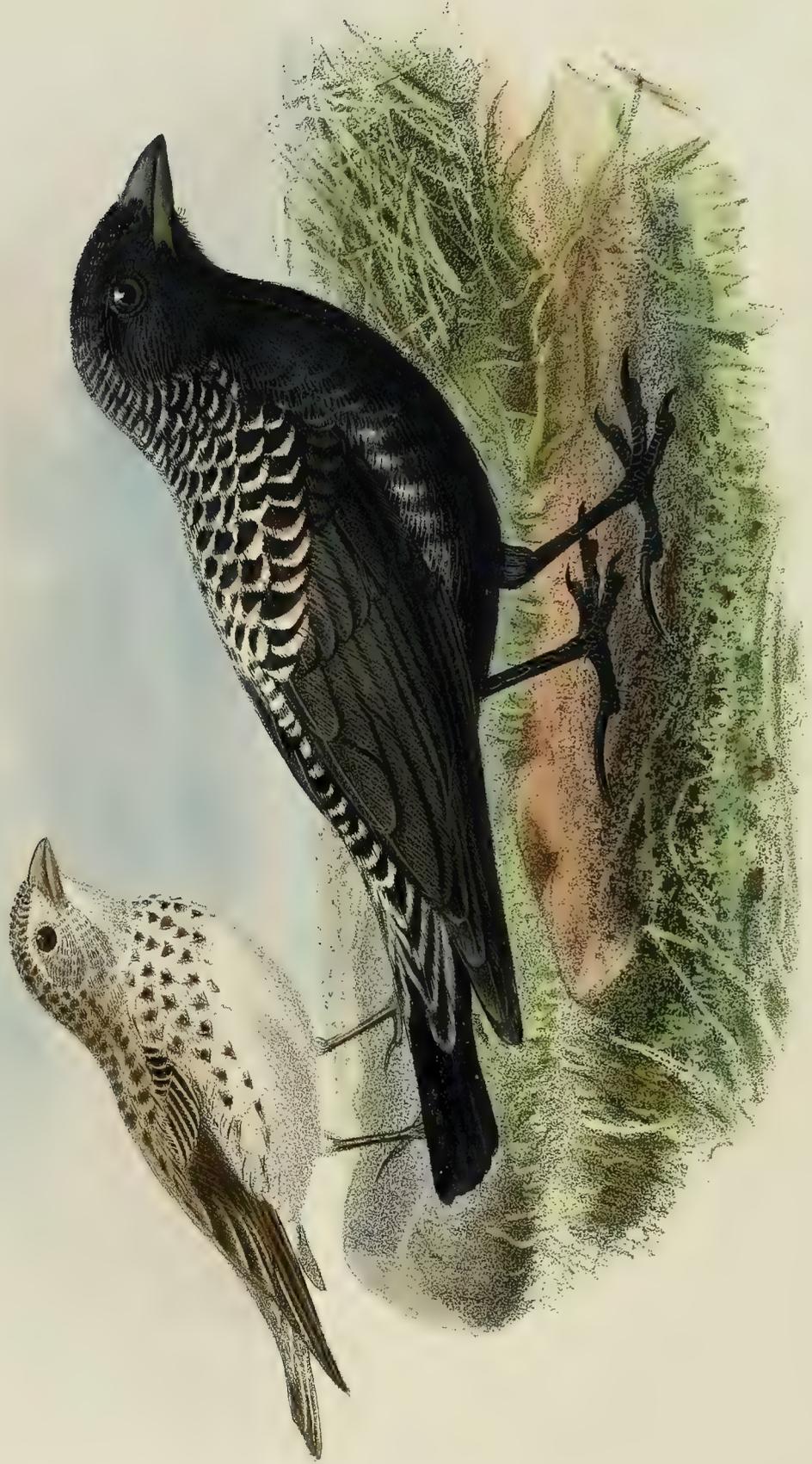
I have in my collection two eggs of this Lark, taken on the lower Volga, and obtained through Mr. H. F. Möschler, which are dull greyish white, closely marked with dull brown, resembling small eggs of *M. calandra*; in size they measure $\frac{2.5}{40}$ by $\frac{3.7}{40}$ and $\frac{2.5}{40}$ by $\frac{3.3}{40}$ inch respectively.

The specimens figured are, in the foreground, an adult male, and in the background an adult female, these being the specimens described, and, together with the young bird also described, are in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, c, ♂. Haskey, Constantinople, February 17th, 1871. *d, e, ♂*. Ismidt, Asia Minor, February 20th, 1871. *f, ♂*. Pendik, Asia Minor, February 20th, 1871. *g, h, ♀*. Havankey, Turkey, February 20th, 1871. *i, ♂*. Ismidt, February 21st (*Robson*). *k, ♂*. Crimea (*Whitely*). *l, ♂, m, ♀*. Volga, April. *n, ♀*. Volga, May. *o, juv.* Volga, July (*Möschler*). *p, ♀*. Kokand. *q*. Kirghis steppes (*Dode*).



MELANOCORYPHA TARTARICA.
XXXIV

MELANOCORYPHA YELTONIENSIS.

(BLACK LARK.)

Alauda yeltoniensis, Forst. Phil. Trans. lvii. p. 350 (1767, descr. orig.).*Alauda mutabilis*, S. G. Gmelin, N. Comm. Acad. Sci. Imp. Petrop. xv. tab. xxiii. fig. 2 (1771, descr. orig.).*Alauda tatarica*, Pallas, Reise Russ. Reichs, ii. Anhang, p. 707 (1773, descr. orig.).*Tanagra siberica*, Sparrm. Mus. Carls. i. no. 19 (1786, descr. orig.).*Le Tracal*, Levaill. Ois. d'Afr. iv. p. 119, pl. 191 (1805).*Alauda nigra*, Steph. Gen. Zool. xiv. p. 25 (1826, ex Levaill.).*Melanocorypha tartarica*, Boie, Isis, 1828, p. 322.*Saxilauda tartarica*, Less. Compl. Buff. 1837.*Iavoronok Tschernoï*, Russian.*Figuræ notabiles.*Sparrm. Mus. Carls. i. pl. 19 (♂); Vieill. Gal. des Ois. pl. 160 (♂); Gould, B. of Eur. iii. pl. 161 (♂ et ♂ juv.) (*nec* ♀); Bree, B. of Eur. iii. p. 193 (♂).♂ *æstiv.* omninò niger, marginibus plumarum fulvescentibus varius : subtus omninò niger.♂ *hiem.* omninò niger, passim marginibus fulvescentibus obscurus.♀ *æstiv.* fulvescens, plumis basi brunneis, dorso imo et capite summo cum scapularibus plus minusve brunneo variis : tectricibus alarum nigricanti-brunneis, medianis dorsalibus rufescentibus, extus fulvo marginatis : remigibus brunneis, secundariis saturatoribus angustè fulvescenti-albo marginatis, primariis latiùs : caudâ brunneâ, versus apicem cinerascete, fulvo limbatâ; rectricibus, duabus externis exceptis, albo marginatis : loris et supercilio distincto albidis : genis et regione auriculari brunneis, fulvo variis : gutture cum colli lateribus et pectore medio toto albo : pectore superiore maculis brunneis subtriquetris vario : hypochondriis vix rufescentibus brunneo striolatis : subcaudalibus albis, paullò brunneo variis : subalaribus nigris.♀ *hiem.* similis præcedenti, sed plumis omnibus latè fulvescenti-albo marginatis, itaque ptilosis albescentior videtur : tectricibus alarum albido latè marginatis : remigibus brunneis, secundariis rufo tinctis et albo marginatis : caudâ brunneâ, versus apicem rufescente et albido marginatâ : subtus alba, pectore superiore punctulis parvis brunneis vario : hypochondriis fulvescentibus pallidè brunneo striatis.*Male in summer plumage.* Everywhere jet-black, with a few very narrow sandy edgings to the feathers; the underside often quite black, but the back always retaining some of the light sandy edgings. Total length 7·5 inches, culmen 0·7, wing 5·3, tail 3·0, tarsus 1·0.*Male in winter plumage.* Black as in the summer dress, but has the whole body also thickly covered with sandy edgings to the feathers.

Female in summer plumage. General colour sandy brown, the lower part of the back rufescent; the feathers of the head rather distinctly mottled, owing to the dark bases of some of the feathers being visible, these being less plainly seen on the back and scapulars; wing-coverts dark brown, with sandy edgings, the innermost ones slightly tinged with rufous; quills dark brown, the secondaries deeper-coloured, all edged more or less broadly with sandy, the three outermost primaries distinctly margined with white; tail dark brown, greyish towards the tip, all the feathers more or less broadly edged with sandy, except the two outermost, which are margined with white; lores and a distinct eyebrow whitish; cheeks dark brown, with sandy edgings to the feathers; under surface of the body white, somewhat tinged with buff in some parts, especially on the flanks, which incline to rufous; the upper part of the breast mottled with brown, this appearance being caused by the showing of the brown bases of the feathers; the flanks longitudinally striped with brown; under wing-coverts entirely brown; bill yellowish at base, brownish grey at the point; legs blackish grey; iris brown. Total length 6·5 inches, culmen 0·6, wing 4·7, tail 2·8, tarsus 0·9.

Female in winter plumage. The principal markings as in the summer dress, but all the feathers of the body very much paler and more hoary, owing to the broad sandy edgings to all the feathers; the crown, fore part of the face, and upper part of the breast are only a little mottled with small brown specks; the wings and tail pale brown, all the feathers tinged with clear buff and broadly edged with whitish; the under wing-coverts pale brown.

THIS species is an inhabitant of Central Asia, frequenting the Steppes, and migrating westward into Southern Russia in winter. Its habitat has been erroneously stated by many authors to be Siberia generally; it is decidedly not, as Dr. Bree states, "an inhabitant of northern climes."

Forster, who first described the species, found it at Lake Yelton, to the east of the Volga, a locality we have been unable to discover in the map. Gmelin next obtained it in Astrachan; and shortly after it was procured by Pallas in Tartary, and named by him *Alauda tatarica*, not *A. tartarica*, as quoted by authors. His accounts of the habits are as follows:—

"In summer it lives in the desert lands of Tartary, from the Dnieper to the Irtisch. After rearing their progeny, they congregate, especially in August, and wander over the brackish places of the desert throughout the whole autumn, especially in the region of the salt lake Altan (?), or of the yellow deserts of the Volga, where it is taken in nets for food; it is not inferior to Thrushes. In Georgia also Gldenstdt observed it plentifully. In the middle of winter, especially when the snow covers the whole land, in the vicinity of the Volga and the Don, more particularly in the southern parts, as also in the Crimea, it comes in poor condition to the towns and suburbs. It is very fond of the saline-flavoured seeds of the *Chenopodia* and *Salsolæ*, and is easily attracted to the net by scattering oats and corn. The flight is less rapid than that of the Common Lark, low and short. In summer, when on the ground it emits a feeble piping, but on the wing its note more approaches that of the true Lark. Its nest is so artfully concealed, even on the bare desert, that for a long time I was unable to discover it, though I offered a reward to my followers. At length I found it in my last journey; it was a very careless structure on the ground, and contained four eggs of a bluish colour, spotted with yellowish. Young males up to the first autumn are like the females, are rather downy till the month of August; then they change their plumage, and get perceptibly blacker by putting on black feathers edged with pale grey, the breast being distinctly black."

Dr. von Middendorff states that he found large flocks of these Larks on the roads through the Barabá steppe in February; and Dr. Eversmann has written the following account of its distribution in Central Asia:—

“*Alauda tartarica* does not extend its range far north, probably seldom above Indirsk, at least not as soon as the breeding-season has commenced. I have once in March seen it singly between Indersk and Uralsk, seeking food on the roads in the midst of swarms of other Larks. In the winter it frequents the salt-steppes (with other Larks) where the snow does not lie, and feeds on the seeds of the salt weeds. On my journey to Buchara I saw enormous flocks near the river Kuwandshur and the lakes Alakul. Between the lower Volga and the Ural it is not common.”

Herr F. W. Baedeker writes as follows:—“This bird comes on the Volga in January, and wanders about, disappearing entirely for a few weeks, and then appears again in March, migrates in flocks, but only remains for a short time. If there is no snow they remain on the high steppes, and are then not seen here. When, however, there is a fall of snow they come on the roads, like *Alauda calandra*, in search of food, and can easily be shot.”

Professor A. von Nordmann has published the accompanying notes regarding its appearance in Southern Russia:—

“Does not breed in our parts, but arrives in large flocks towards the autumn, sometimes about the end of August in the Government of Ekaterinoslaw and the Crimea. I saw it on this peninsula, in the rocky localities near the promontory of Parthenon, in the month of August 1837.” Radde also has found it common near Cherson and Odessa.

We are not aware on what authority Dr. Bree states that the present species has been “captured rarely and accidentally in Germany.” Naumann, it is true, records it as a European bird on the strength of the occurrence of four or five examples near Brussels, in March 1850; but Dr. Borggreve, in our opinion very properly, refuses the species a place among the birds of Germany. The only authority for its occurrence in Western Europe is the statement of Dubois that he procured one in the Brussels market, and knew of another captured alive by a M. Croegart, near Antwerp.

The eggs of this Lark are scarcely known; and even those which are in the best collections are hardly as well authenticated as they should be. In Dresser’s collection is one egg received by him from Dr. Baldamus, who wrote that it was taken on the steppes of the Volga by a good collector; but it is scarcely so satisfactorily identified as we could wish. This egg somewhat resembles that of a Calandra Lark, measures $\frac{3.6}{4.0}$ by $\frac{3.0}{4.0}$ inch, and is very boldly marked. The ground-colour is pure white, and the markings, which are distributed generally over the egg, are of two sorts, viz. pale underlying shell-markings which are dull slaty brown, and overlying surface-spots which are bright umber-brown.

The description and measurements have been taken from an adult pair of birds in our own collection. They are in the fullest summer plumage we have been able to procure, a perfectly black male being unobtainable. The figures have been drawn from these birds, and the winter plumages described from specimens in our own collection.

In the preparation of the above article we have examined the following specimens:—

E Mus. Sharpe and Dresser.

a, b, c. River Volga (*Moeschler*). *d, e.* South-eastern Russia (*Dod.*).

E Mus. Lord Lilford.

a. Southern Russia (*Parzudaki*).

E Mus. J. H. Gurney, jun.

a. Europe (*Verreaux*). *b.* River Volga (*Moeschler*).

E Mus. Howard Saunders.

a, b. ♂ ♀. Volga (*Moeschler*).

Genus RHAMPHOCORYS.

Melanocorypha apud Bonaparte, Consp. Gen. Av. p. 242 (1850).

Rhamphocoris, Bonaparte, Compt. Rend. xxxi. (1851).

Hierapterina apud Des Murs & Lucas, Rev. et Mag. de Zool. p. 24 (1851).

Alauda apud Malherbe, Faun. Orn. de l'Alg. p. 21 (1855).

THIS genus contains only one, very remarkable species, differing considerably from the other Larks in having a peculiarly large and stout bill, and, to some extent, also in its habits. Full particulars of the range and habit of this species are given in the following article.

Rhamphocorys clot-bey has the bill very stout, much higher than broad, much curved, the gape-line straight to nearly the middle, then suddenly bending down for a short distance, and then slightly curving towards the tip; nostrils basal, round; wings long, pointed, the inner secondaries not much elongated; first quill small, shorter than the coverts, the third longest; tail moderate, slightly emarginate; legs moderately long, the tarsus covered in front with six or seven large and three inferior scutellæ, and scutellated posteriorly; toes moderate; claws short, stout, rather blunt, slightly curved, the hind claw elongated.



THICK-BILLED LARK.
RHAMPHOCORIS CLOT-BEY.

RHAMPHOCORIS CLOT-BEY.

(THICK-BILLED LARK.)

Melanocorypha clot-bey, Bonap. Conspect. Av. p. 242 (1850).*Hierapterhina cavaignacii*, O. Desmurs et H. Luc. Rev. et Mag. de Zool. p. 24 (1851).*Alauda clot-bey*, Malh. Faun. Ornith. de l'Alg. p. 21 (1855).*Rhamphocoris clot-bey*, Bonap. Comptes Rendus, tom. xxxi. p. 423.

Ad. isabellino-arenarius, plumis indistinctè fulvido limbatis: tectricibus alarum medialiter brunneis fulvido limbatis; remigibus brunneis extùs isabellino lavatis, secundariis latiùs, medianis latissimè albo terminatis: rectricibus albis, versùs apicem brunnescentibus, isabellino terminatis, duabus mediis pallidè arenariis: loris et plumis supraocularibus nigricantibus: maculâ infraoculari longitudinali albâ: facie laterali brunnescenti-nigrâ, medialiter albo maculatâ: subtùs albidus, corporis lateribus isabellinis, gutture et pectore medio brunnescenti-nigro maculatis: subalaribus albis, interioribus et axillaribus fumosis: rostro et pedibus pallidè brunneis: iridè brunneâ.

Adult Male (Saharan plateaux). Head, nape, and back rich sandy isabelline or greyish cream-coloured; the feathers on the crown having dark centres giving the head an indistinct striated appearance; large wing-coverts dark brown, broadly margined and tipped with rufous isabelline, the smaller coverts being entirely of this latter colour; quills blackish brown, the first primary having the outer web creamy white, the remainder being indistinctly edged with dirty white, secondaries very broadly tipped with white, forming a conspicuous white patch across the wing, the innermost secondaries having the brown washed with rufous towards the tip; scapulars the same as the back; tail white at the base, the outer feather on each side having merely a large blackish brown patch at the tip of the inner web, the next with a still larger patch, extending also over the outer web, and each successive feather with less white and more brown, the central feathers rufous isabelline almost to the base, the central portion washed with brown towards the tip; upper tail-coverts pale isabelline; chin white; sides of the face and head black, this colour almost meeting below the chin; below the eye a white streak, and on the side of the face a white spot in the centre of the black; throat, breast, and underparts generally pure white, washed with rufous isabelline on the flanks, throat, and breast, down to the abdomen thickly spotted with black, which spots along the centre of the breast are thickly collected, forming a broad black patch, the feathers having the terminal portion almost entirely black; under wing-coverts blackish, broadly margined with white; under tail-coverts pure white; beak and legs pale sandy brown; iris brown. Total length 7.2 inches, culmen 0.8, height of beak at base 0.5, width of mandible at base 0.37, wing 4.9, tail 2.8, tarsus 0.83.

Adult Female. Similar to the male, but everywhere paler in colour, the black being less pure, and here and there washed with rufous buff.

THIS extraordinary species of Lark, so different in form from any other member of the family, was first described by Bonaparte (ex Temminck) from a specimen sent from Egypt by Clot-Bey, the physician in ordinary to Mehemet Ali, which is now in the Leiden Museum. Von Heuglin thinks that the specimen in question may probably have been procured in the western portion of

Egypt, bordering the Libyan desert; he himself never met with it on the Nile; nor do any specimens appear to have been collected in Egypt of latter years. All that have found their way into collections appear to have been obtained in Algeria, where it occurs, though even there it is extremely rare. Canon Tristram, writing on the ornithology of that country, says that "this grotesque and singular-looking bird is found in small flocks on the mountain-sides south of El Aghouat. I never heard of it being obtained in any other locality; nor did I ever meet with it but on one occasion, when I obtained four specimens. In its flight it resembles the other Larks, and at first sight, from the broad black and white bands on the secondaries, might be taken for *Certhilauda desertorum*. It runs with great rapidity, and is very shy." Mr. L. Taczanowski, who also met with it in Algeria, concurs with Canon Tristram in stating that it is extremely rare, and further writes that he only saw three examples during the time he was collecting in Algeria—one in January, near the Tolga oasis, and a pair in March, at the Seriana oasis; and two out of these three, both males, he procured. He says that it is not a shy bird, and when frightened up settles again.

Of the habits of the Thick-billed Lark nothing is known beyond what Canon Tristram states (as above quoted) and what meagre notes are published by Major Loche, which latter we translate as follows:—"This species is met with more especially on the plateaux of the Sahara, between Laghouat and Guerrera, in small families of six or eight individuals; it is shy, and difficult of approach, runs with great facility, and its flight is strong; it feeds on insects and seeds; its nest, which is placed in a depression in the ground, is loosely lined with grass bents and horsehair. The eggs, four in number, are more or less pure white, covered with small reddish spots, which latter are collected towards the larger end, forming a ring; they bear considerable resemblance to the eggs of a Shrike; in size they measure about 25 by 16 millimetres.

The birds described, the male bird being the one figured, are in Dresser's collection, and were obtained by Major Loche in the Algerian Sahara.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. Algerian Sahara (*Loche*).

E Mus. Howard Saunders.

a, ♂. Algerian Sahara (*Loche*).

E Mus. D. G. Elliot.

a, ♂. Algeria (*Verreaux*).

Genus OTOCORYS.

Alauda apud Linnæus, Syst. Nat. i. p. 289 (1766).

Eremophila apud Boie, Isis, 1828, p. 322.

Phileremos apud C. L. Brehm, Vög. Deutschl. p. 313 (1831).

Otocoris, Bonaparte, Icon. Faun. Ital. Ucc. Introd. (1832-41).

Philammus apud G. R. Gray, Gen. of B. i. p. 47 (1840).

Otocoryx apud Lichtenstein, Nomencl. p. 38 (1854).

Otocorys, Bonaparte, Compt. Rend. xxxviii. p. 64 (1854).

THE Shore- or Horned Larks inhabit the Palæarctic and Nearctic Regions, as also the northern portions of the Neotropical and Ethiopian Regions, three species being found in the Western Palæarctic Region.

In habits these birds resemble the Sky-Lark more closely than any of the other Larks; and, like that bird, they frequent open country, nesting on the ground, and in the autumn collecting in flocks and ranging about in search of food. They run easily and swiftly on the ground, but seldom perch. Their song is sweet, resembling that of *Alauda arvensis*; and they utter it whilst circling in the air. They feed on insects and seeds, chiefly on the latter. They make a loosely constructed cup-shaped nest of grass-straws, which they place on the ground, and deposit several yellowish-grey eggs marked with grey and wood-brown.

Otocorys alpestris, the type of the genus, has the bill moderately short, nearly conical, the upper mandible slightly arched and without a notch; gape straight; nostrils oval, basal, concealed by stiff feathers directed forward; head in the adult male with a long erectile tuft of feathers on each side above the eye; wings long, pointed, first quill obsolete, the second or third longest, inner secondaries short; tail rather long, slightly emarginate; tarsus covered in front with four large and three inferior scutellæ; toes moderate, claws slightly curved, the hind claw elongated and nearly straight.

The Shore-Larks were first separated by Boie (*l. c.*) in 1828 from the genus *Alauda* under the name of *Eremophila*; but as Humboldt had previously applied the name *Eremophilus* to a genus of fishes, it must be discarded, as also *Phileremos* of Brehm, which was given in 1831, it being preoccupied for a genus of insects. Consequently *Otocorys*, being the next in order, must stand.



J.G.Keulemans del

Mintern Bros. imp

SHORE LARK.
OTOCORYS ALPESTRIS

OTOCORYS ALPESTRIS.

(SHORE-LARK.)

- Lark*, Catesby, Nat. Hist. Carolina, i. p. 32, pl. 32 (1731).
Alauda virginiana, Briss. Orn. iii. p. 367 (1760, ex Catesby).
Alauda alpestris, Linn. Syst. Nat. i. p. 289 (1766, ex Catesby).
Ceinture de Prêtre ou Alouette de Sibérie, Montb. Hist. Nat. Ois. v. p. 61, "Siberia" (1778).
Alauda flava, Gm. Syst. Nat. i. p. 800, "Siberia" (1788, ex Montb.).
Alauda cornuta, Wils. Am. Orn. i. p. 85, pl. v. fig. 4, "N. America" (1808).
Alauda nivalis, Pall. Zoogr. Rosso-As. i. p. 519, "Russia" (1811).
Eremophila alpestris (L.), Boie, Isis, 1828, p. 322, "Europe."
Eremophila cornuta (Wils.), Boie, tom. cit. p. 322, "America."
Alauda glacialis, "*alpestris* affinis," Licht. Preis-Verz. Säugeth. Vög. &c. no. 59, "Mexico" (1830, desc. nullâ).
Phileremos alpestris (L.), C. L. Brehm, Vög. Deutschl. p. 313, "Europe" (1831).
Alauda chrysolæma, Wagl. Isis, 1831, p. 350, "Mexico."
Otocoris alpestris (L.), Bp. Fauna Italica, i. Uccelli, Introd. "Italy" (1832-1841).
Phileremos cornutus, Bp. Proc. Zool. Soc. 1837, p. 111, "Mexico."
Philammus, G. R. Gray (*A. alpestris*, L.), Gen. of Birds, p. 47 (1840).
Alauda minor, Giraud, Ann. Lyc. Nat. Hist. N. York, 1841, no. 16, "Texas" (nec Veill.).
Alauda rufa, Audub. B. Am. vii. p. 353, pl. 497 (1843).
Otocoris alpestris (L.), Bp. Consp. Gen. Av. i. p. 246, "Europe, Asia" (1850).
Otocoris cornuta (Wils.), Bp. tom. cit. p. 246, "America" (1850).
Otocoris chrysolæma (Wagl.), Bp. tom. cit. p. 246, "Mexico" (1850).
Otocoris occidentalis, MacCall, Pr. Ac. N. Sc. v. June 1851, p. 218, "Santa Fé."
Otocoryx alpestris (L.), Licht. Nomencl. p. 38, "Siber., Ural, Crim." (1854).
Otocoryx cornuta (Wils.), Licht. Nomencl. p. 39, "Mexico, N. Am." (1854).
Otocorys alpestris (L.), Bp. Compt. Rend. xxxviii. p. 64 (1854).
Otocorys cornuta (Wils.), Bp. tom. cit. p. 64 (1854).
Otocorys chrysolæma (Wagl.), Bp. tom. cit. p. 65 (1854).
Phileremos rufescens, C. L. Brehm, Vogelf. p. 122 (1855).
Phileremos striatus, C. L. Brehm, tom. cit. p. 122 (1855).

Shore-Lark, *Horned Lark*, English; *Berglerche*, German; *Fjeldlærke*, Norwegian; *Berglärka*, Swedish; *Tunturileivo*, Finnish; *Javronok-snejny*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 630. fig. 2; Werner, Atlas, *Granivores*, pl. 4; Kjærb. Orn. Dan. taf. xviii.; Frisch, Vög. Deutschl. taf. 16; Fritsch, Vög. Eur. taf. 16. fig. 13; Naumann,

Vög. Deutschl. taf. 99. figs. 2, 3; Sundevall, Sv. Fogl. pl. 8. fig. 3; Gould, B. of Eur. pl. 164; id. B. of G. B. iii. pl. 18; Schlegel, Vog. Nederl. pl. 150; Audubon, *l. c.*; Wilson, *l. c.*

♂ *ad. ptil. æst.* fronte, superciliis, mento et gulâ et regione circum maculam nigram in facie laterali albis vix sulphureo tinctis: pileo antico, loris et maculâ magnâ in facie laterali per et infra oculos cum peltâ pectorali magnâ nigris, plumis nigris in pilei lateribus elongatis: pileo postico, nuchâ et corpore suprâ rufescenti-vinaceis, illis fere immaculatis: dorsi plumis cum scapularibus centraliter brunneo notatis: remigibus fuscis vix grisescente albido marginatis et apicatis, remige extimo in pogonio externo fere toto albo: supracaudalibus rufescentibus: rectricibus duabus centralibus rufescenti-fuscis centraliter saturatè fuscis, reliquis nigricantibus versus apicem vix albido marginatis, rectrice extimâ in pogonio extimo fere ad basin albâ: corpore subtùs albo, hypochondriis rufescente lavatis et fusco striatis: rostro nigricante, mandibulâ ad basin sordidè griseo: pedibus nigricantibus: iride fuscâ.

♀ *ad. ptil. æst.* mari similis, sed sordidior, pileo brunneo nigro-fusco striato et vix nigro notato.

Ptil. hiem. ubique sordidior, dorso brunneo nec rufescenti-vinaceo: pilei plumis valdè flavicante brunneo marginatis: gulâ, gutture et facie laterali flavicante lavatis, peltâ pectorali minus extensâ, et maculâ nigrâ in facie laterali flavicante notatâ.

Adult Male in summer (North Cape, 25th June). Forehead and a line over the eye, chin, throat, hinder portion of the auriculars, and portion bordering the facial patch very pale sulphur-yellow or white, with a yellowish tinge: fore part of the crown, lores, and a large facial patch extending through and behind the eye and down the sides of the upper neck, together with a large shield extending over the lower part of the neck and upper breast, jet-black; feathers on the sides of the crown above the eye elongated, forming a tuft on each side; crown from the centre, nape, back, rump, and scapulars pale brownish red, greyer on the nape, and redder on the rump and upper tail-coverts; dorsal feathers and scapulars with dusky brown centres; quills dark brown, margined and tipped with greyish white, the first primary with almost the whole of the outer web white; wing-coverts pale reddish brown, also with whitish margins and tips; the two central rectrices reddish brown, with dark brown centres, the remaining tail-feathers black, the outermost having the outer web nearly to the base white, the rest being narrowly edged with whitish at the tip; lower part of the breast, abdomen, and under tail-coverts white; flanks reddish brown, slightly streaked with darker brown, on the upper flanks the reddish colour extending towards the middle of the breast; bill greyish black, the base of the lower mandible dull greyish; legs blackish; iris dark brown. Total length about 7 inches, culmen 0.65, wing 4.0, tail 2.8, tarsus 0.88, hind toe with claw 0.6, hind claw 0.35.

Adult Female. Resembles the male, but is duller in colour, and the black on the crown is replaced by brown feathers with blackish striations, and the white forehead is similarly obscured.

Male in winter (Salthouse, Norfolk, November). Is much duller and browner than the male above described; the black on the crown is hidden by the yellowish brown tips to the feathers; the upper parts are wood-brown in tinge, without the pale reddish tinge which pervades the summer dress; the crown is tinged with sulphur-yellow; the black facial mark and the pectoral shield are smaller in extent, the former marked with sulphur-yellow; and the throat and portions of the head and neck, which in summer are yellowish white, are now primrose-yellow.

Nestling. Crown, sides of the head, nape, back, and scapulars blackish brown, marked with round spots of

a dull buffy white or pale ochre-colour; quills blackish brown, with a metallic gloss and broadly edged with pale fulvous buff; secondaries and wing-coverts broadly tipped with pale buffy white; tail very short, blackish brown, with a metallic tinge, the outer feather with the outer web yellowish buff, the remaining rectrices bordered with fulvous buff; chin and throat buffy white, slightly marked with blackish; through and behind the eye an indistinct buffy white streak; breast and flanks blackish brown, marked with yellowish buff; abdomen and under tail-coverts white.

THIS species, commonly known by the somewhat inapt name of Shore-Lark, as it is by no means a shore-bird in its habits, is found throughout Northern Europe, Asia, and America, migrating into the central districts only when driven down from its northern home at the approach of winter. It appears to be one of those Asiatic, or at least eastern, species which are gradually extending their range further westward into Europe, as, in many localities where some years ago it was an exceedingly rare straggler, it is now by no means so uncommon. In Great Britain, as in other parts, this is the case; and it has during the last few years been tolerably often observed and killed in the winter or spring. Yarrell only enumerates four occurrences, viz. one near Sherringham, in Norfolk, in March 1830, one near Yarmouth, one in Lincolnshire, and one near Redcar. Mr. G. Dawson Rowley states (*Ibis*, 1862, p. 88) that three were caught near Brighton in November; and Mr. Stevenson (*B. of Norfolk*, i. p. 171), referring to the first occurrence recorded by Yarrell, adds that "a second example, purchased by Mr. Gurney some few years ago, but in what year I am not certain, was also procured at Sherringham; and an adult male, in Mr. Newcome's collection at Feltwell, was shot at Yarmouth in November 1850. Next in order of date are two fine specimens killed on Blakeney Beach, near the Preventive Station, about the first week in March 1855; these were brought in the flesh to the Rev. E. W. Dowell, of Dunton, who presented one to the Earl of Leicester, and retained the other in his own collection. Both, I believe, were male birds. Lord Leicester's certainly was, as I examined it at the time when sent to be preserved in Norwich. A further interval of seven years now elapsed without any more examples being observed in this district, when in the winter of 1861-62, between the first week in November and the 11th of January, no less than five were obtained at Yarmouth, Sherringham, and Blakeney, and about the 24th of April a sixth, also on the coast of Yarmouth. Of these birds, which singularly enough proved to be all males, the first was killed at Yarmouth on the 7th of November, the second at Sherringham on the 9th, the third near Yarmouth (belonging to the Rev. F. J. Lucas, of Burgh) on the 12th, and two more at Blackeney (I believe, in the possession of Mr. Upcher, of Sherringham) on the 11th of January, 1862." In 1870 it appears to have occurred much more frequently than heretofore—so numerously that, Mr. Stevenson informs me, about fourteen were shot at Salthouse in January and some forty specimens in the months of October and November in the same locality, and about twenty more in January 1871. Mr. Cordeaux (*B. of the Humber District*, p. 45) says that it has been shot in the winter and spring both at Spurn Point and Flamborough; and he states that two were killed out of a flock of twelve near the Speeton Cliffs in the spring of 1866, and three were shot at Spurn on the 19th February, 1870. It has only comparatively lately been recorded from Scotland, the first having been obtained in 1859. Mr. R. Gray (*B. of W. of Scotl.* p. 118) states that three were obtained out of a small flock in Haddingtonshire in January that year, and in the winter of 1865 two were obtained near St. Andrews, in Fifeshire. He further

writes, "I have no doubt that this species is a frequent, if not an annual, visitant to the eastern shores of Scotland, ranging from the Ythan to the Tweed. In January of the present year (1870) similar flights to those already mentioned had apparently visited the same estuaries. On the first of the month a specimen was shot near St. Andrews, and was procured by R. G. Wardlaw Ramsay, jun., Esq., of Whitehill, Lasswade, who saw the bird before it was skinned. Mr. Ramsay obligingly forwarded the specimen for exhibition to a meeting of the Natural-History Society of Glasgow, and has informed me that, when killed, the bird was flying in company with Snow-Buntings. Lord Binning informs me that a Shore-Lark was shot by a Dunbar fisherman on Tyne Sands, East Lothian, in the end of November 1869, and is now in the collection of Mr. Balfour, of Whittingham, and also that there is a specimen in the Mellerstain Collection which was shot in Spittal Sands at Berwick-on-Tweed in 1840. I am, therefore, indebted to Lord Binning for an opportunity of recording the earliest, and, with the exception of Mr. Ramsay's notice, the latest examples of this species that have been taken on the shores of Scotland." In Ireland it does not appear to have ever occurred.

It appears to be rare in Greenland, as Professor Reinhardt (*Ibis*, 1861, p. 8) only records the occurrence of a single specimen, which was shot at Godthaab, in October 1835, and presented to the Royal Museum by Holböll. I do not, however, find any record of its occurrence in Iceland; and it does not appear to occur in the Færoes. In Scandinavia it is a northern and eastern species, being found numerously during the breeding-season in the extreme north, but seldom occurs in the southern and western districts. In a letter just received from Mr. R. Collett, of Christiania, he writes as follows:—"The line of migration would appear to be east of Norway; for it is very seldom met with in the southern districts. Two specimens were shot some years since near Christiania; and one of my friends saw a large flock late in April 1874 at Hamar, near Lake Mjösen, and shot several, which he sent to me for examination. These are the only instances known of its occurrence in Southern Norway." It breeds numerously on the Varanger fiord; and notes on its habits, as observed there by Pastor Sommerfelt, are given below. Nilsson, speaking of its range in Sweden, brings it forward as a special illustration of the gradual change in our ornithological fauna, and the increasing migration into Europe from the east of many species of birds. He states (*Skand. Fauna*, pp. 443, 444) that "when first noticed by Linnæus in 1758, and Brisson in 1760, it was only known as an American bird. Later on it was discovered in those parts of Asia which are nearest to the American continent; and Pallas informs us that in his time it was abundant throughout all Siberia. Thence it has gradually migrated into the north-eastern portion of Europe, through Russia to Lapland. Even as late as about twenty years ago scarcely a single specimen had been observed within the limits of the Scandinavian peninsula. The first who saw and shot it here appears to be Professor S. Lovén, who saw a flock at Vadsö, in East Finmark. It has since been found by Mr. Löwenhjelm breeding at Quickjock, and by Mr. Malm in several fell-swamps between Mortensnæs and Vadsö (1841-43)." He further gives many instances of its occurrence in Southern and Central Sweden of latter years. Mr. Wheelwright met with it at Quickjock, but did not find its nest. He says (*Spring and Sum. in Lapl.* p. 290) that it was "the common fell-Lark; and on this year they appear to have been more common around Quickjock than usual. On the 28th April I shot the first, a single specimen, close to the house; and after that small

flocks of them kept dropping in for about three weeks, when they all left us and went up on the fells to breed. When in the lowlands they kept in small flocks on the bare patches of cultivated land which the snow had left by the river-side; and their habits were exactly the same as those I watched on the coast of Scania in the winter of 1849-50. They were not at all shy, but very restless, sweeping in small flocks just over the surface of the ground, uttering their feeble single call-note. They never flew far, and soon pitched again." In Finland I have observed it during the spring migration when travelling on the coast, and saw specimens as late as May in the northern portions of the country. Von Wright says (Finl. Fogl. p. 196) that it occurs now and then in spring and autumn near Helsingfors. In the extreme north, however, it is common during the breeding-season; and Professor Malmgren informs me that numbers breed on the eastern side of the Russo-Lapp peninsula, near Ponoï, at the entrance to the White Sea. In Northern Russia it ranges very far north, and is extremely common in the Government of Archangel during the summer. Von Heuglin says (J. f. O. 1872, p. 116) that it is one of the commonest species on Novaja Zemlia (Nova Zembla) and Waigatch, but he is unable to say how far north it occurs on that island. He observed and obtained it at Cape Silber, Widder Cape, Tschirakina, and Kostin-Shaar. Mr. Sabanäeff informs me that he believes it breeds in the Government of Jaroslaf, in Central Russia; and it is, he says, numerous near Moscow during migration; and he likewise found it common in the lowlands on the eastern slope of the Ural during the two seasons of passage. He informs me that it breeds in the Perm Government, where, however, it is rare. In Germany it is a rare and irregular winter visitant. Naumann speaks of it (Vög. Deutschl. iv. p. 152) as being rare in Silesia; and in Central Germany, he says, "it is one of the rarest species. There are only instances of its occurrence near Berlin, in Thuringia, Baireuth, Hessen, near Strasburg, and even in Switzerland. Only chance ever brings them to us. That they are very rare in Germany is proved by the absence of specimens in almost all private collections; and the larger ones get them from North America or Siberia." Dr. Hellman (J. f. O. 1855, p. 181) records it from Gotha; and Dr. Altum states (J. f. O. 1863, p. 118) that one was killed near Gimpte, in Münsterland, late in January 1861. In Denmark it is rare, and Kjærbölling records only four instances of its occurrence in that country. Baron von Droste Hülshoff states that two specimens were obtained on the island of Borkum, off the Dutch coast, by Ahrens, in April 1868; but I do not find it recorded from Holland.

Messrs. Degland and Gerbe say that it is a rare straggler to Belgium and Northern France; and Jaubert and Barthélemy-Lapommeraye speak of five or six instances of its occurrence in Provence. I do not find it recorded from Spain or Portugal; but it appears to have straggled down into Italy. According to Count Salvadori (Ucc. d'Ital. p. 134) a specimen was, Savi states, obtained in October 1829, at Friuli; one was obtained in the Turin market, in October 1869; two were obtained in the Veronese territory; according to Giglioli (Ibis, 1865, p. 58) two were sold in the Pisa market in January 1864; and Professor Achille Costa informed Count Salvadori of a recent occurrence near Naples. It is a winter visitant to Southern Germany. Dr. Anton Fritsch (Vög. Eur. p. 119) states that at that season of the year it regularly visits Hungary and Silesia; and the Ritter von Tschusi-Schmidhofen informs me that Professor Jeitteles observed it near Olmütz, in Moravia, in the winter of 1865. Messrs. Elwes and Buckley (Ibis, 1870, p. 195) say that in Turkey Mr. Robson met with it in winter in the hills, where, however, it is not

common. It visits Southern Russia in the winter, but is not common; Dr. G. Radde observed it in the winter of 1851–52 (J. f. O. 1854, p. 60) here and there in Bessarabia, but commoner in the Government of Cherson; but it is not found in the Crimea and in the remainder of that Government past the Dnieper. So far as I can ascertain it does not occur in Africa, being there replaced by *O. bilopha*; and though there are specimens in the British Museum said to be from Northern Africa, there appears to be considerable doubt as to whence these and other skins belonging to the same lot really came.

To the eastward it is found right across Asia to Kamtschatka, but only in the northern portions of that continent. Von Middendorff did not observe it on the Taimyr river, and only obtained one on the Boganida; but on the 4th May he saw it migrating in flocks between Amginskaja, Slobodá, and the Aldán. Dr. G. Radde observed it in June in the Sajan Mountains, and says (Reis. im Süd. von Ost-Sib. p. 154) that in the winter season he found it in the elevated steppes of Dauria. In the Salenga valley and on the Gänse See a few remain to breed; but most of them migrate further on. On the 1st May he met with it in pairs in the Selenga and Uda valleys. In the Central Amoor he never observed or heard of it. Dr. von Schrenck only observed it in the Amoor country during migration, never in winter. He met with it at the Nicholaieffsk Post on the 17th September, and on the Upper Amoor on the 3rd October. Père David says that it visits the northern portions of the province of Peking, in Northern China, during severe seasons; and Mr. Swinhoe obtained it through Mr. Fleming from Tientsin. It appears doubtful whether it occurs in Japan; but Temminck and Schlegel are inclined to believe that it has been found there, as they saw it depicted in a native drawing. According to Pallas it is met with in the Kurile Islands and at Kamtschatka.

In the Nearctic Region it is found throughout North America, usually breeding in the fur-countries, and migrating southward in the winter, but also breeding in some localities tolerably far south. Specimens from the Western and Southern States are usually smaller and brighter in colour than those from the north; and when in Texas I was inclined to look on the bird found there as a distinct species, especially as they remain there throughout the summer; but a critical comparison of the specimens I there collected, as well as some from Mexico, with my present series of European and North-American birds, shows me that it is impossible to separate these southern or the western birds, even as a permanent local form. On the other hand, the bird from Bogota (*Otocorys peregrina*, Sclater) is undoubtedly distinct from the present species, which inhabits North America from the far north down as far south as Mexico. Messrs. Baird, Brewer, and Ridgway (B. of N. Am. ii. p. 144) say that it is common during winter on the Atlantic coast from Massachusetts to South Carolina, but is comparatively rare in Maine. I may, however, here remark that I frequently met with it in New Brunswick, especially during severe weather. Mr. Dall only obtained one example, on the Yukon; Dr. Suckley states that it is a common summer resident near Fort Steilacoom, in Washington Territory; and Dr. Cooper found it around Fort Mohave late in February, and again in May towards the summits of the Providence range of mountains. Professor Baird further records (Am. Journ. of Science and Arts, xli. p. 30) the occurrence of three examples in the Bermudas in October and February.

In its habits the Shore-Lark resembles the Sky-Lark, and, like that species, is found in small flocks during the seasons of migration and in winter, when it straggles down into Central

Europe, being, however, most frequently met with in severe weather. I have usually found it frequenting stubbles or fallow land, and especially places where small patches were left bare of snow; and in the early spring I saw it in damp places in the lowlands. Like the other Larks it appears to feed almost entirely on grain and seeds of various descriptions, and I several times watched individuals searching after seeds in some old stubble-fields where very little snow was left. When on the wing they much resemble the Sky-Lark, and it is not easy to distinguish them at some distance from that bird. The breeding-range in Europe is limited to the extreme north-eastern portion; and although it has been stated (Ibis, 1863, p. 477) to have bred on the island of Arran, and its nest is said (Zool. 1852, p. 3707) to have been found near Exmouth, neither of these instances appears to me to be worthy of credit. Pastor Sommerfelt, writing on its habits and nidification in East Finmark, says "it occurs commonly, arriving generally early in May, but in early springs before that. In the spring it seeks its food in low places, where springs or the damp causes the snow to thaw early. During the summer it is found in dry, sandy localities, even where there is but little grass. It places its nest both in the vicinity of the sea (as, for instance, at Ängnæs) and also far from it, and does not always build amongst the grass or moss, but also on the ground amongst the fallen leaves of small birch-bushes. It breeds at Gamvik and Berlevaag, on the shores of the Arctic Ocean. Its nest is constructed of straws, and I have never seen one lined with feathers. Its three to five eggs are generally yellow or yellowish grey, with blue-grey and brown spots, which often collect and form a ring round the egg at the thick end. It forsakes its nest and eggs if one merely touches the latter. It sometimes has two broods; thus the eggs have been found at Mortensnæs on the 12th May and in July. On the other hand it has never been found breeding as late as August, when Malm visited Varanger. The name *Sandlærke*, stated by Malm to be used in East Finmark, has not been heard of by either Nordvi or myself. Its Lapp name is worthy of notice, it being called by those Lapps who take notice of birds (and there are not few who do so) *Ruoscha alap* (Russian Snow-Bunting), as it comes to East Finmark from the east, and may often be observed amongst the Snow-Buntings in the spring." Mr. Robert Collett, who has also found it breeding in West Finmark, says (Orn. of Norway, p. 33) "in certain parts it is as numerous in West as in East Finmark. I found it in the summer of 1872 in all favourable localities on the shores of the Porsanger fiord, and even at Gjæsvær, west of the North Cape. It prefers the surface of barren granite rocks thinly covered with grass or lichens, or half-naked boulders. At Vadsö they are common in the streets of the town and in the sandy churchyard, and even breed on Renö, near Vardö. On the island of Tamsö I observed them repeatedly searching for food close to the houses, amongst the heaps of refuse." In a letter just received he writes, "it arrives in Finmark early in May, and is a very early breeder, eggs being sometimes found about the middle of May; and a nest I found on the 19th June, 1874, near Kistrand, on the Porsanger fiord, contained four young birds at least a week old. Its nest is constructed of dry grass bents, and is a tolerably loose structure; and the eggs are placed on a soft bed of the *pappus* or cotton-like substance which is found on *Saussurea alpina* or *Salix lanata*. The nest above referred to was placed on the ground, amongst the whitish *Cladonia rangiferina* and a little *Empetrum*, in the most sterile portion of the fiord." I have the nest and eggs of this Lark from the Varanger fiord, taken on the 1st July: the former answers the description given by Pastor Sommerfelt, being a

loose structure of fine grass bents; and the eggs, four in number, are yellowish grey, covered with minute wood-brown spots, and a few underlying, scarcely perceptible, grey shell-markings. In all the spots are collected much more thickly in a ring round the larger end; and each one has one or two small blackish brown scratches. In size they average $\frac{3.5}{4.0}$ by $\frac{2.4}{4.0}$ inch.

The Shore-Lark is a good songster; and its note, which I myself have never heard, only having seen it in the winter or spring, is said to resemble that of the Sky-Lark. My friend Mr. Collett says (*l. c.*) that "as late as the end of June the males were in full song, and sang indefatigably. They would ascend into the air, singing as they rose, gyrating for a time at a considerable height, mounting and descending with a peculiar wavy motion whilst uttering their modest, somewhat disjointed song. Sometimes, after having descended and when perched on a stone or on the ground, they would warble a more coherent strain, not unlike the song of the Sky-Lark, and which is never heard whilst the bird is on the wing." Mr. Collett says the stomachs of specimens of adult and young birds he obtained in the summer season contained coleoptera (chiefly *Ortiorhynchus blandus*), fine gravel, and traces of vegetable substances.

The specimens figured are:—an adult male, from the North Cape, in the foreground, a very young bird on the left, and a male in winter, from Norfolk, in the background, these being the specimens described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂, b, c, ♀, d, ♀. Salthouse, Norfolk, November 1870 (*F. Norgate*). *e, ♂.* Lapland, July 1st, 1854 (*Dahlberg*). *f, ♂, g, juv.* North Cape, June 25th, 1872 (*Collett*). *h, ♂, i, ♂.* Zaostrovka, near Archangel, March 27th, 1873 (*Piottuch*). *k, ♂.* Volga, Russia, March 7th. *l, juv.* North America, May 5th, 1871 (*Dr. Brewer*). *m, ♀.* North America (*Krider*). *n, ♂.* Bay of Fundy, February 5th, 1862 (*H. E. D.*). *o, ♂.* Musquash, New Brunswick, April 6th, 1862 (*H. E. D.*). *p, ♂.* San Antonio, Texas, October 28th, 1863 (*H. E. D.*). *q, r, ♂, ♀.* San Antonio, December 1863 (*H. E. D.*). *s, ♂.* San Antonio, February 20th, 1864 (*H. E. D.*). *t.* Near city of Mexico (*G. H. White*). *u.* Victoria, Vancouver's Island, 1868 (*J. Hepburn*).

E Mus. Salvin and Godman.

a, ♀. Lapland, 1857 (*F. Godman*). *b, ♀.* Washington, D. C., December 1859 (*Elliott Coues*). *c, ♂.* Washington, February (*Professor Baird*). *d, ♂.* Bexar, county Texas, February 20th, 1864 (*H. E. D.*). *e, f.* Mexico (*G. H. White*).

E Mus. H. B. Tristram.

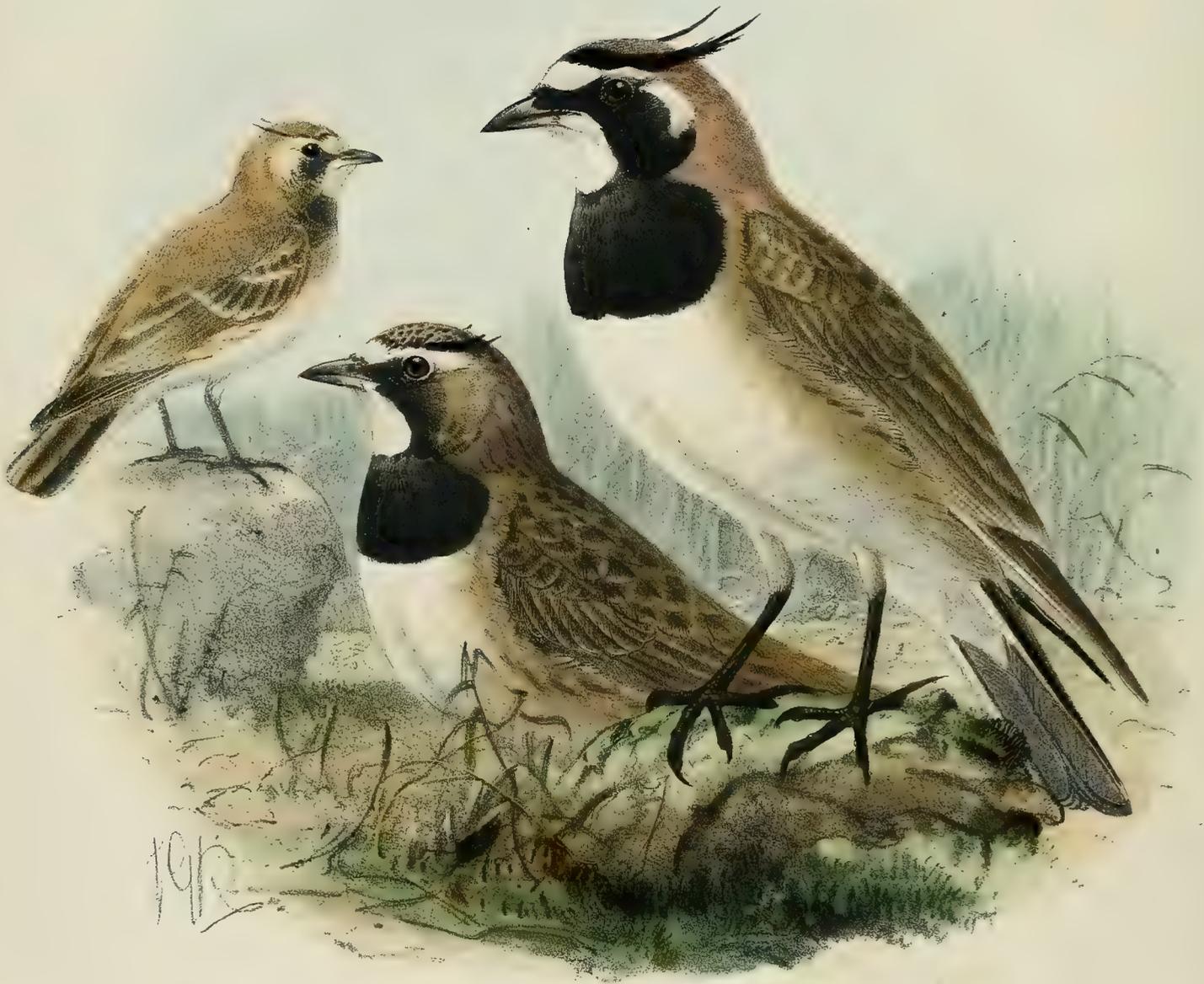
a, b, ♂, c, ♀. Norfolk, November 1870 (*F. Norgate*). *d, ♂.* Sweden, May 16th, 1851. *e.* Pekin, December 12th, 1863 (*R. Swinhoe*). *f, g.* North America.

E Mus. Howard Saunders.

a, ♀. Volga, March (*Möschler*). *b, ♂.* Galicia, March 15th. *c.* Salthouse, Norfolk (*F. Norgate*).

E Mus. R. Swinhoe.

a. Lake Baikal (*Dybowski*).



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Mintern Bros. imp

EASTERN SHORE-LARK.
OTOCORYS PENICILLATA

OTOCORYS PENICILLATA.

(EASTERN SHORE-LARK.)

- Alauda penicillata*, Gould, Pr. Zool. Soc. 1837, p. 126.
 "Phileremos scriba, Gould," Bp. Comp. List, p. 37. no. 254 (1838).
Otocoris penicillata (Gld.), Gray, Gen. of B. ii. p. 382, pl. 92 (1844).
 "Alauda albigula, Brandt," Bp. Consp. Gen. Av. i. p. 246 (1850).
Otocoris albigula (Brandt), Bp. tom. cit. p. 246 (1850).
Otocoris scriba (Gould), Bp. tom. cit. p. 246 (1850).
Phileremos albigula (Brandt), C. L. Brehm, Vogelfang, p. 123 (1855).
Otocoris longirostris, Moore, Pr. Zool. Soc. 1855, p. 215, pl. 111.
Otocoris larvata, De Filippi, Arch. per la Zool. ii. fasc. ii. p. 381 (1863).
Otocoris elwesi, Blanf. P. As. Soc. Beng. 1871, p. 227.

*Figuræ notabiles.*Gray, *l. c.*; Moore, *l. c.*

♂ *ptil. æst.* *O. alpestris* similis, sed corpore suprâ pallidiore: lineâ ad basin maxillæ, loris, pileo pone fasciam frontalem albam, plumis elongatis supra oculos, faciei lateribus, gutture et pectore nigris, gulâ solâ, fasciâ frontali, lineâ superciliari et regione paroticâ purè albis nec flavo lavatis, facile distinguendus.

♀ *mari* similis sed sordidior et brunnescentior, fronte nigrâ fusco immixto, pileo non nigro sed rufescenti-fusco, saturatè fusco striato, pectore lateraliter brunnescente notato.

Ptil. hiem. corpore suprâ brunnescentiore et arenaceo lavato, plumis nigris in capite et collo et plumis albis in fasciâ frontali omnibus brunnescente arenaceo valdè marginatis, hypochondriis superioribus et pectore imo pallidè brunnescente cervino lavatis.

Adult Male in summer (S.E. Persia, 2nd May). Resembles *Otocorys alpestris*, but has the upper parts paler, the black on the throat and breast much more extended, and the white portions are without any yellow tinge; in front of the white forehead a black line passes over the base of the bill, joining the lores; upper parts of the breast, sides of the neck and face, throat, excepting a patch covering the chin and upper part of the throat, jet-black, the patch just mentioned being pure white; tufts above the eye are exceedingly long, measuring at least 1·2 inch in length; soft parts as in *O. alpestris*. Total length about 7 inches, culmen 0·72, wing 4·6, tail 3·3, tarsus 0·85, hind toe with claw 0·62, hind claw 0·35.

Adult Female (S.E. Persia, 2nd May). Duller and browner in colour than the male; the black line on the forehead intermixed with brown, the white frontal patch dirty in colour, the black on the crown wanting, the head above being light reddish brown, striped with dark brown; the tufts on each side of the head, however, are long and black; black on the breast not covering quite so large an area as in the male, and on the sides of the neck and face intermixed with brownish feathers.

Male in winter. Differs from the summer plumage in being rather more faded and more sandy in colour; the black and the white feathers on the crown and the black feathers on the fore part of breast mar-

gined with light brown, the former so broadly as to hide the black ; lower part of the breast and upper flanks pale greyish brown.

Obs. I observe that Dr. O. Finsch gives (Abh. naturw. Ver. Brem. ii. p. 351) *Alauda bicornis*, Ehr. MS., as a synonym of *Otocorys bilopha* ; and it may therefore not be out of place to remark that I possess one of Ehrenberg's original specimens labelled by him *Alauda bicornis*, without any particulars of locality, which is undoubtedly referable to the present species, and not to *O. bilopha*.

THIS southern and south-eastern representative of our common North-European Shore-Lark inhabits the south-eastern portion of the Western Palæarctic Region, extending eastward into Northern China.

I cannot state with certainty that the present species inhabits the more elevated mountains in Asia Minor, but think that it probably occurs there and may be met with in Southern Russia. Canon Tristram has sent me a specimen from the Caucasus ; and he met with it on Mount Hermon, and writes (*Ibis*, 1866, p. 288) as follows:—"Of the beautiful Horned Larks, Palestine affords the finest species, *O. penicillata*, Gould, strictly confined to the edge of the snow-line on the very summits of Hermon and Lebanon, where it consorts with *Montifringilla nivalis* and *Pyrrhocorax alpinus*. It was a beautiful sight to watch these Larks scattered all over the dome of Hermon, warbling their rich, yet subdued, notes, with erected crest, on the desolate tops of the rocks which strew the summit. In their action they are very unlike most other Larks, and do not attempt to soar. Most of the nests were hatched when we arrived at their breeding-place ; and we obtained only one sitting of eggs, very like those of *O. alpestris*, but larger, of a greenish white, thickly covered with grey-green blotches. The nests are very compact and neat, deeper than those of any other Lark, and generally imbedded in a tuft of *Astragalus* or *Draba*, finely lined with grass roots. This species does not assume a yellowish face in the breeding-season ; but has the throat pure white. It may at once be distinguished from every other by the great extent of black on its breast." It appears to be a common species in Persia ; and Mr. Blanford brought back a large series from there. It was first described from specimens sent from Erzeroum ; and Messrs. Dickson and Ross, writing on the ornithology of that district, say (*P. Z. S.* 1839, p. 120) that it is "numerous. The specimens sent are not so bright as the living bird, probably from the effect of the arsenical soap. The males differ from the females in being of a brighter colour, and in having the black feathers on the top of the head much more distinctly marked. The yellow gorget of both in winter is bright, and in summer remarkably faint, while the purple on the nape is *vice versâ*. During the hot months they are found on the neighbouring mountains, from which they are driven down to the plain in winter in quest of food, which consists then of the grain found in the dung of cattle, the ground being at that time covered with snow several feet in depth. They fly in companies of from three to twelve birds, and are very familiar, especially so in winter, when they may be killed easily with an ordinary whip. When approached, or in the agonies of death, they erect their horn-shaped crest quite perpendicularly, with the tips curved inwards. They run on the snow with surprising rapidity ; as soon as the snow has melted on the plain they return to the mountains." Dr. Henderson (*Lahore to Yarkand*, p. 267) speaks of a Lark under the name of *O. longirostris*, which I believe to be the present species, and which he says "was met with from the first pass above Lé until the expedition left the Karakash valley going to Yarkand, and in the same

localities returning. It was usually found near water at from 12,000 to about 15,000 feet. Where you cease to find moss and running water it is no longer seen; and in the higher regions it is, so to say, replaced by *Montifringilla hæmatopygia*. Going up every pass it was met with to a certain height, where it disappeared; going down the other side of the pass it was again met with at the same elevation." He also remarks that it varies considerably in size. Dr. Jerdon (B. of India, ii. p. 429) says that the present species is an inhabitant of the cold regions of Northern Asia, in winter descending to the plains, and coming south. It has been found in Nepál, Kumaon, and other parts of the Himalayas. I have examined specimens from India, and also one from Thibet, in the British Museum, all of which are labelled *Otocorys longirostris*; but though they differ somewhat from Persian and Palestine examples, I cannot do otherwise than refer them to the present species. They are somewhat larger in size, and have larger and stouter bills than the general run of specimens of *Otocorys penicillata* from Persia, Palestine, and Syria. I do not find that, as represented in Moore's plate, P. Z. S. 1855 (pl. 111), the sides of the neck are white (as in *O. alpestris*); but the black appears to be continuous in all the specimens, except that in those in winter plumage the feathers on the sides of the neck have light tips, thus making the black portion of the breast and neck irregular. Judging from specimens in Mr. Swinhoe's collection, I am greatly inclined to doubt the occurrence of true *O. penicillata* in South-eastern Siberia or China. Mr. Swinhoe's specimen from Tientsin, recorded by him (P. Z. S. 1862, p. 318) under the name of *O. penicillata*, is certainly not this species, but resembles the pale form of the Shore-Lark from Southern Russia, usually labelled by Russian collectors *Otocorys albigula*, except that it has a larger bill, and bears about the same relation to that form that *O. longirostris* does to the present species.

I have been unable to find any original description by Brandt of *Alauda albigula*; and it appears that it can only be a MS. name of that author. *Otocorys albigula*, Bp. (*l. c.*), is certainly not the pale desert species usually referred to by the Russian authors under that name, but (from his diagnosis, "fusca: colli lateribus pectoreque ex toto nigris: gula alba") must be *Otocorys penicillata*. If, as appears to be the case, Bonaparte was the first to publish the name of *O. albigula*, the pale desert form is still unnamed, and I would propose for it the name of *Otocorys brandti*.

This species is smaller and very much paler than *Otocorys alpestris*, has the black pectoral shield narrower, the underparts whiter, and no trace of yellow in the white colour of the head and throat. It has the black on the head and breast distributed as in *Otocorys alpestris*; but, as before stated, the pectoral shield is narrower; the sides of the neck are not continuously black as in *O. penicillata*, but the black patch through the eye is divided from the black pectoral shield by a tolerably broad white space; the entire back, nape, and hind crown are pale sandy isabelline, with a greyish tinge, some of the feathers having indistinct darker centres; wings very much paler than in *O. alpestris*, the primaries narrowly and the secondaries broadly margined and tipped with white; central rectrices dull pale hair-brown, with greyish white margins; remaining rectrices as in *O. alpestris*; lower part of the breast, abdomen, under tail-coverts, and under wing-coverts pure white; flanks slightly washed with pale rufous isabelline; culmen 0.52, wing 4.4, tail 3.3, tarsus 0.82, hind toe with claw 0.6, hind claw 0.32.

The specimen described, my type of this species, is a male, evidently in full breeding-

plumage, from the Kirghis steppes, in Mr. Swinhoe's collection. Another specimen, a female, from the same locality and collection, probably in winter-plumage, has the upper parts rather darker, the dark centres to the feathers much more fully developed; the white on the forehead and the black on the fore part of the crown is obscured by light-brown tips to the feathers; and the black on the sides of the head and on the sides of the breast is to a slight extent similarly obscured; the underparts are duller and not so pure white as in the male.

This species appears to be very local; it inhabits the Kirghis steppes, and is probably restricted to the steppes of Southern Russia. It bears to *O. alpestris* the same relation as *Calandrella leucophæa*, Severtz. (which likewise inhabits the Kirghis steppes), does to *Calandrella brachydactyla* of Southern Europe. Like the Short-toed and Crested Larks, the Shore-Larks from different localities are subject to considerable variation in coloration of plumage as well as in size; and in my article on *Otocorys bilopha* a general review of all known forms, with all the details I have been able to collect, will be given.

However, to return to *Otocorys penicillata*, I find that this species, in habits, food, and mode of nidification, does not appear to differ from the common Shore-Lark. It is found during the breeding-season in the more elevated portions of the mountains, though, according to Mr. Henderson, it does not occur where moss and running water cease to be found. It is said to sing extremely well, its song resembling that of the common Shore-Lark.

I give above a description of the nest and eggs of the present species by Canon Tristram, who found it breeding on Mount Hermon; and I have in my collection two eggs taken by Mr. Cochrane on Mount Lebanon; in a note sent with them he writes as follows:—"These eggs were taken on the summit of Mount Lebanon, at the edge of the snow, on the way down to the cedars, on the 24th May, 1864; and both birds were shot." Compared with the eggs of *Otocorys alpestris* from the Varanger fiord, these eggs are larger, much paler in colour, the markings being almost obsolete, and only one has an indistinct dark zone round the larger end. In size they measure $\frac{2\frac{8}{10}}{4\frac{8}{10}}$ by $\frac{3\frac{8}{10}}{4\frac{8}{10}}$ inch.

The specimens figured are an adult male (to the right in the foreground) and an adult female (in the centre), both in full breeding-plumage; and to the left is a distant figure of the male in winter dress,—these being the specimens described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Central Asia (*Verreaux*). *b*. Syria (*Cochrane*).

E Mus. Salvin and Godman.

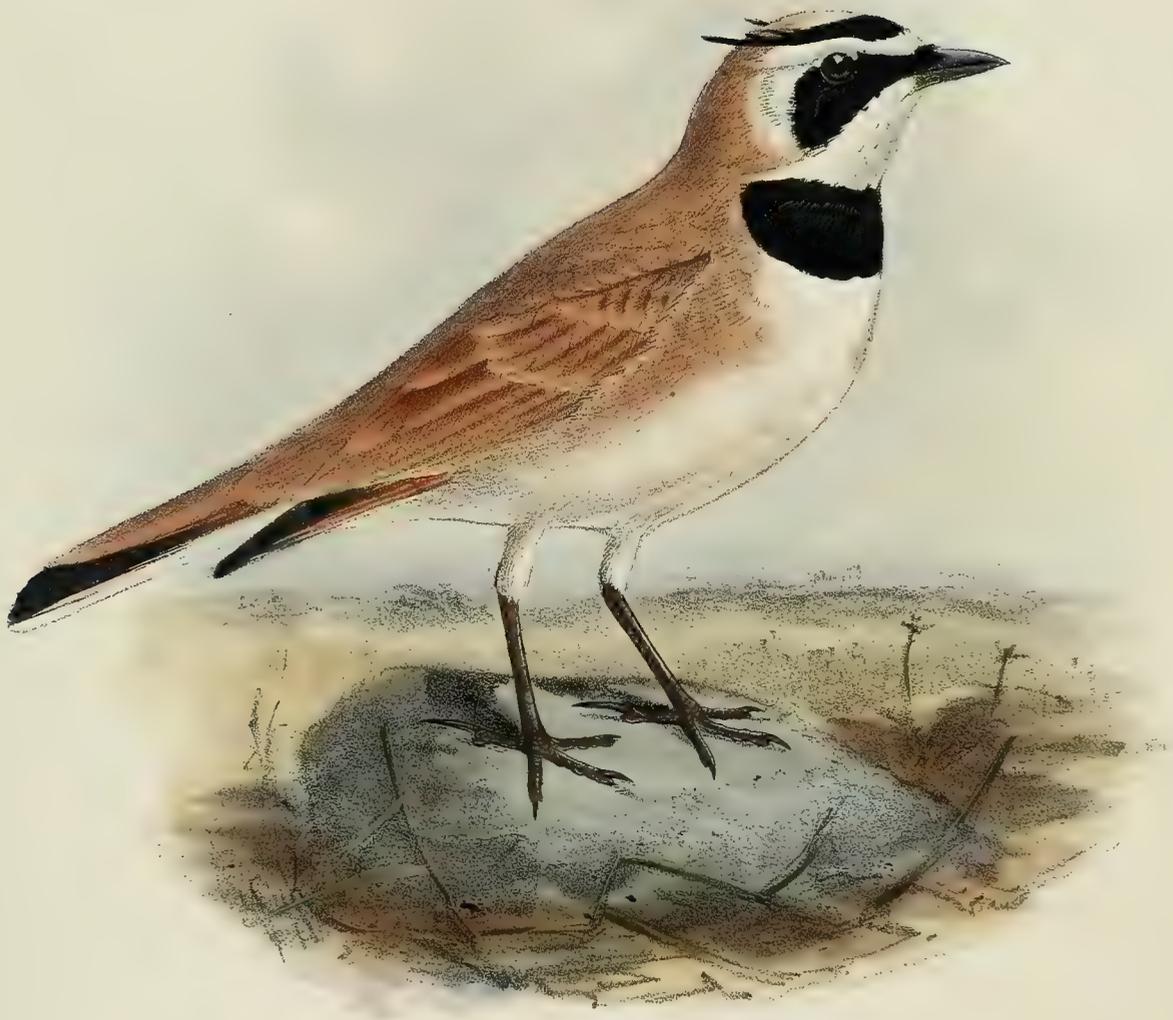
a, ♂, *b*, ♀. Palestine, June 2nd, 1864 (*H. B. Tristram*).

E Mus. H. B. Tristram.

a. Caucasus (*Verreaux*). *b*, *c*, ♂, *d*, *e*, ♀, *f*, ♂. Mount Hermon, June 2nd, 1864 (*H. B. T.*).

E Mus. Brit. Reg.

a, *b*, ♂. Erzerroom (*Dickson and Ross*). *c*, ♂. Mount Hermon. *d*. Lebanon (*H. B. Tristram*). *e*, ♂, *f*, ♀. Kulu, India. *g*, ♂. Thibet (*Earl of Gifford*).



J. J. Kesteven del.

Mintern Bros. imp.

ALGERIAN SHORE LARK
OTOCORYS BILOPHA

OTOCORYS BILOPHA.

(ALGERIAN SHORE-LARK.)

Alauda bilopha, Rüpp. in Temm. Pl. Col. 244. fig. 1; id. Neue Wirbelth. p. 104 (1835).

Otocoris bilopha (Rüpp.), G. R. Gray, Gen. of Birds, *Alaudinæ* (1844-49).

Otocornis bilopha, Rüpp. Syst. Uebers. p. 78. no. 308 (1845).

"*Alauda bicornis*, Hempr.," Cab. Mus. Hein. i. p. 122 (1850).

Otocoryx bilopha (Rüpp.), Licht. Nomencl. Av. p. 38 (1854).

Phileremos bicornis, C. L. Brehm, Vogelfang, p. 122 (1855).

"*Eremophila khamsin*, Lef." Hartmann, J. f. Orn. 1863, p. 309.

♂ *ad.* corpore suprâ rufescenti-arenaceo, subtus albo; sincipite, maculâ magnâ in facie laterali, peltâ pectorali et plumis elongatis in capitis lateribus supra oculos nigerrimis: fasciâ frontali, gulâ et colli lateribus purè albis: remigibus fumosis, primario primo in pogonio externo albo, reliquis extus rufescente isabellino lavatis, secundariis extus albido marginatis et eodem colore apicatis, secundariis intimis elongatis, in pogonio externo dorso concoloribus et in pogonio interno sordidè fuscis: rectricibus centralibus rufescenti-isabellinis, versus apicem centraliter fusco notatis, reliquis nigricantibus, rectrice extimâ utrinque in pogonio externo albâ: hypochondriis rufescenti-isabellino lavatis: rostro, iride et pedibus ut in *O. alpestris* coloratis sed his pallidioribus.

♀ *ad.* mari similis sed sordidior, sincipite nigricanti-fusco nec nigro, maculâ in facie laterali et peltâ pectorali minus extensis, illâ pallidè fulvido notatâ.

Adult Male (Algeria). Forehead, the black on the fore part of the crown, and the black facial patch and pectoral shield as in the common Shore-Lark; but the elongated feathers on the sides of the crown are very long; hinder portion of the crown and entire upper parts pale rufescent isabelline, more rufous on the inner secondaries and wing-coverts than on the back; quills dull greyish brown, the first primary having the outer web white, and the rest washed with rufescent isabelline on the outer web; secondaries margined on the outer web and tipped with dull white, except the elongated inner secondaries, which are like the back, but more rufescent on the outer web, and dull brown on the hidden portion of the inner web; central rectrices coloured like the back, except that they are marked with dark brown in the centre towards the tip, remaining tail-feathers black, except that the outer one on each side has the outer web white; throat and sides of the neck round the black facial patch, and between it and the black pectoral shield, pure white; rest of the underparts white, on the flanks washed with pale rufescent isabelline; under wing-coverts and under tail-coverts pure white; soft parts as in *O. alpestris*, but the legs are paler. Total length about 6 inches, culmen 0.55, wing 3.8, tail 2.85, tarsus 0.82, hind toe with claw 0.6, hind claw 0.3.

Adult Female (Laghouat, 26th November). Differs from the male in having the black on the crown replaced by dark brown. As in the female of *O. alpestris*, the tufts on the sides of the head are very short, the facial patch is small, and marked with pale brown, and the pectoral shield is much smaller than in the male.

THIS desert form of our common Shore-Lark, first described by Rüppell from Arabia Petræa,

inhabits North Africa and Arabia, and appears to be an occasional visitant to Southern Spain; for Messrs. Degland and Gerbe write that Lord Lilford informed them of its occurrence there, as also MM. Verreaux, who personally obtained it at the Dehesa de l'Albufera, in Valencia; and Lord Lilford further writes to me as follows:—"I never myself found *Otocorys bilopha* in Spain; but in 1864 there were several specimens in the Museum at Valencia, which I was assured by Señor Cisternas were killed there, and I have no doubt as to the accuracy of the fact." I do not find that it has been met with anywhere else north of the Mediterranean; but Von Heuglin (Orn. N.O.-Afr. p. 700) says:—"It is met with in pairs and in small flocks in Arabia Petræa and Arabia Felix (namely, about the most rugged rocks near the Gulf of Aqabah), but is not a mountain-bird. We observed it in April, usually in pairs; and the males were seen in the hottest part of the day in the most desolate and scorched-up portions of the stony desert. I cannot say if it is resident; but I never observed it in the cold season in the western and southern portions of the Sinaitic peninsula." It appears to be tolerably common in the deserts of Algeria: Loche speaks of it as found in the desert after passing Laghouat and at Biskra; Mr. J. H. Gurney, jun. (Ibis, 1871, p. 290) met with it at Tilremt, halfway between Laghouat and Gardaia; and Mr. Taczanowski (J. f. O. 1870, p. 44) says that he fell in with a flock of eight individuals at the Tolga oasis, in a small valley in the middle of the Stony Desert, and shot six, one after the other, with ease. Canon Tristram differs, however, from Loche in his notes respecting its habitat; for he writes (Ibis, 1859, p. 421), "it is by no means abundant anywhere in the desert, but may occasionally be met with in parties of five or six on gravelly slopes, never, so far as my observation goes, in the sandy districts. I have found it not far from the dayats." Mr. C. F. Tyrwhitt-Drake, in his paper on the birds of Morocco (Ibis, 1869, p. 153), speaks of it as "found between Rabat and Dar-el-baida."

I find very little respecting the habits of this species on record, except what is stated by Major Loche, who writes respecting its occurrence and habits in Algeria as follows:—"This species, which we met with in the Algerian Sahara after passing Laghouat, and which was obtained by Dr. Buvry near Biskra, never occurs in the coastal districts, but frequents the sandy plains, with which its plumage so closely assimilates that it is extremely difficult to distinguish it. It is usually seen in small companies of four or five individuals, and feeds on small seeds and insects. It is not shy, and may easily be approached. Besides its call-note, which may be expressed by the syllables *tiri-tiri*, several times repeated, the male has a pleasant song, which it utters from the summit of any small sand hillock. Its flight is not strong; and it runs much more than it flies. Its nest is placed in the sand; and in it are deposited three or four, very rarely five eggs, which are yellowish white, dotted closely at the larger end with reddish spots, which collect and form a wreath round the end of the egg. The young birds leave the nest before they are able to fly; but if pursued they run with great celerity, and are most difficult to catch, as they hide in the depressions in the sand."

This being the last of the Shore-Larks which come within the limits of the Western Palæarctic Region, I give, as usual, the following short review of this group, taking Mr. G. R. Gray's well-known 'Hand-list' as a basis, the numbers being those used in the said list:—

7734. *O. alpestris* (L.), the type of *Otocorys*, is very widely distributed, being found throughout the entire

northern portion of the Palæartic and Nearctic Regions. Full particulars of its range have already been given.

7735. *O. nivalis* = *O. alpestris* (L.).

7736. *O. scriba* will stand as *Otocorys penicillata* (Gould), and differs from *O. alpestris* in having the upper parts paler, the entire sides of the throat black, and the white on the head and throat untinged with yellow. It inhabits South-eastern Europe, and thence ranges eastward to Thibet. Since writing my article on this species I have examined Mr. Gould's beautiful series of Shore-Larks, in which are several specimens from Kulu of the so-called *Otocorys longirostris*, which fully confirm the view I previously took, viz. that these birds are nothing but long-billed and rather large varieties of *O. penicillata*, which appears to increase somewhat in size as it is found further eastward, and especially in the length of the bill. None of these specimens has the black on the sides of the face divided by white as in *O. alpestris*; but the sides of the throat are continuously black, though the white patch on the chin and upper throat is larger than in examples from Lebanon. On the other hand, I find a specimen labelled by Mr. Blanford himself *Otocorys elwesi*, which is certainly not the same as those from Kulu, as the black pectoral shield is divided from the black on the sides of the face by a white patch as in *O. alpestris*; and it closely agrees with the specimen from Tientsin referred to in my article on *O. penicillata*, and resembles *O. alpestris*, but is paler, has a longer bill, and the white on the head and throat is entirely free from any tinge of yellow. As this article was going to press Mr. Blanford brought his type of *Otocorys elwesi* to me for examination; and as I find it agrees with Mr. Swinhoe's Tientsin specimen, *O. elwesi* should be removed from the synonyms of *O. penicillata*, it being merely a pale large-billed form of *O. alpestris*.

7737. *O. longirostris* is referable to *O. penicillata*.

7738. *O. cornuta* = *O. alpestris*.

7739. *O. chrysolæma* also is the same as *O. alpestris*, being merely a brightly coloured and somewhat smaller climatic variety with the differences neither constant nor such as, in a series from various localities, prove to be of any specific value, as specimens may be found from Western America, Texas, and Mexico which are absolutely indistinguishable from others from Europe and Asia. I observed amongst some of the Russian specimens in Mr. Gould's collection one or two which in size and coloration so closely resemble my specimens from Mexico, that I should be unable to separate them, except by the labels.

7740. *O. minor* = *O. alpestris*.

7741. *O. bilopha* is a clearly distinct southern desert form of *O. alpestris*, differing in being smaller, pale isabelline with a rufous tinge in colour, and having no trace of yellow in the white portions of the plumage. It inhabits Northern Africa.

7742. *O. peregrina*, however, from Bogota, appears to me to be a perfectly good species, differing appreciably and constantly from *O. alpestris* (which inhabits North America, and with which it never mingles, being confined to New Granada, where it is resident) in being considerably smaller in size and darker and richer in colour. As regards colour, my specimen from Vancouver's Island and one from Mexico approach nearest to the males of this species in Messrs. Salvin and Godman's collection, but are not nearly so dark and bright in tone of coloration.

7743. *O. larvata* is referable to *Otocorys penicillata*.

Besides the above species, I cannot but consider distinct the pale desert form usually labelled by Russian collectors *O. albigula*; and as this name cannot be used for it, I have deemed best to call it *O. brandti*. There are therefore according to the view I take of the various forms of Shore-Larks, only the following which can fairly be considered good species:—

- O. alpestris* (L.) (Syst. Nat. i. p. 289), which inhabits the entire Northern Palæarctic and Nearctic Regions.
O. brandti, mihi. A desert form, resident in the Kirghis steppes.
O. peregrina, Sclater (P. Z. S. 1855, p. 110). A resident in New Granada.
O. bilopha, Rüpp. (Pl. Col. 244. fig. 1). A desert form inhabiting North Africa.
O. penicillata, Gould (P. Z. S. 1837, p. 126). Inhabits South-eastern Europe, and is found eastward to Thibet.

The following Table will show the variation in size of the different species:—

		Culmen. inch.	Wing. inches.	Tail. inches.	Tarsus. inch.
<i>O. alpestris</i>	England.	0·50–0·52	3·85–4·1	2·60–2·75	0·85
”	Norway.	0·55–0·57	4·0–4·2	2·80–2·85	0·86–0·88
”	North Russia.	0·52	4·3	2·75	0·8
”	Volga.	0·5	4·2	2·83	0·84
”	Siberia.	0·52	4·4	2·95	0·9
”	Peking.	0·5	4·1	2·75	0·87
”	Tientsin.	0·62	4·05	2·9	0·85
”	W. of Rocky Mountains.	0·57	4·2	3·0	0·85
”	Vancouver.	0·50–0·57	3·98–4·0	2·50–2·75	0·85–0·88
”	New Brunswick.	0·50–0·55	4·20–4·3	2·80–2·9	0·85–0·88
”	Texas.	0·50–0·6	3·90–4·15	2·60–3·0	0·85–0·9
”	Mexico.	0·50–0·55	3·90–4·0	2·8	0·80–0·85
<i>O. brandti</i>	Kirghis Steppes.	0·52	4·4	3·3	0·82
<i>O. peregrina</i>	Bogota.	0·45–0·52	3·35–3·7	2·20–2·4	0·8
<i>O. bilopha</i>	Algeria.	0·55–0·6	3·75–3·8	2·80–2·85	0·80–0·82
<i>O. penicillata</i>	Syria.	0·65	4·5	3·25	0·9
”	S.E. Persia.	0·65–0·72	4·30–4·6	3·15–3·3	0·85–0·9
”	Caucasus.	0·65	4·55	3·3	0·9
”	Kulu.	0·75–0·8	4·62–5·05	3·10–3·6	0·9
”	Thibet.	0·8	5·1	3·6	0·9

I do not possess the nest or eggs of this species, and can therefore add nothing to the above description of these by Major Loche.

The specimen figured is the adult male from Algeria, above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, ♂. Algeria (Fairmaire).

E Mus. H. B. Tristram.

a, ♂. El Baadj, Sahara, January 17th, 1857. b, ♀. Laghouat, Sahara, November 26th, 1856 (H. B. T.).

Section V. OSCINES CULTRIROSTRES.

Family STURNIDÆ.

Genus STURNUS.

Sturnus, Linnæus, Syst. Nat. i. p. 290 (1766).

Turdus apud Montagu, Orn. Dict. Suppl. (1813).

THIS genus is represented in the Palæarctic and northern portions of the Ethiopian and Oriental Regions, three species being found within the limits of the Western Palæarctic Region.

They are gregarious, frequenting groves, gardens, pastures, old ruins &c. ; and they are fond of attending cattle and sheep, frequently perching on their backs to rid them of the parasitic insects which infest them. Their flight is strong and swift ; and they walk and run with ease. They feed on worms, insects, and larvæ of various kinds, which they obtain chiefly on the ground. Their song is tolerably pleasing ; and when tamed they can be taught to whistle tunes and even utter words. They make bulky nests of grass and roots, lined with feathers and hair, which they place in a hole in a tree or wall or under the eaves of a roof, and deposit several uniform pale greenish-blue eggs.

Sturnus vulgaris, the type of the genus, has the bill about as long as the head, straight, wider than high, blunt at the tip, the edges of the upper mandible extending over those of the lower ; nostrils oblong, placed in the anterior part of the nasal depression, and partly overlain by an operculum ; gape without bristles ; wings long, pointed, the first quill very small, the second or third longest ; tail short, the feathers diverging at the tip ; legs strong, the tarsus covered in front with four large and three inferior scutellæ ; toes rather long, claws short, curved, laterally grooved, acute ; plumage close ; feathers on the head and fore part of the body lanceolate.



STURNUS VULGARIS.
Young and ad. in Winter



COMMON STARLING.
STURNUS VULGARIS

STURNUS VULGARIS.

(COMMON STARLING.)

- Sturnus vulgaris*, Linn. Syst. Nat. i. p. 290 (1766).
Sturnus varius, Meyer, Taschenb. Deutsch. Vogelk. i. p. 208 (1810).
Turdus solitarius, Montagu, Orn. Dict. Suppl. (1813, nec Lath.).
Sturnus solitarius (Mont.), Leach, Cat. Brit. Mus. p. 18 (1816).
Sturnus domesticus, C. L. Brehm, Vög. Deutschl. p. 398 (1831).
Sturnus sylvestris, C. L. Brehm, tom. cit. p. 398 (1831).
Sturnus nitens, C. L. Brehm, tom. cit. p. 399 (1831).
Sturnus septentrionalis, C. L. Brehm, tom. cit. p. 400 (1831).
Sturnus hollandiæ, C. L. Brehm, tom. cit. p. 1016 (1831).
Sturnus guttatus, Macgillivray, Brit. B. i. p. 595 (1837).
Sturnus indicus, Hodgson in Gray's Zool. Misc. p. 18 (1844).
Sturnus splendens, Temm., Bp. Consp. Gen. Av. i. p. 421 (1850).
Sturnus longirostris, L. Brehm, Naumannia, 1855, p. 282.
Sturnus tenuirostris, L. Brehm, ut suprâ.
Sturnus europæus, L.?, R. Blasius, Journ. f. Orn. 1863 B, p. 60.
Sturnus faroensis, Feilden, B. of the Færoe Islands, p. 47 (1872).

Starling, *Spotted Starling*, *Stare*, English; *Dewit*, Gaelic; *l'Etourneau vulgaire*, French; *gemeiner Staar*, German; *Spreeuw*, Dutch; *Estornino*, Spanish; *Storno*, Italian; *Sturnell*, Maltese; *Stare*, Swedish; *Stær*, Norwegian; *Steare*, Færoese; *Musta Kottarainen*, Finnish; *Skvoretz*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 75; Werner, Atlas, *Omnivores*, pl. 16; Kjærbo. Orn. Dan. taf. 12; Fritsch, Vög. Eur. taf. 27. fig. 3; Naumann, Vög. Deutschl. taf. 62; Sundevall, Sv. Fogl. pl. 18. figs. 5, 6; Gould, B. of Eur. pl. 210; id. B. of G. Brit. iii. pls. 53, 54; Schlegel, Vog. Nederl. pl. 145; Roux, Orn. Prov. pl. 128; Bettoni, Ucc. Lomb. tav. 28.

♂ *ad.* niger: capite suprâ, collo, pectore superiore et dorso purpureo nitentibus: regione auriculari purpureo et viridi immixtis nitente: pectore imo, abdomine, scapularibus tectricibusque alarum cærulescenti-viridi (æneo), uropygio et supracaudalibus viridi et purpureo nitentibus: dorso, uropygio, tectricibus alarum et crisso apicibus pennarum pallidè brunnescenti-albis: capite, collo, pectore et abdomine immaculatis: remigibus cinerascenti-nigris, versus apicem velutino nigro fimbriatis, in pogonio externo cervino marginatis: rectricibus cinerascenti-nigris, nigro marginatis et margine exteriori pallidè rufescenti-cervino: rostro pallide luteo: iride fuscâ: pedibus brunnescenti-incarnatis.

♀ *ad.* mari similis, sed sordidior, corpore ubique magis guttato, rostro brunnescenti-corneo.

Juv. corpore suprâ sordidè brunnescenti-fuliginoso, subtùs eodem modo colorato sed pallidiore et albido striato : mento et gulâ albicantibus vix pallidè brunneo maculatis : primariis vix rufescente marginatis, secundariis et tectricibus alarum conspicuè eodem colore marginatis : rectricibus saturatè brunneis vix rufescente marginatis.

Adult Male (Christiania, May 1868). Glossy black, with rich purple and metallic-green reflections; head, neck, interscapular region, and upper part of the breast glossed with rich purple, but on the sides of the head and auriculars there is in some lights a greenish tinge; wings sooty blackish brown, on the outer webs of the quills margined with rufous buff, inner primaries and secondaries broadly terminated with velvety black, secondaries on the outer web, and wing-coverts, except at the base, richly glossed with bottle-green; rump and upper tail-coverts shot with the same colour, though in some lights showing a trace of purple; tail greyish black, the feathers having a broad dull velvety black border and a narrow margin of sandy buff; breast and abdomen black, richly glossed with bottle-green; the feathers on the head, neck, and back are lanceolate; the back, wing-coverts, rump, and anal region are tolerably thickly spotted with buffy white or dull brownish buff, the tips of the feathers being of those colours; beak yellowish; legs light reddish brown; iris hazel. Total length about 7·5 inches, culmen 1·1, wing 5·0, tail 2·75, tarsus 1·2.

Adult Female in summer. Differs from the male in being rather duller in colour, more spotted, and having the beak blackish brown.

Adult in winter. Much duller in colour than in the summer, and with the entire head, neck, and body profusely spotted with dirty brownish white; in one specimen from Piedmont the back is almost obscured by the broad reddish buff tips to the feathers, and the breast and underparts are more white than black, this latter colour only showing through here and there.

Young. Upper parts dull sooty brown, underparts similarly coloured, but with white showing through every here and there; chin and upper part of the throat white, minutely spotted with pale brown; quills margined with rufous, the secondaries more broadly edged with that colour, as are also the wing-coverts; rectrices, like the primaries, very narrowly margined with dull rufous.

THE Common Starling is generally distributed throughout Europe, being to some extent resident, but in most localities a partial or true migrant. It occurs in Northern Africa, on the Azores, and in Asia, where it has been met with as far east as Eastern Siberia.

With us in Great Britain it is resident, but it shifts its haunt to some extent at the two seasons of migration. Mr. A. G. More, in his article on the distribution of birds in Great Britain during the breeding-season (*Ibis*, 1865, p. 130), says that it is found "throughout the mainland and isles, but is much more numerous in some districts than in others, and it has been observed to increase very rapidly in some counties where it formerly was hardly known. Sir W. Jardine marks the Starling as having bred regularly 'of late years only' in Dumfriesshire; and Mr. Archibald Hepburn describes it as 'a colonist' in Haddingtonshire."

In the south of England it appears to be steadily increasing, and breeds now regularly in many places where formerly it only came for the winter. Mr. Cecil Smith writes to me respecting its occurrence in Somersetshire as follows:—"A common resident, and, I think, considerably increasing in numbers; sometimes, especially in wet weather, there are immense flocks in some of the grass-meadows. Though there is plenty of accommodation, and they nest here in con-

siderable numbers, they do not, as a rule, roost about here; the greater part of them, collecting in large flocks about sunset, fly off for some more favoured locality. The irons connecting the pinnacles of the church tower are a very favourite gathering-place; and shortly before sunset these irons are generally crowded with Starlings, who, after about half an hour's chatter, start all at once for their roosting-place. In Guernsey, where they were unusually plentiful when I was there in November 1872, I have observed the same thing, large flocks of Starlings flying off in the evening in the direction of the French coast and of Jersey, in one of which places, I suppose, they went to roost, as I have watched them fly out to sea as far as I could follow them with my glass, and they showed no intention of returning." In Sussex, Surrey, and Kent I have observed it numerous at all seasons of the year. It is common in the eastern counties; and in Scotland, though formerly it was rare on the mainland, it is now tolerably common, both there and on the islands, where from time immemorial it appears to have been very generally distributed. Dunn states that it is numerous in Orkney and Shetland, and frequently builds in the walls of the houses, so low that the nest may be easily reached with the hand. In Ireland it is common. Professor Reinhardt states (*Ibis*, 1861, p. 7) that a single specimen was sent from Greenland by Holböll to Copenhagen in 1851, which appears to be the only instance on record of its having been met with in that country; nor do I find any notice of its having occurred in Iceland. On the Færoes it is, however, common and resident, being, according to Captain Feilden, spread throughout all the islands. I was at first inclined to consider the Færoese Starling distinct from our bird, and differing from it in having a much larger and broader bill; but a series of specimens from various localities proves to me that this character cannot be depended on, but, as a rule, examples from the Færoe Islands have the beak very large, and especially broad, but do not in any other respects differ from specimens from other parts of Europe.

In Scandinavia it is common, and is stated by Mr. R. Collett to be resident in Norway. This gentleman writes that it is very "abundant in the coast-region of Nordland—on Tjøttö, for instance, where large numbers were observed in July 1871; it is found less abundantly in Lofoten, and is, as a rule, very rare north of those islands. At Tromsö it has been repeatedly observed in the spring and autumn; and stray individuals have also been met with in East Finmark. In several localities along the coast, single individuals and small flocks have been found wintering as far north as Værö, in Lofoten; they mostly frequent the sea-shore when in search of food. Each of the last winters, large numbers were observed round Stavanger, on Jæderen, and ranging northward to the coast of Romsdal; in 1872-73 they were also common in the neighbourhood of Christiania." In Sweden it does not appear to range so far north as in Norway, not being met with, according to Nilsson, above Northern Ångermanland and Umeå, in 64° N. lat. It is there a migrant, arriving early in the spring. In Finland, Professor Malmgren informs me, it is spread throughout Southern and Western Finland, tolerably far inland, but in the northern and north-eastern portions of the country it does not occur. Its range extends northward on the western coast to Uleåborg (65° N. lat.); and in the interior, in Southern Österbotten and Tavastland, it does not range higher than 63½° N. lat. It occurs throughout Russia, being found, though rare, my collector writes me, in the Archangel Government. Mr. Sabanæeff informs me that it is "generally distributed throughout Central Russia, and very common in the south-eastern portion of the Perm Government and throughout the Ural on both slopes.

North of 57° N. lat., on the eastern slope, it is rare, and does not occur north of the Pavdinska Dacha, nor is it found on the Imska." In the countries bordering the Baltic on the south side, and throughout Northern Germany, it is common during the summer season, and to some extent resident, as many remain over the winter, whereas a considerable portion migrate southward during the cold season. It is common in Denmark during the summer; and a few remain there over the winter. In Northern France, Holland, and Belgium it is very abundant, and breeds; but in Southern France it is chiefly found during migration, when numbers appear in Provence, and some few remain over winter. It occurs in Portugal during the winter, and is also common in Spain at that season of the year; but the various writers on the ornithology of that country agree in stating that it does not remain there to breed. Mr. Howard Saunders says that it arrives in September and leaves again in the spring. In Italy it is numerous in the district of Modena, where it arrives in March; and in Sicily it is very numerous on the spring and autumn migrations and during the winter; but Doderlein doubts the assertions of any remaining to breed there, and believes the statement arises from confusion with *S. unicolor*. The same holds good of the island of Ustica, which he has lately visited. According to Count Salvadori (J. f. O. 1865, p. 275), "Cara records it as common in Sardinia, and says that they arrive in large numbers early in August and leave in spring. From this it appears to stay only during the winter in Sardinia, but I think that some also breed there, as I have seen some very young birds in the Museum of Cagliari. I must mention that from January to April I have not observed even one bird of that species. I was very much surprised at not having met with flocks of these birds in March or April during migration, as is the case in Sardinia."

Mr. C. A. Wright states (Ibis, 1864, p. 56) that it is common in Malta in September and October, and remains there the winter; and Lord Lilford writes (Ibis, 1860, p. 136) that it visits Corfu and Epirus in October, and remains till about the middle of March. He observed immense flocks near Port Platea, in Acarnania, in January 1858. The late Captain R. Sperling, in his notes on the ornithology of the Mediterranean, writes (Ibis, 1864, p. 276) as follows:—"Enormous flocks of these birds frequent Greece during the winter. I never saw them anywhere but in the salt marshes, while during the summer I noticed none at all; I am therefore led to believe that they migrate more or less. I saw a pretty sight once at Corfu, occasioned by a small Hawk (probably a cock Sparrow-Hawk*) capturing a Starling out of a large flock of about two hundred. My attention was first drawn to it by noticing them scattering and condensing in a peculiar manner, when suddenly down came the fierce little bird on them. The Starlings closed together till they assumed the form of a black ball, and I believe the whole flock could have been covered by a sheet; the Hawk missed his quarry, and rose again. On this the flock spread out, and tried hard to reach a clump of olive-trees; but their active assailant was too much for them, and after several swoops he trussed one and skimmed triumphantly down with it." Both von der Mühle and Lindermayer record it as common in Greece during the winter, and vast swarms roost amongst the reeds in the large swamps. *Sturnus unicolor* has not been observed by either of these two naturalists.

In Southern Germany the Starling is, as in most parts of Europe, common; according to Dr. A. Fritsch, it breeds but rarely in Bohemia, though as early as July they collect in vast flocks

* Or more probably a Merlin.—H. E. D.

and frequent the damp meadows and lakes. I observed it numerous in various parts of the Danube; Messrs. Elwes and Buckley record it as common in Turkey; and Mr. G. Cavendish Taylor saw it near Constantinople and in the Crimea.

In Southern Russia, according to Dr. Radde (*J. f. O.* 1853, p. 57), it arrives, even in late springs, as early as the middle of March, and in 1853 some arrived on the 10th February; and Mr. Goebel records it as common in the Uman district, Southern Russia, in the spring and autumn; but few remain there to breed. In the autumn, he writes, thousands frequent the small lakes which are overgrown with reeds. Ménétries records it as found in large flocks in the Caucasus, but states that it leaves in November; and Mr. Strickland met with it in Asia Minor.

In Palestine it occurs, according to Canon Tristram, in winter only, leaving late in February. It visits also Northern Africa during the winter, but does not appear ever to remain there to breed. Heuglin (*Orn. N.O.-Afr.* p. 529) says that it is found in Northern Egypt and Arabia during the winter in small flocks, frequenting pastures and meadows, but that it does not visit that country every season. He never observed *Sturnus unicolor* in North-east Africa. Dr. A. E. Brehm speaks of it (*J. f. O.* 1854, p. 74) as "resident" in Lower Egypt; but this statement is not confirmed by any other author on the ornithology of North-east Africa. He observed it at Fayoom on the 14th February, which agrees with Captain Shelley's statement that it is numerous in the Delta of the Nile up to the end of March. In North-western Africa it is likewise common during the winter; and Canon Tristram writes (*Ibis*, 1859, p. 293) that "vast flocks of the Starling resort to the date-forests in winter, and do incalculable damage to the ripe fruit. They are snared and destroyed by thousands, being prized for food; yet there seems no appreciable diminution of their numbers till the date-crop is gathered and spring commences, when not a straggler remains in Africa. They are accompanied occasionally by a few individuals of *S. unicolor*." Mr. Taczanowski also met with it commonly in the mountains of Algeria, but never saw it in the desert; and other authors on the ornithology of North-western Africa refer to it as a common winter visitant in Algeria; but Mr. C. F. Tyrwhitt Drake records it (*Ibis*, 1867, p. 428) as uncommon in Tangier and Eastern Morocco. It likewise occurs in the Canaries and Azores; and Mr. F. DuCane Godman writes (*Ibis*, 1872, p. 213) that "according to Bolle the Starling is a regular visitant to the pine-woods of Teneriffe; it is less commonly seen in Fuerteventura. Perhaps, as it does not breed in the islands, it might more properly be placed amongst the accidental stragglers. Webb and Berthelot consider it occasional in Canaries; and Vernon Harcourt gives it in his list of stragglers to Madeira. In the 'Azores it is a common and resident species.'" And he further states, in his work on the Azores (p. 30), that it is "plentiful throughout all the islands of the archipelago. It breeds principally in the sea-cliffs, and is precisely similar to European examples. When vines were more cultivated it was much destroyed, as it was said to feed upon the grapes and to do much mischief in the vineyards; lately, however, it has not been persecuted, and has greatly increased in numbers."

To the eastward the Common Starling is found throughout India and in Eastern Siberia; but, curiously enough, two forms which, though closely allied to our bird, are so far distinguishable as to have been described as distinct species, occur in Persia and Cashmere. The first of these, *Sturnus purpurascens*, Gould, is very common at Erzeroom and Trebizond; and the latter, *Sturnus nitens*, Hume (*Lahore to Yarkand*, p. 250, pl. 24), is abundant about Srinagar

and the Cashmere valley generally. Mr. Blanford has lent to me a large series of Starlings collected by him in Persia and Baluchistan, amongst which I find none referable to Mr. Gould's *Sturnus purpurascens*; but two obtained near Shiraz, in Persia, are, I should say, identical with *Sturnus nitens*, Hume, though one is slightly spotted; and a third, from the Elburz Mountains, is intermediate between *Sturnus nitens* and *Sturnus vulgaris*, and might, with almost equal propriety, be referred to either. All the remaining specimens are absolutely identical with our Common European Starling.

I am indebted to Mr. J. Gould for the loan of his types of *Sturnus purpurascens*, which I took to the British Museum and compared with the type of *Sturnus nitens*, Hume, and find that they are fairly distinguishable. *Sturnus purpurascens* has the head, neck, and breast shot with rich metallic green, and the rest of the underparts, the back, wings, and wing-coverts glossed with rich lake-purple; whereas *S. vulgaris* and *S. nitens* have the head, neck, and breast glossed with purple, and the rest of the body, wings, and wing-coverts with metallic-green. I cannot better describe *S. nitens* than by saying that it is coloured precisely like *S. vulgaris*, but is unspotted, except on the lower part of the flanks, where there are a few obsolete spots. *Sturnus purpurascens* is nearly as much spotted as our Common Starling. Two of Mr. Gould's specimens of this richly coloured Starling are in full breeding-plumage; and the third, which is very profusely spotted and rather duller in colour, having the beak black, not yellow, appears to me to be an autumn- or winter-killed specimen. Some of the specimens of *S. vulgaris* from India are almost unspotted, and very closely resemble the type of *S. nitens*; and I think it not improbable that this latter bird may be merely an old unspotted specimen of the Common Starling. Dr. Henderson (Lahore to Yarkand, p. 250) states that, though not observed in Cashmere or Ladak, *Sturnus vulgaris* was very common in Yarkand; and according to Dr. Jerdon (B. of India, ii. p. 322) it is found in India "during the cold weather only in the North-western Provinces of Bengal, as low down as Monghyr, south of the Ganges, and perhaps still lower, and as far as Purneah, at least on the north bank of the Ganges. It is, however, much more common further to the north-west; and I have never seen it out of the valley of the Ganges. It associates in large flocks, feeding both on grain and on insects among cattle, associating with the Common and Bank Mynas, and roosting on high reeds at night." It occurs in Siberia; but Dr. Radde did not observe it east of the Lower Selenga, and records of its occurrence in the Bargusin steppes require confirmation; but it is, he states, a common species in the villages on the Lower Selenga, and the peasants, as elsewhere, place nest-boxes for it on high poles near their houses; he brought home specimens from the Tunka plains, in the East Sajan mountains, where he met with it breeding in small colonies, their nests being in hollow branches of old birch trees; and on the 8th May he heard the young birds chirping. It has been introduced into New Zealand, and according to Captain Hutton (Ibis, 1870, p. 397) is becoming very numerous in Auckland.

The Starling is essentially a gregarious bird, and even during the breeding-season they collect and feed in small flocks in the pastures, and in the autumn and winter vast flocks are seen. It frequents the pastures, and attends and follows the cattle, frequently perching on their backs, and assists to free them from the ticks which infest them; frequently large numbers are to be seen in the pastures searching amongst the dried dung for worms and beetles, during which

occupation they keep up an incessant chatter. It is most omnivorous, but in the spring and summer appears to feed chiefly on insects of various sorts, and is especially useful in destroying caterpillars and other noxious insects which prove so destructive to the crops of grain and forest-trees. In many parts of Germany and Scandinavia the Starlings are protected, and breeding-boxes are hung up in all directions to induce them to remain and nest in them. When in Russia I found that in all the small villages hollow branches of trees cut into sections with holes bored in the sides were placed in all directions, and were tenanted by swarms of Starlings, which, the peasants assured me, did infinite good in freeing their crops from noxious insects; and no bird is more useful in freeing the oak-forests from that pest which has done such vast injury to many of the finest oak-groves, *Tortrix viridana*. It is said to devour young birds and eggs; but I cannot confirm this from personal experience, and should disbelieve it but for the following statement made by Mr. R. Gray:—"I have often observed Starlings flying in circles at some height from the ground, and snapping at insects, on which they appeared to prey with great perseverance upwards of an hour at a time. They appear to practise this habit only on very hot days, when flies are found in swarms. As a set-off to this useful occupation, however, these birds are known to search for and deliberately devour the eggs of birds which breed on the ground, such as Larks and Yellowhammers. I confess that on first hearing this accusation brought against the Starling, I was reluctant to entertain it; but subsequent observation has convinced me that, when opportunities offer, the Starling, besides devouring eggs, will not hesitate to prey upon newly hatched birds. I have seen it repeatedly alight on the rough stones of a house, to which it clung while it thrust its head and neck into a hole and dragged from it in succession five young Sparrows, which it leisurely swallowed on the roof of a house. I have more than once been a witness to such thefts, when stationed at a window only a few feet distant from the nest." It feeds also, especially in the winter, to some extent on grain, and has been known, when the snow is deep on the ground, to eat hawthorn-berries.

The Starling flies quickly and straight, at a great speed, without undulations, with regularly timed beats of its wings. Flying in flocks they keep very compact, and the entire mass of birds manœuvre as if one individual. They alight abruptly, and at once disperse in all directions, running swiftly and with the greatest ease. During the winter season vast flocks are sometimes seen; and I cannot do better than follow Macgillivray in transcribing some excellent notes by Bishop Stanley, in his 'Familiar History of Birds' respecting the numbers which occasionally collect together, as follows:—"Not far from the church we have mentioned there is a considerable sheet of water, occupying nearly thirty acres, flanked and feathered on the eastern side by the old beech-wood, already spoken of as the abiding place of the Jackdaws. Its western margin is bounded by an artificial dam, which, as the water is upon a much higher level, commands an extensive view over a flat rich country, the horizon terminated by the faint outline of the first range of Welsh mountains. This dam, on the finer evenings of November, was once the favourite resort of many persons, who found an additional attraction in watching the gradual assemblage of Starlings. About an hour before sun-set little flocks, by twenties or fifties, kept gradually dropping in, their numbers increasing as day-light waned, till one vast flight was formed, amounting to thousands, and at times, we might almost say, to millions. Nothing could be more interesting or beautiful than to witness their graceful evolutions.

“At first they might be seen advancing high in the air, like a dark cloud, which in an instant, as if by magic, became almost invisible, the whole body, by some mysterious watchword or signal, changing their course, and presenting their wings to view edgeways, instead of exposing, as before, their full expanded spread. Again, in another moment, the cloud might be seen descending in a graceful sweep, so as almost to brush the earth as they glanced along. Then once more they were seen spiring in wide circles on high, till at length, with one simultaneous rush, down they glide with a roaring noise of wing till the vast mass buries itself unseen, but not unheard, amidst a bed of reeds projecting from the bank adjacent to the wood; for no sooner were they perched, than every throat seemed to open itself, forming one incessant confusion of tongues.

“If nothing disturbed them, there they would most likely remain; but if a stone was thrown, a shout raised, or more especially if a gun was fired, up again would rise the mass, with one unbroken rushing sound, as if the whole body were possessed but of one wing to bear them on their upward flight. In the fens of Cambridgeshire and Lincolnshire, where reeds are of considerable value for various purposes, the mischief they occasion is very considerable, by bearing down and breaking them, as many as can find a grasping hold clinging to the same slender stem, which, of course, bends and plunges them in the water, from whence they rise to join some other neighbours, whose reed is still able to bear their weight. This perpetual jostling and breaking down is the probable cause of the incessant clatter, which continues for a considerable time—indeed, till all have procured dry beds and a firm footing.

“It has been remarked that the flights of these birds have of late years much diminished, a fact to which we can speak from our own experience; for the assemblages which we have just described as forming so interesting a feature in autumnal evening walks, have long ago ceased, and it is now a rare thing to see a passing flock of even fifty where, in years gone by, they mustered in myriads.”

The Starling builds its nest in the hollow of a tree, under the eaves of a roof, or in any convenient hole in an old wall or amongst old ruins. According to Macgillivray, in the Hebrides they select suitable spots in the crevices of rocks, in caverns, or under large blocks, in situations as inaccessible as possible. “I have found them,” he says, “also in large winding holes in grassy banks on an unfrequented islet, which I conjectured to have been originally formed by rats and afterwards enlarged by the Starlings. It appears, however, that they also dig holes for themselves on the grassy shelves of the rocks.” The nest of the Starling is usually a somewhat bulky structure, and is constructed of grass, and sometimes roots, and lined with feathers and hair. Late in April or early in May from four to six eggs are deposited. These latter are somewhat elongated, oval in shape, and in colour delicate pale blue, with a greenish tinge, the surface of the shell being exceedingly glossy; in size they measure from $1\frac{5}{40}$ by $\frac{3}{40}$ to $1\frac{9}{40}$ by $\frac{3}{40}$ inch.

As a cage-bird the Starling is easily domesticated, and soon learns to articulate words and whistle tunes. Baron R. König Warthausen gives (J. f. O. 1870, p. 65) some interesting details respecting a singing and talking Starling which lived in 1582, and which sang and spoke in German and Polish, and had given itself a name in the latter language. Albinoes and partial albinoes are not very uncommon amongst Starlings; and I am indebted to Mr. E. Hargitt for the loan of two, one of which is pure white, and the other dull pale cream-coloured with indistinct spots.

In the above article I have not considered it advisable to separate the Færoese bird as a distinct species; for, though the beak is somewhat stouter and larger, the variation in the three specimens I have examined is considerable, and I find that examples from other localities vary not a little. In other respects I find no difference between specimens from the Færoes and other parts of Europe. Indian Starlings are, as a rule, somewhat smaller in size than our European bird, and are generally less spotted, but do not otherwise vary. I give the following table of measurements, which will show the variation in size:—

		Culmen. inch.	Wing. inches.	Tail. inches.	Tarsus. inch.
<i>Sturnus vulgaris</i>	Great Britain.	1·18-1·25	5·0 -5·1	2·82-2·85	1·18-1·2
„	Denmark.	1·1 —	5·1 —	2·75 —	1·2 —
„	Færoes.	1·3 -1·35	4·95-5·1	2·65-2·9	1·2 —
„	Sweden.	1·22 —	4·98 —	2·9 —	1·2 —
„	Finland.	1·2 —	4·95 —	2·8 —	1·18 —
„	Italy.	1·15-1·25	4·82-4·95	2·85-2·9	1·2 —
„	Azores.	1·0 -1·12	4·85-5·1	2·82-2·95	1·15-1·2
„	Persia.	1·25-1·33	5·05-5·1	2·8 -2·85	1·2 —
„	Baluchistan.	1·22-1·3	5·0 -5·1	2·8 -2·9	1·2 —
<i>Sturnus nitens</i>	Cashmere: type.	1·1 —	4·9 —	2·45 —	1·2 —
„	Shiraz.	1·25-1·3	4·7 -4·95	2·6 -2·9	1·2 —
<i>Sturnus purpurascens</i> : types		1·05-1·15	5·0 -5·15	2·72-2·8	1·2 —

On the first Plate I have figured an adult male in full summer-plumage from Norway, and above, to the right, an autumn-plumaged male from the Færoes; and on the second Plate an adult female in early winter or autumn plumage, together with a young bird in first plumage, both being British-killed specimens. Particulars as to locality of specimens described are given above.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, c, d, e. London, May 20th, 1870 (*R. B. Sharpe*). *f.* Leadenhall market, London, winter 1867. *g, ♀.* Kingsbury, Middlesex, January 7th, 1865 (*Wharton*). *h.* Pagham, Sussex, July 11th, 1870 (*R. B. Sharpe*). *i, ♂.* Cookham, Berks, January 25th, 1870 (*Davy*). *k, ♀.* Hampstead, Middlesex, February 10th, 1870 (*Davy*). *l, m.* Hampstead, Middlesex, April 20th, 1870 (*Davy*). *n, ♂.* Færoes, May 23rd, 1872 (*H. W. Fielden*). *o, p, q.* Færoes, 1871 (*A. Benzon*). *r, ♂.* Jutland, May 1870 (*A. Benzon*). *s.* Christiania, May 1868 (*Collett*). *t, ♂.* Nystad, Finland, April 24th, 1866 (*H. E. D.*). *u, ♂.* Quickjock, Lapland, April 30th (*Wheelwright*). *v, ♂.* Piedmont (*Salvadori*). *w, ♂.* Piedmont, May 1868 (*Salvadori*). *x, ♂.* Piedmont, April 10th, 1870 (*Salvadori*). *y, ♀.* Piedmont, May 19th, 1870 (*Salvadori*). *z, ♂.* Piedmont, May 20th, 1870 (*Salvadori*). *aa, ♂.* Sjælland, March 1871 (*A. Benzon*).

E Mus. F. DuCane Godman.

a. Cambridge (*F. G.*). *b.* Surrey, May 1857 (*F. G.*). *c, d, e.* St. Michaels, Azores, March 1865 (*F. G.*).

E Mus. E. Hargitt.

a, albino. England. *b*, partial albino. England. *c*, ♀. Cookham, November 10th, 1868 (*R. B. Sharpe*). *d*, *e*. Ramsgate, November 26th, 1871 (*E. H.*). *f*, ♂. Hampstead, October 25th, 1869 (*Davis*). *g*, ♂. Purfleet, December 26th, 1873 (*E. H.*). *h*, young. West Drayton, June 22nd, 1869 (*Paraman*). *i*, ♂. Havre, December 1st, 1873 (*Pluche*). *k*, young. Havre, August 1873 (*Pluche*). *l*, young. Havre, July 6th, 1873 (*Pluche*).

E Mus. Brit. Reg.

a. Avington, Hants, November 25th, 1872 (*R. B. S.*). *b*. Aboyne, October 1871 (*R. B. Sharpe*). *c*, *d*, ♂, *e*, ♀. Stockholm, April 1867 (*W. Meves*). *f*. Tyre. *g*, *h*, *i*, *k*, *l*, *m*, *n*, *o*. Nepal (*Hodgson*).

E Mus. J. H. Gurney, jun.

a. North Wales. *b*. Somerset. *c*, ♂. Bexhill, Sussex, January 23rd, 1866. *d*. Rye, Sussex, January 24th, 1866. *e*, ♂. Catton, Norfolk, January 6th, 1866 (*J. H. G., jun.*). *f*, ♀. Castle Eden, Durham, May 15th, 1866. *g*. Greatham, Durham, November 15th, 1866. *h*, ♀. Norwich, August 1870 (*Gunn*).

E Mus. Ind. Calc.

a, *b*, ♀, *c*, ♂. Gwadar, Baluchistan, December 1871 (*W. T. Blanford*). *d*, *e*. East of Shiraz, June 4th, 1872 (*W. T. Blanford*). *f*, ♀. Shiraz, June 1870 (*St. John*). *g*. S. Persia (*St. John*). *h*, ♀, *i*, ♂, *k*, ♂. Shiraz (*St. John*). *l*, ♀. Shiraz, 1870 (*St. John*). *m*, ♂. Karachi, Sindh, November 18th, 1871 (*W. T. Blanford*).

E Mus. Howard Saunders.

a, ♂. Malaga, January 10th. *b*, *c*, *d*, ♂. Valencia, Spain, October 20th. *e*, ♀. Valencia, November. *f*. Lundy Island, March (*H. S.*).



SARDINIAN STARLING.
STURNUS UNICOLOR

STURNUS UNICOLOR.

(SARDINIAN STARLING.)

Sturnus unicolor, "De la Marm." Temm. Man. d'Orn. ed. 2, i. p. 133 (1820).*Sturnus vulgaris unicolor*, Schlegel, Rev. Crit. Ois. d'Eur. p. 57 (1844).*Étourneau unicolore*, French; *Tordo*, Spanish; *Estorninho*, Portuguese; *Storno nero*, *Stur-neddu*, Italian; *Zerzour*, Arabic; *Zarzor kehal*, Moorish.*Figuræ notabiles.*

Temm. Pl. Col. 111; Bonap. Icon. Faun. Ital. tab. 33. fig. 1; Vieill. Gal. des Ois. pl. 91; Gould, B. of Eur. pl. 211.

♂ *ad.* niger: corpore suprâ et subtûs, remigibus versus apicem et secundariis in pogonio externo pulchrè violaceo nitentibus: dorsi plumis et plumis in corpore inferiore elongatis et lanceolatis: rostro flavicante, ad basin cærulescente: pedibus pallidè brunnescentibus: iride brunneâ.

♀ *ad.* brunnescenti-fuliginosa, nec nigra, vix purpurascente violaceo nitens: caudâ et alis ut in mare sed brunnescentibus nec nigris.

Adult Male (Madrid, 19th May). Entire plumage unspotted, jet-black, glossed with rich violet-purple, not reddish purple, as in portions of the plumage of *Sturnus vulgaris*; wings and tail velvety black, glossed with purple only on the outer webs and apical portions of the feathers; feathers on the underparts especially much more elongated and lanceolate than in *Sturnus vulgaris*; bill yellow, bluish at the base; legs brownish flesh-colour; iris dark brown. Total length about 7.5 inches, culmen 1.05, wing 5.0, tail 2.5, tarsus 1.2.

Adult Female (Seville, May). Resembles the male, but is much duller and paler in colour, lacking to a large extent the rich purple gloss, and the general ground-colour of the plumage is sooty brown, instead of jet-black.

Winter plumage. I do not possess a specimen in winter dress; but, according to Loche, at this season of the year both sexes have a few small white spots on the back and abdomen, and it doubtless has the beak blackish and not yellow.

Young. Resembles the young of *Sturnus vulgaris*, but is darker in colour.

Obs. An adult female sent to me from Sardinia by Count Salvadori is far richer-coloured than any of the other specimens from Spain, and is nearly as bright in colour as the adult male.

THE Sardinian or Unspotted Starling inhabits Southern, and more especially South-western Europe, North-western Africa, and has been met with by Canon Tristram in Palestine. It has been in error recorded from Scinde, the Punjab, and Cashmere, *Sturnus nitens*, Hume, having been mistaken for it.

In Northern and the northern part of Central Europe it has not been known to occur; but, according to Jaubert and Barthélemy-Lapommeraye, a solitary example was obtained in the month of May by M. Jouffret at Draguignan, in the Department of Var. In Portugal it is, however, Professor Barboza du Bocage states, common; and Dr. E. Rey writes (J. f. O. 1872, p. 146) that he saw a flock of about twenty individuals in the valley of Lagos, in that country; and as they were going in and out the crannies of the rocks, he thinks that they were breeding there. I found it common near Madrid, in Spain; and Lord Lilford informs me that he found it "very abundant in Andalucia; it breeds in the holes of old buildings, under the eaves of houses, and also (but, I think, not so frequently) in hollow trees. Its habits seem to resemble very closely those of *Sturnus vulgaris*, which in Southern Spain is a winter visitor, the present species being a constant resident. At Aranjuez we shot a bird which looks very like a hybrid between the two species; but the natives declared that 'Estornino,' as they call *S. vulgaris*, never remained in the country during the summer. *S. unicolor* is common enough in New Castile, but becomes scarcer to the north of the Guadarrama, and I do not recollect to have noticed it in Aragon, Navarre, Catalonia, or in the Basque provinces." Mr. Howard Saunders also informs me that "this species arrives in Spain in spring, and takes the place of *S. vulgaris*, which is the sole representative of the genus from autumn to that time. The 'tordo,' as the Spaniards call *S. unicolor* (distinguishing it from *S. vulgaris*, which is 'estornino'), is abundant from spring to autumn from Andalucia to Galicia; but on the east coast it is much rarer, and even at Granada it is not very numerous. In some parts this species frequents the dove-cotes in great numbers; and it is also found breeding about the houses in large towns and cities; it is also very partial to holes in trees in the woodlands. Its flight is remarkably rapid, far more so than that of the common species. The keeper of the lighthouse on the summit of the island of Dragonera, against which numbers of birds dash themselves during the night-flights, told me that out of the basketfuls of birds he had picked up, he never knew a 'tordo' that had not its skull completely fractured owing to the velocity with which it struck the glass of the lantern, whereas many of the Common Starlings and other birds were merely stunned. In Catalonia and the Eastern Pyrenees it is rare; only one specimen is recorded as having occurred at Perpignan."

In Italy it is common. Salvadori writes (J. f. O. 1865, p. 276) that he never met with it in the more elevated portions of the country, but always in the plains, where they search for insects with the Crows in damp places. At night they leave the fields and pass the night on roofs of houses. He observed them in the pigeon-caves at Cape St. Elias, near Cagliari, in company with *Columba livia* and *Cotyle rupestris*.

Malherbe (Mém. Ac. Roy. Metz, 1843, p. 133) states that it inhabits the mountainous districts in the interior of Sicily, and is common at Lentini, Caltagirone, Troina, &c., where it is sedentary; and Lord Lilford found it common and sedentary in the Island of Sardinia. It has occurred in Malta, as Mr. C. A. Wright writes (Ibis, 1864, p. 56) that "Schembri includes this species from two specimens shot out of a flock of five or six many years ago." Neither Von der Mühle nor Lindermayer ever observed it in Greece; but Lord Lilford (Ibis, 1860, p. 137) met with it at Corfu. It is said to have occurred in Southern Germany; but Naumann (Vög. Deutschl. xiii. p. 231) speaks with doubt of its having occurred in Dalmatia and Hungary, and apparently has no particulars as to any specific instance of its capture. Canon Tristram met

with it in Palestine, and writes (*Ibis*, 1867, p. 367) that it visits the Plain of Sharon, but does not, as in Algeria, remain to breed, and departs at the end of February. It is not recorded by any of the writers on the ornithology of North-east Africa as having been met with in that country; but it occurs in the north-western portion of that continent. In Algeria, according to Loche, it is much less common than *Sturnus vulgaris* in the provinces of Algiers and Oran; but he states, on the authority of Malherbe, that in Constantine it is more numerous than that species. Malherbe himself (*Mém. Ac. Roy. Metz*, 1843, p. 153) says that he obtained specimens from Ghelma and Oran, which were killed in the month of December. Mr. L. Taczanowski only observed a few between Jemmapes and Ajmokra. Mr. O. Salvin (*Ibis*, 1859, p. 313) "saw it at Kef, in the Regency of Tunis, subsequently at Djebel Dekma, and lastly at Zana;" and Mr. C. F. Tyrwhitt Drake, in his notes on the ornithology of Tangier and Eastern Morocco (*Ibis*, 1867, p. 428), found it "more common at Tetuan than at Tangier."

The Sardinian Starling is recorded as having occurred in India; and Dr. Jerdon states (*B. of I. ii. p. 332*) that it is common in Scinde, the Punjab, and Cashmere; but subsequent investigation has proved that the present species does not occur there, but has been confounded with an allied though perfectly distinct form, *Sturnus nitens*, Hume, which, though unspotted, in coloration much more closely resembles the common Starling than the present species.

When in Spain in 1866 I frequently saw this Starling, and found it tolerably common near Madrid in the month of May, when it was breeding. In its habits and note it closely resembles our common Starling, and is quite as noisy at its nesting-place as that bird. I saw a colony which evidently had their nests in the hollow branches of a grand old white poplar tree; but, owing to the size of the tree, and not having ropes with us, I could not succeed in exploring the holes into and out of which they were flying, and, as my stay in the neighbourhood was very short, I never had an opportunity of taking their eggs with my own hands. In their flight they resembled *Sturnus vulgaris*, and when seated on the tops of the lofty trees they uttered the same clear prolonged whistle that is so characteristic of our common Starling. Their nest is constructed like that of the common Starling, being merely a loose lining of grass, straws, and feathers placed on the bottom of the hole which it has selected for the purpose of nidification. The eggs, from four to six in number, closely resemble those of the common Starling. Specimens I have in my collection from Spain are, if any thing, a trifle deeper in colour.

Temminck (*l. c.*) states that the present species was described by De la Marmora in a paper read before the Royal Academy of Sciences at Turin, 28th August, 1819; but I could find no such paper, and Professor Newton has called my attention to a statement by Bonelli (*Mem. dell. Real. Accad. dell. Sc. di Torino*, xxv. p. 261) which clearly shows that the paper was never published.

The specimens figured are an adult male shot by myself and a female obtained near Seville, both being in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Casa de Campo, Madrid, May 19th, 1866 (*H. E. D.*). *b*, ♀. Seville, Spain (*Ruiz*). *c*, ♀. Seville, Spain, May 10th, 1869 (*Howard Saunders*). *d*, ♂. Vigo, Portugal, July 28th, 1871 (*Captain Sperling*). *e*, ♂, *f*, ♀. Sardinia, March 1863 (*Salvadori*). *g*, ♂. Seville (*Ruiz*). *h*, ♂ *juv.* Piedmont, May 20th; 1870 (*Salvadori*).

E Mus. Howard Saunders.

a, *b*, *c*, *d*, ♂, *e*, ♀. Seville, May (*Ruiz*).

E Mus. E. R. Alston.

a, ♂. Seville, May 10th, 1869 (*Ruiz*).



G. E. S. del.

Hanbart imp.

PURPLE-WINGED STARLING.
STURNUS PURPURASCENS.

STURNUS PURPURASCENS.

(PURPLE-WINGED STARLING.)

Sturnus purpurascens, Gould, P. Z. S. 1868, p. 219.*Sturnus unicolor* (*purpurascens*?), Severtzoff, Turk. Jevot. p. 64 (1873).*Sturnus poltaratskyi*, Finsch, P. Z. S. 1878, p. 713.*Figura unica.*

Gould, B. of Asia, part xx.

Sturno vulgari similis sed vix major, tectricibus alarum et corpore subtus purpureo nec viridi-cæruleo nitentibus facillè distinguendus.

Adult Male in summer (Erzeroom). In general appearance, at the first glance, resembling *Sturnus vulgaris*; but the arrangement of colour is different; head and neck glossed with greenish steel-blue; back also glossed with greenish steel-blue varied with purple; wings altogether glossed with lake-purple, whereas in *Sturnus vulgaris* they are altogether glossed with greenish steel-blue; breast and lower parts generally glossed with purple; soft parts as in *Sturnus vulgaris*. Total length about 7·5 inches, culmen 1·1, wing 5·2, tail 2·7, tarsus 1·2.

Obs. In all stages of plumage this bird resembles *Sturnus vulgaris*, except that the wing-coverts, scapulars, and underparts are glossed with purple.

COMPARATIVELY speaking, but little is known respecting this Starling, which, until quite lately, was only known to inhabit the neighbourhood of Erzeroom and Trebizond; but recent researches have shown that it ranges from Asia Minor to the Chinese portion of the Altai range, and into North-west India. First described from Erzeroom, it has since been found there in great abundance; and I am indebted to my friend Mr. Zohrab for several very fine specimens shot by him near that town. Mr. C. G. Danford shot two out of a flock to the north of Cæsarea, in Asia Minor, and he also obtained several others in the Euphrates valley. Dr. Severtzoff records it from Turkestan; there are examples in the British Museum from Northern Persia and Yarkand; and Dr. Otto Finsch found it breeding at Lake Marka-kul, in the Chinese High Altai, at an altitude of about 5000 feet. Dr. Finsch, who describes the specimen he obtained there as distinct under the name of *Sturnus poltaratskyi*, makes several errors respecting its range. He states that it is found in N.W. India, Persia, Baluchistan, and as far east as the Yennesei, and that there are fifteen examples in the British Museum; but he doubtless relied on the coloration of the back only as a characteristic, his specimen being one which has the back unusually blue-green, and did not remark the colour of the wing-coverts; for most of the specimens he refers to from the above localities prove to be nothing but ordinary Starlings (*Sturnus vulgaris*), though his type is certainly a Purple-winged Starling.

Judging from the series of examples of these two species which I have examined, I find that

the coloration of the back is very variable ; for in one specimen from Asia Minor, in the collection of Mr. Seebohm, the entire back and rump are glossed with lake-purple, and in the one above described these parts are almost entirely glossed with greenish steel-blue, there being only a tinge of purple on the sides of the back. Again, several of the other examples vary considerably in the quantity of blue or purple on the back ; in fact there is a complete gradation between the one form and the other. The only characteristics to be relied on to discriminate between this species and *Sturnus vulgaris* are as follows, viz.:—*Sturnus purpurascens* always has the wing-coverts and entire underparts of the body glossed with purple, whereas *Sturnus vulgaris* has these parts glossed with steel-blue or greenish steel-blue. I may take this opportunity of expressing my indebtedness to Mr. Seebohm, who first pointed out to me that the coloration of the wing-coverts is the only constant character. Mr. Zohrab informs me that he found the present species at Erzeroom in company with *Sturnus vulgaris*, and that he could not detect any difference between the habits of the two species ; and Mr. Danford also found both species in the Euphrates valley. I am indebted to Mr. Zohrab for eggs of this Starling, which are similar both in coloration and size to the eggs of *Sturnus vulgaris*.

In the preparation of the above article I have examined the following specimens :—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. Cæsarea, Asia Minor, March 22nd and 23rd, 1879. *c*, ♂. Azizieh, Asia Minor, March 12th, 1879 (*C. G. Danford*). *d*, *e*, *f*. Erzeroom (*Zohrab*).

E Mus. J. Gould.

a, *b*. Erzeroom (types of *Sturnus purpurascens*).

E Mus. H. Seebohm.

a, ♂. Asia Minor, May 18th, 1876 (*C. G. Danford*). *b*, ♂. Biridjik, Euphrates valley, February 14th, 1879 (*C. G. D.*). *c*, ♀. Azizieh, Asia Minor, March 12th, 1879 (*C. G. D.*).

E Mus. Brit. Reg.

a. Marka-kul, Chinese High Altai, type of *Sturnus poltaratskyi* (*Dr. O. Finsch*). *b*. Yarkand. *c*. Elburz, N. Persia, August 6th, 1872 (*W. T. Blanford*).

Genus PASTOR.

- Turdus* apud Linnæus, Syst. Nat. i. p. 294 (1766).
Sturnus apud Scopoli, Ann. I. Hist. Nat. p. 130 (1769).
Pastor, Temminck, Man. d'Orn. p. 83 (1815).
Psaroides apud Vieillot, Nouv. Analyse, p. 42 (1816).
Merula apud Koch, Baier. Zool. p. 242 (1816).
Acridotheres apud Ranzani, Elem. Zool. iii. pt. v. p. 177 (1823).
Boscis apud C. L. Brehm, Isis, 1828, p. 1282.
Gracula apud Cuvier, Règn. Anim. i. p. 378 (1829).
Pecuarius apud Temminck, Man. d'Orn. iii. p. 76 (1835).
Thremmaphilus apud Macgillivray, Hist. Brit. B. i. p. 613 (1837).
Nomadites apud Petenir, fide Bonaparte, Cat. Met. Ucc. Eur. p. 44 (1842).

THIS genus contains but a single species, which, though tolerably closely allied to *Sturnus*, is in several respects sufficiently different to entitle it to generic rank; and this view has very generally been taken, as may be seen by the above array of generic titles bestowed upon it.

In habits the *Pastor roseus* resembles the Starling, being gregarious, frequenting, by choice, pastures where cattle are found, and consorting with Starlings. It feeds on seeds, fruits, and insects, especially, it is said, on locusts and grasshoppers.

It breeds in colonies, and nests usually in a hole in a wall or rock, making a very slight nest, and depositing glossy pale bluish-white eggs. It is somewhat remarkable that these colonies do not nest regularly in the same place, but large flocks breed in a locality one season, where the next season none are to be seen.

Pastor roseus, the type of the genus, has the bill moderately long, the upper mandible curved towards the tip, slightly notched, and slightly overlapping the lower mandible; nostrils oval, placed in the anterior portion of the nasal depression; feathers on the crown elongated, forming a distinct full crest; wings rather long, broad, the first quill very short, the second longest, the third being nearly equal; tail moderate, even or slightly emarginate; legs and feet strong and stout, the tarsus covered in front with four large and three inferior scutellæ; claws strong, curved, acute, laterally grooved.



ROSE-COLOURED STARLING.

PASTOR ROSEUS

PASTOR ROSEUS.

(ROSE-COLOURED STARLING.)

- Turdus roseus*, Linn. Syst. Nat. i. p. 294. no. 15 (1766).
Turdus roseus, Linn., Pallas, Reise Russischen Reichs, ii. p. 491, note (1773).
Turdus seleucis, Forskål, Descr. Animalium, p. vi. no. 16 (1775).
Sturnus roseus (Klein), Scopoli, Ann. I. Hist. Nat. p. 130. no. 191 (1779).
Turdus seleucis, Gm. tom. cit. p. 837. no. 126 (1788), ex Forskål.
Sturnus asiaticus, Wirsing, fide Latham, Ind. Orn. i. p. 344. no. 59 (1790).
Pastor roseus (Scopoli), Temm. Man. d'Ornith. p. 83 (1815).
Psaroides roseus, Vieillot, Nouv. Analyse, p. 42. no. 134 (1816).
Merula rosea, Koch, Syst. der Baier. Zool. p. 242 (1816).
Acridotheres roseus (Scopoli), Ranzani, Elementi di Zoolog. iii. pt. v. p. 177. sp. 1 (1823).
Merula rosea, Aldrov., C. L. Brehm, Lehrbuch Naturgesch. europ. Vögel, i. p. 279 (1823).
Boscis rosea (Linn.), C. L. Brehm, Isis, 1823, p. 1282.
Gracula rosea (Linn.), Cuvier, R. An. i. p. 378 (1829).
Sturnus roseus (Aldrov.), Pallas, Zoograph. Rosso-As. i. p. 420. no. 71 (1831).
Acridotheres roseus (Linn.), Bp. Iconogr. Faun. Italica, *Uccelli*, pl. (1832-42).
Pastor peguanus, Lesson, Bélanger, Voy. Indes Orient. Zool. p. 268, "Pegu," *av. juv.* (1834).
Pecuarius roseus (Linn.), Temm. Man. d'Ornith. iii. p. 76 (1835).
Thremmaphilus roseus (Linn.), Macgillivray, Hist. Brit. Birds, i. p. 613 (1837); op. cit. iii. p. 723 (1840).
Gracula rosea, Cuvier, Sundevall, Physiograph. Sällskapetets Tidskr. p. — (1837); Strickl. Ann. N. H. xviii. p. 304. no. 34 (1846).
Merula rosea (Linn.), Keyserl. & Blasius, Wirbelth. Europa's, p. 170. no. 160 (1840).
Nomadites roseus, Petenir, fide Bp. Cat. Met. Ucelli Eur. p. 44 (1842).
Acridotheres roseus (Linn.), Orazio Antinori, Naumannia, 1856, p. 404.
Pastor roseus (Linn.), Horsf. & Moore, Cat. E. I. C. Mus. ii. p. 539. no. 811 (1856-58).
Pastor roseus (Linn.), Jerd. Birds of India, ii. p. 333. no. 690 (1863).

(The above by Lord Walden.)

Rose-coloured Starling, *Pastor*, or *Cow-bird*, English; *Martin roselin*, French; *Storno marino*, Italian; *Rosenstaar*, German; *Kamenisti Skworez*, Russian.

Figuræ notabiles.

Edwards, Nat. Hist. Birds, i. pl. 20; D'Aubenton, Pl. Enl. 251; Levaillant, Ois. d'Afrique, ii. pl. 96; Bonaparte, *l. c.*; Werner, Atlas, *Omnivores*, pls. 18 & 19; Kjærböll. Orn. Dan. taf. liv.; Fritsch, Vög. Eur. pl. xxii. figs. 19, 20; Sundevall, Svensk. Fogl. pl. lxix. fig. 3; Gould, B. of Eur. pl. 212; Naumann, Vög. Deutschl. taf. 63; Schlegel, Vog. Nederl. pl. 147.

♂ *ad.* capite, collo et pectore superiore nigris purpureo nitentibus: pilei plumis elongatis: dorso, uropygio scapularibusque pulchrè roseis: remigibus et rectricibus nigris vix viridi nitentibus, primariis in pogonio interno saturatè nigricantibus: pectore imo et abdomine pallidè rosaceis: tibiis et subcaudalibus nigris: subalaribus quoque nigris, sed rosaceo marginatis: rostro rosaceo, ad basin nigricanti-brunneo: pedibus saturatè brunneis: iride castaneâ.

♀ *ad.* mari similis sed ubique saturatior: capite, collo, alis et caudâ fusco lavatis: dorso et corpore subtùs brunnescente adumbratis: subcaudalibus conspicuè albicante rosaceo marginatis.

Juv. adulto dissimilis, nec cristatus: corpore suprâ pallidè grisescenti-ochraceo: pilei plumis medialiter pallidè brunneo notatis: remigibus saturatè brunneis, primariis extùs cervino marginatis, secundariis et rectricibus alarum rufescente cervino conspicuè marginatis: rectricibus saturatè ochrascenti-brunneis, pallidiore marginatis: mento albido: gutture et pectore albidis, cervino limbatis et vix brunnescente cervino striatis: abdomine albido: hypochondriis et subcaudalibus pallidè cervinis, his medialiter pallidè brunneo notatis: rostro flavicante, versùs apicem brunneo: pedibus brunneis.

Adult Male (Genoa, June 1871). Head, neck, and fore part of the breast glossy black, with purple reflections; feathers on the crown and nape elongated, forming a thick, heavy crest; back, scapulars (excepting the outermost, which is black), and rump delicate rose-colour; wings and tail deep black, glossed with green; the inner webs of the primaries dull blackish, lower part of the breast and abdomen delicate rose-colour; thighs and under tail-coverts glossy black; under wing-coverts black, margined with pale rose-colour; beak rose-coloured, dark brown at base; legs dull brownish; iris rich reddish brown. Total length 8.3 inches, culmen 0.95, wing 5.0, tail 2.7, tarsus 1.3.

Adult Female (Genoa, June 1871). Differs from the male in being everywhere much duller in colour; the head, neck, wings, and tail are washed and marked here and there with brownish; the rose-colour is deadened by being washed with brownish white, and has a dirty appearance; and the under tail-coverts are broadly margined with dirty white, tinged with rose-colour.

Young bird of the year (Smyrna, July 24th, 1871). Head, neck, back, and rump greyish buff, or light sandy grey, the feathers on the crown, which is not crested, having slightly darker centres; quills dark brown, margined with dull buff; secondaries and wing-coverts broadly edged with rufous buff; tail dull sandy brown, all the feathers having lighter edges; chin white; throat white, washed with buff, and striped with dull sandy buff; rest of the underparts pale buff, except the centre of the abdomen, which is white; beak yellowish, brown towards the tip; legs brown.

THE Rose-coloured Starling inhabits Southern Europe and India, occasionally straggling even into far northern countries; and there are consequently but few parts of Europe which have not been visited by it.

It is one of those stragglers which from time to time visit our islands, being met with at irregular intervals, usually in the summer or autumn; and examples have been obtained in most parts of the United Kingdom. Amongst other occurrences during late years I may refer to one recorded by Mr. G. Dawson Rowley (*Ibis*, 1861, p. 113), of a male bird which was shot near Southampton amongst some Starlings which were feeding on cherries. Mr. J. Brooking Rowe also states that one was obtained, in June 1851, near King's Tamerton, another at Chudleigh on the 13th of July, 1851, one at Sephington in July 1852, and one at Prowle Point on the 13th of May, 1871. Mr. Stevenson, writing from Norfolk, says that "this beautiful species, as will be

seen by the following list of specimens, has occurred in many instances in this county; but, although appearing with a strange regularity between 1853 and 1856, I know of no examples, either seen or procured during the last nine years. It is noticeable, also, from the subjoined records, that these birds usually visit us in autumn, appearing singly and in various stages of plumage; but occasionally a straggler is met with during the summer months, at which time they are more frequently observed in the southern counties.

“1853, August 23. A nearly adult male, near Wymondham, now in the collection of Mr. Newcome, of Feltwell. This is no doubt the same bird recorded by Mr. Gurney in the ‘Zoologist’ (p. 4053) as killed ‘near Norwich’ about the same date.

“1855, August 14. An adult male was killed at Hevingham, and came into the possession of Mr. Alfred Master, of Norwich, whose brother, Mr. George Master, of Duke Street, Grosvenor Square, London, has another Norfolk specimen, which, strangely enough, some three or four years before, was shot in the same locality, and, I believe, from the same tree, during the cherry-season, the man who killed it being engaged on his cherry-tree at the time. On the 23rd of the same month, a male was killed at Sherringham, which is, I believe, in Mr. Upcher’s possession.

“1856, September. A female, near Yarmouth; and on October 7th, an adult male at Hunstanton.”

Mr. Cordeaux records the occurrence of one on the 26th of August, 1866, on Cottingham Common, near Beverley, and of another near Scarborough in July 1863. Mr. Robert Gray writes that it “has occurred in almost every county of Scotland, from Berwickshire to the Orkneys on the east, and from Wigtown to Sutherland on the west; but I have not heard of its occurrence in any of the outer islands. In 1853 a pair (male and female), which I examined, were shot in the outskirts of Glasgow, and were presented to the Andersonian Museum by Dr. Hugh Colquhoun; and on the 7th of August, 1868, I had an opportunity of seeing a male specimen which had been shot on the previous day by one of Mr. Harvey’s servants at Hundred-acre farm, within two miles of the city. It was seen flying about with a flock of common Starlings. A specimen in my own collection was obtained near Cupar, in Fifeshire, in the autumn of 1863. Specimens have also been obtained in Perthshire, Ross-shire (near Dingwall in several instances), Sutherlandshire, and Caithness-shire. In Aberdeenshire it has occurred frequently. Mr. Angus sent me the stomach of one crammed with beetles, which was shot near Aberdeen in June 1867; and Professor Dickie has obligingly sent me word of another killed about the same time within a few miles of that city.

“Mr. John Wilson has informed me, through Mr. Angus, that in the summer of 1840 the nest of this species was obtained in a burrow in a sandbank near Methlick, in Aberdeenshire. On the nest being destroyed by some boys, the birds removed to another sandhole about a mile distant; but Mr. Wilson does not think they succeeded in rearing a brood.

“In the Orkneys it has occurred several times; and Dr. Saxby states that he shot two specimens at Balta Sound, in Shetland—one on 10th of August, 1860, the other in September 1863. Both were males.” Thompson writes that it “has at uncertain intervals, during summer and autumn, visited all quarters of Ireland, including the range of the most western counties.” It does not appear to have been observed in Iceland; but, according to Mr. H. C. Müller, it has been twice killed on the Færoes—in October 1853 on the Kollefjord, and in September 1855 at

Naalsöe. It has not been recorded from Norway; but Sundevall states that it occasionally visits Sweden, and has even been met with in Lapland. He writes that eight specimens have occurred in Sweden at various times during the last thirty years. It has been met with at least once in Finland, as there is a specimen in the Helsingfors Museum obtained near Åbo. Mr. Sabanäeff does not record it from Northern Russia; but it occurs as far north as Saratoff. Borggreve writes that it has not unfrequently been met with in North Germany during the summer. Most have been shot in Silesia; according to Naumann a male was caught near Halle in 1827. It has repeatedly occurred on Heligoland; and Gätke writes that from eight to ten were obtained there between the middle of July and the middle of August 1855.

Mr. Fischer informs me that one was shot at Bröndshöi, in Denmark, on the 22nd of November, 1866; and Schlegel refers to two instances of its occurrence in Holland—one at Haarlem on the 14th of July, 1856, and another near the village of Erzinge, in the province Groningen. It has also, Baron von Droste writes, occurred at Norderney, in East Friesland, in 1856. Godron writes that it has been obtained near Metz; and Degland and Gerbe state that it sometimes occurs in considerable numbers in the spring migrations in the south of France. Jaubert and Barthélemy-Lapommeraye write that in Provence immature specimens are obtained nearly every year, whilst old birds do not make their appearance so frequently; but when they do, they are invariably in breeding-plumage. In Spain, Mr. Howard Saunders writes, it is “a rare visitant, though it has several times occurred on the east coast, and once near Seville.”

Passing eastward we find it in Italy. Both Savi and Salvadori record the occurrence of this species, which at one time or another has been obtained in almost every province of Italy; and in June 1871 the latter saw two flocks, and succeeded in shooting one specimen; many others were also obtained during the same month. I am also indebted to the Marquis Doria for two specimens obtained at Genoa. In Sicily and in Sardinia it has occurred at rare intervals; and Mr. C. A. Wright, writing on the birds of Malta, states that “this elegant species is rare here, and visits us very irregularly. Examples have been taken in spring, autumn, and winter. A specimen was killed on the 7th of August, 1855, at Citta Vecchia, the old capital of the island; and since then three or four others have been obtained—three of them at the Marsa, at the head of the Grand Harbour; the fourth was a bird of the year, which I purchased in the market in the first week of November 1858. Since then I have not seen any others.” Lord Lilford met with it at Corfu, where, he writes, “they arrive occasionally in great numbers, early in June, and haunt the orchards, feeding almost entirely on mulberries. In 1857 very few visited the island, and I only obtained one specimen; but in June 1858 the mulberry-gardens were full of them for some days, and I obtained specimens in abundance and in all their different states of plumage. As far as my own observation goes, they are not easily approached, and have the same habit as the Golden Oriole, of remaining motionless amongst the thick foliage, allowing the tree in which they are concealed to be shaken or beaten without stirring. These birds remain only a few days on the island, and are well known to the Corfiote peasantry by the name of ‘Mulberry-eaters,’ *σκαμνοφάγοι*.” And, according to Lindermayer and Von der Mühle, it “occurs irregularly in Greece, small flocks appearing in May, and again passing south in August;” but it has never been found breeding in that country, though Lindermayer observed it on the islands in June and July.

It has been met with from time to time in Southern Germany. The Ritter von Tschusi Schmidhofen kindly informs me that it often occurs in Hungary and Seibenbürgen, but seldom in large flocks. Early in June 1871 a flock numbering several hundreds appeared at Ponowitsch, in Krain. He himself shot a female in his garden at Salzburg. Stragglers are observed now and then in almost all parts of Austria; and Dr. Anton Fritsch states that it has repeatedly been obtained in Bohemia, and cites instances of its having been met with at Prague in 1837 and 1838 (*Voboril*), Stiahlan in 1855 (*Ziva*, iii. p. 383), Sezemin near Pardubic in 1859, Sobotka in 1862 (*Fierlinger*), Podebrad in 1865 (*Hoffmann*), Rosendorf near Teitschen in June 1868 (*Zimmermann*), Dobrichovic near Prague in the summer (*Lokaj*), Wittingau (*Mus. Frauenberg*), and on several occasions at Pardubic (*Hromádko*). Messrs. Elwes and Buckley write that in some years it is "very abundant in Bulgaria, but does not come regularly. It is one of the latest summer visitors to arrive, as the flocks do not make their appearance before the latter end of May, when they at once take up their quarters in a sandpit, or bank of earth, and commence nidification. The nests are made at the end of a hole bored in the earth like a Sand-Martin's, sometimes to a considerable depth. The eggs are like a Starling's, but much more glossy and of a paler blue. Near Milchova, in the Dobrudscha, we saw the breeding-place of a large colony; and Mr. Barkley informed us that, in the summer of 1867, a cutting on the Varna and Rustchuk Railway was frequented by two or three hundred of this species." It is by no means an uncommon bird in Southern Russia, and has been referred to by almost all the Russian travellers. Von Nordmann met with it near Odessa. Eversmann writes that it is very common on the Southern Don, the Volga, and the Ural, and northwards to Saratoff and Orenburg; and Radde says that numbers arrive in Southern Russia with the locusts, on which they feed, and in destroying which they are most useful. It is common in Asia Minor, where, as below stated, Antinori met with it breeding; and Dr. Krüper writes to me that "it arrives at Smyrna early in May, and on the 14th of May I saw large flocks. Both this and last year they bred here [at Smyrna] in large colonies, nesting amongst the stones in the mountains. Early in July the young birds appear on the plains; and early in August they all disappear, the last being seen on the 15th of August. During the breeding-season they make raids on the mulberry trees. The young birds eat, besides grasshoppers, large numbers of mulberries. In July thousands are killed and sold for the table." In Palestine, Dr. Tristram writes, "it is not even a winter visitant, but occasionally appears in vast flocks. It is well known to the natives as the Locust-bird, from its habit of preying on that destructive creature, whose flights it generally follows. We found it in 1858, but not in 1864. It has been known to breed in large colonies in Palestine, but not for many years past. So at Smyrna numbers of nests were taken in 1858, while since that year it has scarcely been seen there. The behaviour of the Pastor in Syria reminds us of that of the Waxwing further north, an erratic rather than a migratory bird."

In Africa it appears to be an extremely rare bird; and, indeed, Professor Sundevall doubts its occurrence there. However, Dr. von Heuglin states that he saw one in Egypt, which had been killed on the 25th of August, 1864, near Djizeh; and Loche writes that it is "of accidental and very irregular occurrence in Algeria, generally in spring, with flocks of Starlings." Levillant describes this species from South Africa; but Mr. E. L. Layard says:—"This is denied by all subsequent authors; and I believe the species never visits South Africa. It has certainly

never appeared in any of the collections I have examined; and some have been from up as far as the Zambesi."

To the eastward it occurs through Persia into India. Abbott met with it at Trebizond, and Russell at Aleppo. De Filippi states that it is "very abundant in the Caucasus, Armenia, and the west of Persia, becoming rarer towards the east;" and Dr. Jerdon writes that "it is found throughout the greater part of India, most abundant in the south and south-west, rare towards the north and north-east, and, apparently, not known in Assam and Burmah, unless *P. peguanus*, Lesson, be the immature state of this bird." Major Irby records it from Oudh and Kumaon as "common in flocks in January and February. All the specimens which I examined were of a much paler rose-colour than those which I have seen in the Crimea, where it was very common in May and June;" Dr. Leith Adams speaks of it as "very gregarious, and abundant during the harvest months in the Punjab, and destructive in barley-fields; whole districts have been devastated by this bird. Not seen on the Himalayas; common around Poonah, in the Deccan. It is often seen associating with *Acridotheres tristis*;" and Captain Beavan met with it at Barrackpore in February, and further writes as follows:—"Perulia, Maunbhoom, April 1864. Enormous flocks of these birds may be seen every evening flying to the islands in the lake here, where they roost in trees, together with *Acridotheres tristis* and *Sturnopastor contra*, Herons and Cormorants; but the flocks of *P. roseus* are by far the largest, and, when they rise suddenly from the trees on hearing the report of a gun, create a rushing sound, and appear like a vast animated cloud. They fly, too, much faster than the allied species, and may be easily distinguished from the latter by their arrowy flight, which is very similar to that of the common English Starling. They have only lately been noticed here, and, as the breeding-season of most birds is already far advanced, can scarcely have time, one would think, to get to Western Asia, as supposed by Dr. Jerdon, for the purpose of nidification." Major Franklin records it from the "Ganges between Calcutta and Benares, and in the Vindhyan hills between the latter place and Gurrah Mundela, on the Nerbudda;" and Colonel Sykes obtained it in Dukhun. It was also observed in flocks in January in the Andaman Islands by Captain Beavan; and Mr. E. L. Layard saw it at Point Pedro, in Ceylon. It does not appear to have been met with by any of the Siberian travellers, and is not included by Mr. Swinhoe in his list of the birds of China.

The Rose-coloured Starling bears great resemblance to the common Starling in its habits and mode of nidification. Like that bird it associates in large flocks, and frequents places where cattle are found; it feeds on grubs and insects of various sorts; and stragglers are often met with consorting with Starlings. Von Nordmann has given a long and detailed account of the habits of this species as observed in the south of Russia (Demidoff, 'Voyage dans la Russie Méridionale,' vol. iii. pp. 307-334). He states that in the neighbourhood of Odessa the birds arrive in flocks, but already paired, about the middle of April; their flight and general habits in choosing a roosting-place &c., are very similar to those of the Starling, with flocks of which they may often be seen mingled; but they scarcely ever perch upon the backs of cattle as their congeners do. In spite of their brilliant plumage, a flock of these birds, when perched upon the *Robinia viscosa*, might easily be passed unnoticed, the rosy tints of their plumage harmonizing with the colour of the flowers of that tree. At night they select trees of thick foliage for their roosting-place, and are fond of mounting to the highest branches. They are at this time

insectivorous: their favourite article of diet consists of grasshoppers; and they follow up the flocks of these insects with greediness; indeed it is a common belief in the Crimea that large flocks of the birds foretell the arrival of swarms of these devouring insects; but this is by no means invariably the case. However, the Tartars and Armenians, in consideration of the services of the Rose-coloured Pastors, treat them as sacred birds, notwithstanding the ravages which they commit amongst the ripe cherries, and later on amongst the mulberries, their numbers being increased by the birds of the year, which afterwards separate from their parents till after the moult, when both old and young reunite until their departure in September. Von Nordmann did not actually discover the nesting-place of this species—although, from the appearance of very young birds about the middle of June, he felt persuaded that they had been reared not far from the spot in Abasia where he was. Respecting its habits in India, Dr. Jerdon writes that “it usually makes its appearance in the Deccan and Carnatic about November, associated in vast flocks, and committing great devastations on the grain-fields, more especially on those of the Cholum or Jowaree (*Andropogon sorghus*), whence its familiar name in the south. Mr. Elliot, in his MS. notes, quoted in my catalogue, says, ‘is very voracious and injurious to the crops of white jowaree, in the fields of which the farmer is obliged to station numerous watchers, who, with slings and a long rope or thong, which they crack dexterously, making a loud report, endeavour to drive the depredators away. The moment the sun appears above the horizon they are on the wing; and at the same instant shouts and cries and the cracking of the long whips resound from every side. The Tillyers, however, are so active that, if they are able to alight on the stalks for an instant, they pick out several grains. About 9 or 10 o’clock, A.M. the exertions of the watchmen cease; and the Tillyers do not renew their plundering till evening. After sunset they are seen in flocks of many thousands retiring to the trees and jungles for the night. They prefer the half-ripe jowaree, whilst the farinaceous matter is still soft and milky. When they can no longer get grain they feed on various grasses and other seeds, flower-buds, fruit, and also on insects, seeking them on the ground, but are rarely seen with cattle in India. Their Telugu name is derived from the name of a plant whose fruit they are particularly fond of.’ Mr. Blyth remarks that ‘they visit the neighbourhood of Calcutta only at the end of the cool season, when flocks of them are not unfrequently observed upon the arboreal cotton-trees then in bloom.’ Burgess states that he has seen them busily feeding on the flowers of the leafless caper, a shrub very common in the Deccan on the banks of the larger rivers. Dr. Adams says that ‘it is very abundant in the Punjab, committing great havoc on the grain there.’ In the north-west of India, and in Afghanistan, they devour large quantities of mulberries in spring, hence called the ‘*Mulberry-bird*’ in the north west, disappearing afterwards. They at times, however, feed much on insects, and are called the ‘locust-eater’ in Persia, according to Chesney. They do not breed in this country, quitting the south of India in March, but lingering in the north a month or so longer. It is ascertained that they breed in vast numbers in Syria and other parts of Western Asia, in rocky cliffs. Burgess states his belief that they breed in India somewhere, and was informed by a native that they do not breed in the Ghâts. This, however, is doubtless totally without foundation. Mr. Layard states that one year he saw large flocks of these birds in July, and they remained only a week and then disappeared. They were entirely unknown to the natives. Burgess also states that in 1850, towards the end of August, he saw a large flock

of the Rose-coloured Starlings feeding on insects in an open field. These instances of their appearing so early are very unusual, and more especially their occurrence in Ceylon in July, by which time the young could only have been just fledged. Most of the birds met with in India are, of course, young birds in imperfect plumage." The Rose-coloured Starling breeds in South-eastern Europe and Asia Minor. When on the Lower Danube I was assured that large numbers breed in the neighbourhood of Tschernavoda; but I was too early to have any chance of obtaining their eggs. The best record of their breeding-habits that I know of was published by the Marquis O. Antinori in 'Naumannia' (*loc. cit.*), and translated by Dr. P. L. Sclater in the 'Zoologist' for 1857, p. 5668, as follows:—"The Rose-coloured Pastors began their passage on their northern migration through the neighbourhood of Smyrna this year about the 15th of May; for on this day I found myself in the field and I observed several large flights passing rather from south-west to north-east than from south to north as on the following days. One of these flights passed so close over me that I managed to kill four out of them at one shot. They were all young birds of the first or second year; and as in the whole flight I did not perceive the beautiful red colouring of the old male (which can be easily distinguished in the air) I concluded that it consisted only of young birds of that age. This supposition was further confirmed by the fact that out of the various individuals procured by other sportsmen on the same day not one had the plumage of the third year. I am sure that the complete plumage of the adult is only attained at the end of the third year, perhaps not until the fourth; for some young birds which have been kept in cages in the vicinity of Smyrna since last year have hardly yet attained their full plumage, which is exactly such as is described by Professor Bonelli in Temminck.

"On the 14th of May, when again in the field with Herr von Gonzenbach, we saw an immense multitude of old birds passing at a small elevation over the new English churchyard and alongside and over the old castle which commands the city; and when near a mineral spring called Ligea, on the left of the Gulf of Smyrna, on the 26th of May, about sunrise, I saw, to my great delight, large flights of these birds sitting so closely packed together upon the trees as to make them look as if they were all covered with red flowers. On the 29th, 30th, and 31st of May and following days, up to the 5th of June, the flights were most numerous; after this term they ceased and the birds became stationary. The flights were no longer rapid, high in the air, large in numbers, and directed towards the north, but slow, low-flying, small in numbers, and going in every direction of the compass. The fields were full of them, and the gardens were full of them, and in the villages they sat on the roofs of the houses. These facts convinced us that the birds were nesting in the hills surrounding the Gulf; but in spite of all our efforts, owing to the dense ignorance of the inhabitants, and the unconquerable idleness of the peasantry, we could obtain but very few eggs, for which we had to pay dear, and that not until the 27th of June. As all of these eggs had the embryo more or less developed, and were besides rotten, it was clear that they had been taken whilst under incubation, and had been laid at least a fortnight. The man who brought them told us that he had collected them upon a hill seven miles off in the interior, and that the Turks had caught him in the act, and beaten him and driven him away.

"The possession of these eggs determined Herr von Gonzenbach and myself to undertake ourselves the search for them at once; and on the morning of the 30th of June we set out for the village of Bournatut, where we were assured that the gardens and surrounding hills were full of

Rose Starlings: and we were quite rewarded; for not only on the road which we passed along, but even in the streets of the village, upon the moss-grown walls, and on the trees of the courts and gardens, we had fine opportunities for making close observations of these peculiar birds. Whilst we were waiting for a guide at the door of one of the houses, a young Rose Starling flew through the window into the room, and was instantly captured by the owner and given to us. Many others were around us, following their mothers about with a very peculiar chirp; and we at once perceived that we had come too late to procure eggs.

“After we had promised our guide a good reward for assistance, we set off for the mountains. I must here mention that the rather high and rugged hills which hem in the sides of the Gulf of Smyrna and the valley and Gulf of Bournatut, particularly towards the north, and form the foot of the higher hills, consist of surface-beds of limestone, covered with large erratic blocks of granite of different shapes and sizes. These massive stones, heaped one above another, leave no place for vegetation of any sort except the *Asphodelus ramosus*. Our way then lay northwards towards these pathless mountains; and after a wearisome ascent up the empty bed of a torrent, on whose banks the beautiful *Nerium oleander* and the charming agnocasto grew luxuriously, we arrived, after a good hour, at the foot of the higher range above mentioned. All along our road, in the bed of the torrent, we had found Rose Starlings in great plenty; they came down to drink, first alighting on the ground, and then on the oleander bushes, where they seemed to vanish like magic as they mixed their gay colouring with the flowers of the oleander. We had hardly begun to mount the hill before we noticed another thing; there was not a stone or block which was not covered with the white excrement of these birds, they resorted there in such multitudes; but how great was our astonishment when we saw at a distance of about 200 metres above us the rocks covered with white, looking as if lime had been spread out for 200 yards square! On arriving there we found a real camp and a battle-field in one; the nests were in thousands, some quite open and uncovered, others so concealed among the blocks of stone that it was necessary to turn them over to find them; some were more than a foot below the surface; and others were beyond arm's length. The nests were often so close together as to touch one another. They were made with but little care: the birds content themselves with a slight hollow in the ground, in which are placed some dead stalks of the agnocasto, and, in a few instances, a lining of grass. I observed many in which the eggs lay on the bare earth. This sort of nesting exposed them to a great many enemies, which were roaming about them on all sides. For that reason I said that we had found a battle-field as well as an encampment; for, to give you an idea of the quantity of nestlings destroyed by jackalls, martens, wild cats, rats, &c., judge when I tell you that in a space of about five yards square I counted fourteen pairs of wings and three remains of old ones. Besides, who can tell the number of eggs destroyed by snakes? Indeed it is wonderful how the Rose Starlings can propagate at all in spite of all these enemies; and if, on the one hand, this is due to its immense numbers, so also, on the other side, something must be allowed to the care with which it broods over and watches its eggs, and the quickness with which the young grow and attain their plumage. Although, from what I have before related concerning the migration, they could not have arrived here before the first days of June, and so could not have begun their nests until from the 6th to the 8th of that month, yet it is quite certain that on the 25th (or at most the 27th) of that month the young had left the

nest. Indeed our observations on the spot answer completely to the account given to us by the people in Bournatut on the 30th—namely, that the young with their parents had then already arrived in the gardens four or five days,—and to what was told us by a chasseur whom we met, who said that he had found a great number of young full-fledged in the nest on the 22nd of June in a different locality from this. For this reason we found amongst large numbers of nests only two with young unfledged; all the others were flown. Of eggs we found but very few, all addled, and not more than two in a nest.

“These eggs measure, on the average, 13 lines in long diameter and $9\frac{1}{2}$ lines in short diameter. I say on the average, because we did not find two exactly alike, some being pear-shaped, others elliptical. Some are fleshy white, others pearl-white with a tinge of blue; some have a few small, dark specks at the thick end. The shell is very beautiful, strong, and shining. Although the general number of eggs may be two or three (judging from the number of young which were in company with their parents on the first days of their flight), yet it may nevertheless often amount to four or five.

“The great difference in number between the males and females which I spoke of in my last letter, having found eight males out of ten individuals procured, is reducible to a much smaller proportion; for although the difference exists, it appears greater, because most of the birds were procured at the breeding-time, when the females were passing most of the day on the nest. Another fact leads towards the same conclusion—namely, that the males whilst the females are sitting can go off by themselves in search of grasshoppers, and then, with grasshoppers in their beaks, fly away back to the mountains, no doubt in order to feed the sitting female, or, later in the season, the young. The perseverance with which the Rose Starlings search for grasshoppers seems to have its origin not so much in regard for their own supply of food as in an instinctive desire of destruction or antipathy against them. The Rose Starlings dart down upon them and kill them, uttering continual cries and squalls, and leave the greater part of them untouched on the earth.

“One morning as I was observing, for half an hour together, five Rose Starlings, I saw two or three of them dart down suddenly from the tree to the earth, in order to kill some grasshoppers which appeared between the swathes of a mown field of grass, and leave them without eating them. The birds are so far from shy, that a person can easily remain within four or five paces of them without frightening them; and on the trees they will remain with still greater confidence.

“The old birds are very careful of their young; and directly one of them calls, up comes the male or female directly to lead it out of harm’s way. The young seem able to feed without assistance directly they have flown; and the old ones only lead them about in order that they may find their food more easily. The quick development of the young enables them to leave the old after the expiration of from ten to twelve days; for I assure you that to-day the greater part of the old birds have disappeared, and the young are already assembled together in flocks.”

The eggs of the Rose-coloured Starling somewhat resemble those of the Starling, but are much paler in colour. I have several in my collection, obtained by Dr. Cullen near Kustendjie, in Turkey, which, when first received, were delicate pale French grey in colour, but have now faded nearly to pure white, and, indeed, can only be distinguished to be pale bluish white by

placing them by the side of pure white eggs. In size they vary from $1\frac{3}{40}$ by $\frac{32}{40}$ to $1\frac{6}{40}$ by $\frac{33}{40}$ inch; and the shell is very smooth and glossy in texture, quite as much if not more so than in eggs of the common Starling.

The specimens figured are a magnificent male sent to me by the Marquis Doria, and a young bird of the year, obtained by Dr. Krüper near Smyrna, these and an adult female, also sent by the Marquis Doria, being the specimens described.

In the preparation of the above article we have examined the following specimens:—

E. Mus. H. E. Dresser.

a, ♂, *b*, ♀. Genoa, June 1871 (*Marquis Doria*). *c*, *d*, *e*, *f*, ♂. Parryville, Turkey, May 25th, 1871 (*Robson*).
g, ♂ *juv.* Smyrna, July 24th, 1871 (*Dr. Krüper*). *h*, *i*, *j*, *k*. N.-W. India (*Burton*).

E. Mus. Baron A. von Hügel.

a, ♂ *ad.* Southern Russia, May. *b*, ♀ *ad.* Crimea, May 1869 (*W. Schlüter*). *c*, ♀ *ad.*, *d*, ♂ *juv.* Smyrna, July 1871 (*Dr. Krüper*).

[Faint, illegible text]

Family CORVIDÆ.

Genus PYRRHOCORAX.

Coracia apud Brisson, Orn. p. 3 (1760).

Corvus apud Linnæus, Syst. Nat. i. p. 158 (1766).

Gracula apud Scopoli, Ann. I. Hist. Nat. p. 42 (1769).

Pyrrhocolax, Tunstall, Orn. Brit. p. 2 (1771).

Graculus apud Koch, Baier. Zool. i. p. 91 (1816).

Fregilus apud Cuvier, Règ. Animal. i. p. 406 (1817).

Fregilus apud Swainson, Classif. of B. ii. p. 268 (1837).

THIS genus forms a very distinct group of the Corvidæ, differing more especially in the form of the bill and coloration of the bill and legs. Two species only are included in the genus, both of which are found in the Western Palæarctic Region, and range throughout the Eastern Palæarctic Region to China, being also found in the northern portion of the Ethiopian Region. They frequent rocky portions of the higher mountain-ranges and high cliffs bordering the ocean. In general habits they resemble the Jackdaw, with which species they not unfrequently consort. They are gregarious, even during the breeding-season; but though not very wild, they are wary and cautious. They feed on insects of various kinds, worms &c., and grain; and their note resembles that of the Jackdaw, but is clearer and shriller.

They construct a rather large cup-shaped nest of sticks lined with roots, wool, and hair, and deposit several creamy white eggs, sometimes tinged with pale green, and marked with faint purplish grey and hair-brown blotches.

Pyrrhocolax graculus, the type of the genus, has the bill long, compressed, rather stout at the base, but curved and tapering to a point; nostrils basal, covered by close stiff feathers directed forwards; wings long, pointed, the first quill short, being about equal to the short secondaries, the second shorter than the sixth, the fourth longest; tail moderate, even; tarsus long, covered in front with four indistinct large and three inferior scutellæ; toes stout, scutellate; claws rather short, stout, curved, acute.



1. RED-BILLED CHOUGH.
PYRRHOCORAX GRACULUS.

2. ALPINE CHOUGH.
PYRRHOCORAX ALPINUS.

PYRRHOCORAX GRACULUS.

(RED-BILLED CHOUGH.)

- Coracia*, Brisson, Orn. ii. p. 3 (1760).
Coracia cristata, Brisson, tom. cit. p. 6 (1760).
Corvus graculus, Linn. Syst. Nat. i. p. 158 (1766).
Corvus eremita, Linn. tom. cit. p. 159 (1766, ex Briss.).
Gracula pyrrhacorax, Scopoli, Ann. I. Hist. Nat. p. 42 (1769, nec Linn.).
Corvus docilis, S. G. Gmelin, Reise durch Russl. iii. p. 365, pl. 39 (1774).
Le Crave ou le Coracias, Montbeillard, Hist. Nat. Ois. iii. p. 1, pl. 1 (1775).
Graculus eremita (Gm.), Koch, Baier. Zool. i. p. 91 (1816).
Coracia erythrorhamphos, Vieill. Nouv. Dict. viii. p. 2 (1817).
Fregilus graculus (L.), Cuvier, Règ. Animal, i. p. 406 (1817).
Pyrrhacorax graculus (L.), Temm. Man. d'Orn. i. p. 122 (1820).
Pyrrhacorax rupestris, C. L. Brehm, Vög. Deutschl. p. 175 (1831).
Fregilus europæus, Lesson, Orn. p. 324 (1831).
Fregilus erythropus, Swains. Classif. of Birds, ii. p. 268 (1837).
Fregilus himalayanus, Gould, P. Z. S. 1862, p. 125.
Fregilus graculus, var. *orientalis*, Dybowski, J. f. O. 1868, p. 332.
Fregilus graculus, var. *brachypus*, Swinh. P. Z. S. 1871, p. 383.
- Chough*, *Cornish Chough*, *Red-legged Crow*, English; *Crave*, French; *Steinkrâhe*, *Steinrabe*, German; *Grajo*, *Jucala*, Spanish; *Klushitza-grion*, *Bortevschik*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 255; Werner, Atlas, *Omnivores*, pl. 12; Fritsch, Vög. Eur. taf. 28. fig. 4; Naumann, Vög. Deutschl. taf. 57. fig. 2; Gould, B. of Eur. pl. 219; id. B. of G. B. iii. pl. 62; Roux, Orn. Prov. pl. 137.

Ad. coracino-niger, corpore suprâ chalybeo nitente, alis et caudâ suprâ violaceo-chalybeo nitentibus: rostro et pedibus rubris, unguibus nigris: iride fuscâ.

Juv. adulto similis sed colore obscuriore, pedibus et rostro sordidè rubescenti-aurantiacis nec rubris.

Adult Male (Islay, Scotland, November 1867). Entire plumage jet-black, glossed, more especially on the upper surface of the body, with steel-blue; upper surface of the wings and tail more richly glossed with steely violet; iris brown; beak and legs vermilion red, the former almost coral-red; claws black. Total length about 16½ inches, culmen 2·0, wing 10·9, tail 5·5, tarsus 2·07.

Female. Undistinguishable from the male in size or plumage.

Young. Resemble the adult, but are duller in colour. Mr. J. Lumsden, jun., informs me that he has had

the young from the nest of various ages, and has carefully noted down the colours of the beak and legs. When the bird has short feathers, and before it is able to fly, the beak and legs are pale dull brownish orange; but as the bird grows these soft parts gradually become reddish orange, and then red as in the adult.

ESSENTIALLY a frequenter of rocky localities, the Chough is a tolerably local species; but its range extends throughout Central and Southern Europe, and Northern Africa eastward to China.

It is met with in Europe as far north as Great Britain, where it inhabits the cliffs which fringe our coasts, but is a very locally distributed bird, and does not seem to have ever been observed on our east coasts, except in Berwickshire, though found on the south and west side of England. Mr. A. G. More writes (*Ibis*, 1865, p. 132) that it inhabits "the rocky headlands of the south and west coasts from the Isle of Wight to Ross and Sutherland. . . . According to Pennant it formerly nested on Dover cliffs; he states that a pair brought from Cornwall escaped and stocked these rocks, though the well-known passage from Shakespeare seems to imply an earlier origin. It is believed to be now extinct in Sussex and Kent; and a very few pairs now remain on the Isle of Wight and at Purbeck. On the east coast a few pairs only are known to breed, about St. Abb's Head and near Fast Castle, in Berwickshire." In a letter from Mr. Cecil Smith, of Taunton, that gentleman writes to me as follows:—"In three of the western counties (Cornwall, Devon, and Dorset) the Chough is pretty common in such localities as suit it, and is, thanks to its having crept into the Sea-bird Act, increasing in numbers, especially in North Devon. In Somerset it appears to be nearly extinct. Not very long ago a few used to breed regularly on the cliffs near Mine Head; but one year their nests were destroyed by some masons who were employed about the harbour-works, since which time these birds have never returned to their old quarters. The last appearance of the Chough in Somerset that I have heard of was in April 1868, when a pair made their appearance at Bagborough, just under the Quantock Hills, but quite away from the sea, and appeared disposed to build in the church-tower, but were unfortunately shot by the keeper after they had been about there for a few days. These two birds were supposed to be escapes; but I examined them soon after they were killed, and could find no trace of their having been in confinement: they were perhaps tamer than usual; but I have seen Choughs in other places come about houses for food, especially about the lighthouse at Lundy Island, much as I was told these birds did at Bagborough. The stomach of one of these birds which I examined contained a few oats, probably picked up about the stable-yard, some grubs, and several half-digested remains of earwigs. At Lundy Island and on the opposite coast of Wales there are a good many Choughs, and, as in North Devon, they are probably increasing in numbers since the Sea-bird Act. I hope they may soon reestablish themselves in Somerset. In Guernsey I have found the Chough common in most parts of the island; indeed it appears very much to take the place of the Jackdaw, which is not numerous there. I have also seen a good many in the islands of Jattoo, Herm, Sark, and Alderney." Mr. Howard Saunders informs me that "it is tolerably abundant at Lundy Island, off the coast of North Devon, and, where not persecuted, is found along the greater part of the Devon and Cornish precipices. It is less abundant in Dorsetshire. It is common in many parts of Wales; and in the lofty crags of the north-west of Ireland it is really numerous, as also at Rathlin Island." Yarrell states that it is found in the Isle of Man, especially in the southern part and the rock

called the Calf of Man. In Scotland it is much less numerous than in England; and Mr. Robert Gray writes (*B. of W. of Scotl.* p. 162):—"It appears to have been at no distant date a much commoner bird than it now is, and to have inhabited inland situations from which it has now utterly disappeared. The Chough is mentioned by Don in his Forfarshire list as a resident species in the mountains of Clova, and is likewise referred to by Pennant, who states that he found it 'in the furthest parts of Glenlyon and Achmore.' About the same period it appears to have frequented the rocks at the Corra-Linn Falls, on the Clyde; and twenty years afterwards, namely in 1794, the Rev. John Lapslie included the species in his list of birds found in the parish of Campsie, in Stirlingshire.

"The most recent instance of the bird being met with in an inland locality is one which was shot and preserved at Crowfordjohn, in Lanarkshire, in the winter of 1854. In all these localities the Chough has long ago become extinct; and the species is now wholly confined to the sea-coast. Yet in many places once distinguished for Red-legged Crows, it has of late years become very scarce. Thus at Burrow Head and the Mull of Galloway on the south-west coast, Troup Head on the north, and St. Abb's Head on the south-east, the bold and precipitous rocks fronting the sea were at one time inhabited by considerable numbers of these birds, while now a few straggling pairs are all that remain; indeed it may be questioned if a single Chough has been seen at either Troup Head or St. Abb's for the last ten or fifteen years. It would almost seem as if some fatality were connected with the Chough in this country, as in nearly all the old and now deserted haunts of the species which I have visited I can find no apparent cause for its disappearance.

"That the encroachments of man can have had little or no bearing on the subject is, I think, evident, from the fact of the Chough's haunts being for the most part remote and inaccessible." It is, he adds, still found on the west coast of Skye, where it breeds in limited numbers; and on the south coast of Ayrshire, and along the coast of Wigtownshire, extending to the Mull of Galloway, Burrow Head, and the borders of Kirkcudbrightshire it is still sparingly met with, though in some spots where flocks might have been seen twenty years ago, a solitary pair at most remain. In Ireland, Thompson writes (*B. of Ireland*, i. p. 298), it is "more generally diffused around the rock-bound shores of Ireland than British authors would lead us to believe it is on those of Scotland and England. It may be met with in such localities in the north, east, south, and west of the island." It does not inhabit Greenland, Iceland, the Færoes, Sweden, or Norway, nor has it been met with in Finland; but my collector in Archangel assures me that he has seen it there, and describes the bird with great accuracy. Sabanæeff states that it is common in the Ural from Tagela, and is by no means rare in the Ekaterinburg and the Krasnoufim Ural; but neither Hoffmann nor Eversmann mentions it. Borggreve writes that it does not occur in North Germany, nor has it been met with in Denmark. Baron De Selys-Longchamps inserts it in his work on the fauna of Belgium on the strength of Degland's assertion that he obtained it in the market of Lille in 1825; and Degland and Gerbe state that it is merely of accidental occurrence in the north of France, though resident in the Alps, Pyrenees, and the high mountains of Provence. Mr. Howard Saunders informs me that he observed it on the coast of Brittany. Professor Barboza du Bocage speaks of it as being not rare in Portugal; and Dr. E. Rey writes (*J. f. O.* 1872, p. 145)

as follows:—"I found this species very common in the valley that runs from Villa do Bispo down to the Atlantic Ocean. They passed to and fro with such regularity that I could kill several without any trouble at all. At the end of the valley I found the nests, but in a place where I could not possibly reach them. This colony was composed of thirty or forty pairs, some of which were busy building; and this was the reason for their regular flight, as they were bringing from the fields the roots of different plants for their nests."

The various authors on Spanish ornithology record it as found in that country: Mr. Howard Saunders speaks of it (*Ibis*, 1871, p. 221) as being "abundant in the mountain districts, especially at the back of the Sierra Nevada, where it appeared to be more numerous than *P. alpinus*." Dr. A. E. Brehm observed it in several localities in Spain, especially near Murcia, where it is said to have settled only a few years ago. It is a resident in that country. Passing eastward, again, I find it recorded by Bailly as "sedentary in Savoy, but nowhere numerous; and the only localities where it may always be met with during summer are the Alps of Maurienne, Mont Cenis, especially near the summits of perpetual snow, and the higher portions of Faucigny. It is furthermore met with in the more elevated regions of the Bauges and Tarantaise, where scattered pairs may be seen, which, however, after the period of nidification, leave these localities to resort to more elevated portions of the Alps." In Switzerland, according to Naumann, it is everywhere rarer than the Alpine Chough, and inhabits the most elevated portions of the country, as the Ormonder Mountains, near Aigle, in Canton Leman, the mountains of Wallis, St. Bernhard, and the southern chain of the Alps generally, which divide Wallis from Italy. In Italy it is met with throughout the mountainous parts of the country, and in the Islands of Sicily and Sardinia; in which latter island, Mr. A. B. Brooke writes (*Ibis*, 1873, p. 248), it is common on the higher ranges in the centre of the island, but there are none in the Monte-Limas range. In Southern Germany it is stated by Naumann to occur, though very rarely, in Bavaria, Styria, Kärnthen, and the Tyrol, and equally rarely in the Jura and Vogesen Mountains; but Seidensacher informed me that he had only seen the Alpine Chough in Styria; and later authors on South-German ornithology make but little reference to the present species. Both Von der Mühle and Lindermayer record it from Greece. The former states that it is most common on the Œta Mountains, in Rumelia; and Lindermayer writes that he met with it on Mount Hymettus, and further north on the Parnassus, the Œta Mountains, on Taygetus, the Parthenon Mountains, near Tripolizza, and in Acarnania. Neither Lord Lilford nor Messrs. Elwes and Buckley ever met with it in Turkey proper; but the latter gentlemen remark (*Ibis*, 1870, p. 191) that they got a specimen from Mr. Robson which was obtained at Kara Hissr, in Asia Minor. Professor von Nordmann says that it does not inhabit the portion of Southern Russian where he collected, but that it is abundant in the Caucasus. Canon Tristram says that he never observed the common Chough in Palestine; nor has it been recorded from Egypt; but it is said by Von Heuglin to inhabit the mountains of Arabia Petræa, and is found in Abyssinia, in which latter country Mr. Blanford writes (*Geol. & Zool. of Abyss.* p. 395) that he once met with it on the Wadela plateau, near Gazo, at an elevation of 10,500 feet, but did not secure a specimen.

In North-west Africa it is stated by Loche to inhabit only the highest mountains of Algeria, such as those near Djelfa and Boghar, where it breeds. Mr. O. Salvin says that he used not unfrequently to see it about the hills which surround the plain that holds the Marsh of Zana;

and Canon Tristram writes (*Ibis*, 1859, p. 292) as follows:—"The Chough is very local, and known to the Arabs by the name of 'Ogreeb Hamraiah' (the Red Crow). It came under my observation only at two very distant points on the edge of the Sahara, viz. the cliffs of Bokhari, south of Algiers, and the gorge of El Kantara, south-east of Constantine, the key of the desert and the first of the oases. In both these localities I obtained eggs—in 1856 at Bokhari, in 1857 at El Kantara. The Chough thus barely gains a claim to be held a bird of the Sahara, not penetrating so far south as his rival and persecutor the Jackdaw, though in winter he descends beyond Biskra to feed, returning to the cliffs at night. It is interesting to observe one of our northern coast-birds in a scene so strangely different, and bearing a similar relation to the Jackdaw as he does on the English cliffs. The Alpine Chough has not yet been observed in Algeria." Mr. C. F. Tyrwhitt-Drake observed it at Tetuan; and it also inhabits the island of Palma. Mr. F. DuCane Godman remarks (*Ibis*, 1872, p. 214), "it is singular that this bird, which is so very common in the island of Palma, should not occur elsewhere in the Archipelago. It breeds in the clefts of the walls of the old crater. I can detect no difference between the Palma birds and those I have in my collection from other parts of Europe."

The Asiatic Chough has been by many authors considered to be specifically distinct from the European bird, and was first described as distinct by Mr. Gould (*l. c.*) under the name of *Fregilus himalayanus*, chiefly on account of its larger size; but after a careful examination of a large series of specimens from various localities in Europe and Asia, I cannot find any specific distinction. In coloration there is certainly no difference; and as regards measurements, the following table will show how specimens from the same locality vary in size:—

	Culmen. inches.	Wing. inches.	Tail. inches.	Tarsus. inches.
Islay, Scotland, ♂, ♀	1.90–2.4	10.5–11.9	5.5–6.0	2.07–2.3
Dorsetshire coast	2.1	10.3	5.5	2.05
Palma, Canaries, ♂, ♀	2.20–2.5	10.2–11.0	5.7–5.8	2.00–2.1
Kara Hissr, near Trebizond	2.1	12.0	6.2	2.0
Himalayas	2.1	11.5	6.2	1.1
Darjeeling	1.95	11.9	6.1	2.05
Bussahur	2.15	11.4	6.4	2.1
Sikkim	1.90–2.5	11.3–12.4	6.4–6.7	2.10–2.35
Hwaitai Hien, China	1.98	11.0	6.2	2.1

Mr. Blanford gives the measurements of specimens from Sikkim as follows:—Male. Bill from gape 2.3 inches, wing 12.75, tail 6.5, tarsus 2.4. Female. Bill from gape 2.0–2.3, wing 11.5–12.3, tail 5.8–6.8, tarsus 2.2–2.35. And he compares them with a male from Switzerland, which measured—bill from gape 2.41, wing 12.17, tail 5.52, tarsus 2.07.

As will be seen from the above specimens, those from Scotland and Sikkim vary most, and the largest of those I have measured is one from Sikkim obtained by Captain Elwes; but another from the same locality is as small as the average of Scotch specimens.

To the eastward the common Chough is found in suitable localities as far as China. De Filippi observed flocks of this species and *P. alpinus* at Demavend; and Mr. Blanford writes that it is "common in many of the Persian hills. I met with it first between Bampúr and Narmashír,

in April, at not much more than 4000 feet above the sea, and thence saw it here and there throughout the country, by no means keeping always to the highest elevations; for I saw many in June at a place barely 5000 feet above the sea-level. Indeed, to the north they appeared to range higher than to the south, keeping to the higher parts of the Elburz for instance;" to which Major St. John adds:—it "is very common in Western Persia in suitable localities, and keeps in immense flocks. I have never seen it in the lower valleys. *P. alpinus* is certainly much less common. The only time I have seen it was when the specimen in the collection was obtained on the Kotal-Doktar pass, between Bushire and Shiráz, 4000 feet above the sea."

Severtzoff says (Turk. Jevotnie, p. 63) that it is resident throughout Turkestan, being met with during the summer at an altitude of from 8000 to 14,000 feet, but in winter is found lower down. In India, Dr. Jerdon writes, it is "found in the Himalayas in flocks near the snows, some of them migrating with the Jackdaws to the plains of the Punjab in winter;" and Dr. Leith Adams says that it abounds in Kashmir. It is recorded from South-east Siberia by Dr. Radde and Dr. Dybowski, the former of whom states that he observed it when ascending the Sochondo, as well as near the Munko-Sardik above the tree-growth, and in the latter mountains even as high as the glaciers; and Dr. Dybowski writes (J. f. O. 1868, p. 332) that it is resident in Dauria, and in some localities (as, for instance, at Kira, Bukukun, and Altan) it builds on the roofs of dwelling-houses and in the churches. He says that the natives hold this bird in great esteem, and believe that where it is found no deaths can occur from bites of mad dogs. Should a person be bitten by a mad dog, he goes to where the Choughs are found; and should they meet him flying round and uttering their loud cry, it is believed that he will recover, but if not, then he will die. Dr. Dybowski was informed at Kira that since the birds settled and commenced to breed there no one had been bitten by a mad dog. In some notes communicated by Dr. Dybowski to Mr. Taczanowski it is stated (J. f. O. 1872, p. 454) that it is found in the steppes near Lake Kosogol, and breeds in the rocks near the Onon river, where he observed them in March carrying building-materials for their nests.

Mr. Swinhoe states that it inhabits North China, and has been procured near Tientsin; and Père David says that it is common and resident in all the high mountains of North China and in Mongolia. But I do not find it recorded from Japan. According to Mr. Swinhoe (Ibis, 1866, p. 131) there is a specimen in the India Museum labelled as being from Java; but further proof as to its occurrence there appears to be wanting. It does not occur in the Nearctic Region.

In its habits the Chough, like the Jackdaw and the Rook, is gregarious; and even during the breeding-season it forms small colonies. It is essentially a rock-frequenting bird, and breeds in the rocks, placing its nest in some deep fissure or cave, generally in an inaccessible position; but sometimes, as above recorded by Dr. Dybowski, it breeds in church-towers and even in the roofs of dwelling-houses. It is a resident wherever it is found, only moving somewhat lower down the mountains in the winter season, probably shifting its quarters to a more suitable place for obtaining food. It feeds on small insects of various kinds, grubs, beetles, &c., and to some extent on grain. Some authors affirm that it feeds on carrion; but I find no confirmation of this statement. It searches for its food in the pastures and amongst the rocks, and walks about with ease after the manner of the Rook or Jackdaw. Its flight is irregular, something like that of the Jackdaw; and it is said to indulge not unfrequently in gambols and evolutions of various

sorts on the wing. Its note somewhat resembles that of the Jackdaw, but is clearer and more shrill.

Captain Elwes, who has had ample opportunities of observing the habits of the Chough, both in Scotland and elsewhere, sends me the following note:—"The Chough is found in the island of Islay in considerable numbers, but strangely enough does not appear to frequent any of the northern or outer Hebrides. It is most abundant on the west side of the island, about Kilcho-man, where at least forty or fifty pairs roost every evening in the cliffs above the church. They do not associate with the Jackdaws which resort to the same roosting-place, but keep together in small flocks, soaring up and down about the rocks, with their broad rounded wings widely spread, and showing the tips of the quills separated and curving upwards. Their flight at this time is something like that of a Woodpecker, but without much forward motion; and their wild peculiar cry, which may be heard at a great distance, is constantly uttered. The birds appear to be always in pairs, even in winter, and probably pair for life, like the Raven. In the morning they disperse over the island in small parties, feeding on the grass-land and about the roads, where they turn over the droppings of cattle in search of insects. Though not so wild as the Raven or Crow, they are, like other members of their family, wary birds, easily alarmed, and not to be approached very closely if they see you take notice of them. Their flight when moving about the country is strong and hurried, but not rapid; and their course is very erratic, and never in a direct line like that of a Rook. It breeds in May, making its nest in holes and fissures in the cliffs, where it is most difficult to get at them.

"The Himalayan Chough, though somewhat larger in size, does not differ in habits or cry from the British bird. I found it abundant in the Lachen and Lachoong valleys of Northern Sikkim, at from about 9000 to 16,000 feet elevation, but not on the Cholá or any of the outer ranges. It feeds about the yakherds' camps, turning over the dung and stones for insects; but it also eats seeds and berries.

"In Lycia, the south-western part of Asia Minor, I also found this bird in 1874. It frequents the high mountains near the coast, but descends to the plains to feed. I procured one specimen, which is exactly similar to others from different parts of Europe."

The nest of the Chough, which, as above stated, is usually placed in a fissure in the rocks, is a tolerably large structure, constructed of old sticks and well lined with roots, wool, and hair; and the eggs, from four to five in number, are pale creamy white, some having the ground-colour almost white, whereas others have it darker and with a faint greenish tinge, and all are marked with faint purplish underlying shell-markings and hair-brown surface-spots and blotches, some being but slightly marked, whereas others are tolerably closely covered with spots and blotches. In size a series in my collection, from Lundy Island and the Welsh coast, vary from $1\frac{17}{40}$ by $1\frac{2}{40}$ to $1\frac{30}{40}$ by $1\frac{6}{40}$ inch.

The specimen figured, on the same Plate with *P. alpinus*, is one obtained at Islay by Captain Elwes, being the bird described, and is in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

- a.* Islay, Scotland, November 1867 (*H. J. Elwes*). *b.* ♂. Islay, 1867 (*Crawshay*). *c.* Dorsetshire coast.
d. Darjeeling, India, 1873 (*A. Anderson*). *e.* Kashapant, Bussahur, India, February 21st, 1871 (*Capt. Marshall*). *f.* Lachen valley, Sikkim, October 5th, 1870 (*W. T. Blanford*).

E Mus. H. J. Elwes.

- a.* ♂, *b.* ♀. Islay, Scotland, March 1867 (*H. J. E.*). *c.* Kara Hissr, near Trebizond (*Robson*). *d.* Himalayas (*Tweedie*). *e.* Sikkim (*H. J. E.*). *f.* Hwaitai Hien, China, September 20th, 1868 (*R. Swinhoe*).

E Mus. Salvin and Godman.

- a.* ♂, *b.* ♀. Palma, Canaries, May 4th, 1871 (*F. D. Godman*). *c.* ♂, *d.* ♀. Islay, Scotland (*H. J. Elwes*).

E Mus. Howard Saunders.

- a.* ♂. Islay, Scotland, March 1864 (*A. W. Crichton*). *b.* ♂, *c.* ♀. Swanage, Dorset, December 24th (*R. Haynes*).
d. ♂, *e.* ♀. Sierra Nevada, Spain, January 1873. *f.* ♂. Near Malaga, Spain, February 2nd, 1872.

E Mus. Ind. Calc.

- a.* ♀. Near Niriz, east of Shiraz, June 4th. *b.* ♂. Abádeh, June (*Major St. John*). *c.* Elburz Mountains, January. *d.* Elburz Mountains, February (*W. T. Blanford*).

PYRRHOCORAX ALPINUS.

(ALPINE CHOUGH.)

- Corvus pyrrhocolax*, Brisson, Orn. ii. p. 31, pl. 1. fig. 2 (1760).
Corvus pyrrhocolax, Linn. Syst. Nat. i. p. 158 (1766, ex Briss.).
Le Choquard ou Choucas des Alpes, Montbeillard, Hist. Nat. Ois. iii. p. 76, pl. 6 (1775).
Pyrrhocolax, Vieill. (*Choucas des Alpes*, Montb.), Analyse, p. 36. no. 95 (1816).
Pyrrhocolax alpinus, Koch, Baier. Zool. i. p. 90 (1816).
Pyrrhocolax pyrrhocolax (L.), Temm. Man. d'Orn. i. p. 121 (1820).
Pyrrhocolax alpinus, var. *digitata*, Ehr. Symb. Phys. fol. z (1829).
Pyrrhocolax montanus, C. L. Brehm, Vög. Deutschl. p. 176 (1831).
Frigilus pyrrhocolax (L.), Swainson, Classif. of Birds, ii. p. 268 (1837).
Pyrrhocolax planiceps, C. L. Brehm, Vogelfang, p. 61 (1855).
- Choquard des Alpes*, *Choucas des Alpes*, French; *Alpendohle*, *Alpenkrähe*, German; *Grajo*, Spanish; *Gracchio*, Italian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 331; Werner, Atlas, *Omnivores*, pl. 11; Fritsch, Vög. Eur. taf. 28. fig. 5; Naumann, Vög. Deutschl. taf. 57. fig. 1; Gould, B. of Eur. pl. 218; Roux, Orn. Prov. pl. 138.

Ad. niger, dorso et collo cum pectore purpureis, alis et caudâ suprâ chalybeo nitentibus: rostro flavo: iride fuscâ: pedibus rubris, unguibus nigricantibus.

Juv. sordidior, nitore nullo: rostro nigricante, ad basin flavo: pedibus nigricantibus nec rubris.

Adult Male (Switzerland). Entire plumage glossy black, with purple reflections on the back, and to a slight extent on the neck and breast, and a rich bottle-green gloss on the wings and tail; beak yellow, with an orange tinge; iris brown; legs and feet dark vermilion-red; soles blackish; claws blackish horn. Total length about 15·5–16 inches, culmen 1·2, wing 10·3, tail 6·0, tarsus 1·7.

Female. Similar to the male.

Young (*fide* Bailly, Orn. Sav. ii. p. 147). On leaving the nest the young birds have the plumage dull and brownish in tinge; the beak is yellowish at the base, but otherwise blackish; the legs are blackish, with a little red only in the articulations. After the first moult (say, about the end of September) the tarsi are nearly brown and the beak yellowish, and a few greenish reflections may be observed on the new feathers, especially on the wings. In the following spring, before the month of May, they attain the full adult plumage.

THIS Alpine bird has even a more restricted and local range than the Red-billed Chough, being

almost solely restricted to the larger mountain-ranges in Europe, and found in Asia in the elevated ranges of the Himalayas.

It does not occur in Great Britain, Scandinavia, nor in Northern or Central Europe, except in the elevated mountain districts of the latter. It has not been recorded from other portions of France besides the Alpine districts, in the south-eastern departments, and in the Pyrenees; and even in Provence it is rare and confined to the most elevated districts. Professor Barboza du Bocage includes it in his list of birds found in Portugal, without comment; and Dr. E. Rey writes (J. f. O. 1872, p. 145) that he shot one near Sagres in that country, but never observed it on any other occasion. It has, however, been met with in Spain; and Dr. A. E. Brehm states that in the more elevated mountains throughout that country it is not rare, and is resident. Near Murcia it is always to be met with, he adds, at an altitude of about 800 feet. Mr. Howard Saunders also records it (Ibis, 1871, p. 221) from Southern Spain, where, he says, it frequents the same localities as *P. graculus*, but at a higher altitude. Passing eastward we find it common in Switzerland and Savoy, where, Bailly says, it inhabits the entire chain of the Alps, frequenting the most elevated regions during the summer, and only descends from these heights during severe weather; and Salvadori writes that it inhabits the Apennines and their spurs, but has not been authentically recorded from Sicily or Sardinia. Lord Lilford writes (Ibis, 1860, p. 136) that he has had many opportunities of closely observing its habits in the mountains near Nice and in Piedmont, and he adds that he observed a pair in Epirus, in May 1857, when chamois-hunting in the Acroceraunian mountains above Khimàra, about forty miles north of Corfu; and it is recorded by both Von der Mühle and Linder Mayer from Greece, where it is a resident in all the mountain-ranges, descending in flocks into the lowlands during winter. Mr. Hudleston saw numbers on Mount Parnassus and the Taygetos; and Linder Mayer says that it breeds on the first-named mountain. I do not find it recorded from Turkey; but it occurs in Southern Germany; and the Ritter von Tschusi-Schmidhofen says (J. f. O. 1873, p. 149) that a flock of from twenty to twenty-five individuals frequented the Kapuziner and Mönchs Mountains in Southern Austria, and were often seen on the fortress; and he adds that in severe winters it is not unfrequently seen in the streets of Salzburg. Sabanäeff, in his MS. notes on the ornithology of the Ural, does not include the present species, but only *P. graculus*; but Eversmann states (J. f. O. 1853, p. 290) that *P. alpinus* is also met with in the more rocky portions of the Ural, though very much rarer than the common Chough. I have no data as to its occurrence in Asia Minor; but Canon Tristram met with it in Palestine when crossing the Lebanon, and found it in considerable numbers near one of the highest passes south of the Ainat, always, however, in parties of five or six, but distributed along the whole ridge. Hemprich and Ehrenberg record it (*l. c.*) from Syria; and it has been said to occur in North-east Africa; but it appears that the data as to its occurrence there rest on very slender grounds, as only Hasselquist records it from Egypt, and none of the later collectors have met with it. Von Heuglin observes that, according to Dr. Schimper, it has been met with at Semién, in Abyssinia, but he himself never observed it in any part of North-east Africa; and Captain Shelley states that he considers its occurrence in Egypt very doubtful. It has not been recorded from North-west Africa; and although Von Heuglin says that Bolle met with it on the Canaries, this is a mistake, as the species referred to by Dr. Bolle is *Pyrrhocorax graculus*, and not the present species.

To the eastward it is met with as far as the Himalayas. Messrs. Blanford and St. John record it from Persia as "common on the slopes of Demavend, the high volcanic cone north-east of Tehrân;" and Mr. Blanford adds that he himself did not meet with it. Severtzoff states that it is resident in Turkestan, in the south-western district, at an altitude of from 8500 to 10,500 feet, and occurs during the summer as high as 14,000 feet. Dr. Jerdon (B. of India, ii. p. 319) writes that it inhabits the higher ranges of the Himalayas, where it lives in flocks, and feeds on various fruits. Further east than the Himalayas it does not appear to occur, and I do not find it recorded from China, where *P. graculus* alone occurs.

In its habits the Alpine Chough closely resembles our British red-billed bird; but it is more especially an alpine bird, frequenting the more elevated portions of the mountains in the immediate vicinity of the glaciers and eternal snow.

Its flight is swift; and it frequently hovers or glides with outstretched wings in circles, especially when descending from any altitude, or when ascending. It usually flies at a great altitude; and when it descends into the valleys it is a sure sign of snow or rain. Naumann remarks that this species foretells the weather with great accuracy, and that should it, after having taken up its quarters in the high mountains in the spring, return to the less-elevated localities, it may be taken for granted that there will be a fall of snow.

It feeds on insects of various descriptions (which it either picks up off the ground or searches for amongst the crevices of the rocks), seeds of various sorts, berries, and grain; and it is said to cause no little damage amongst the freshly sown grain of the mountain peasants when other food is scarce. As a rule it is a wary and shy bird, difficult of approach, and suspicious of any intruder, even when it inhabits localities where a human being is rarely seen, and there cannot have been any molestation on the part of man. When in captivity, however, it is stated by Bailly to become exceedingly tame, and exhibits the greatest attachment to its master.

Its note is said to resemble somewhat that of the Jackdaw; and Naumann compares it to the syllables *krü, krü, këou*, and says that another note resembles the words *jaik, jaik*. Bailly says that when flying backwards and forwards with food to their young they continually utter plaintive cries, which he compares to the syllables *kïa, kïa*. During the spring and summer the Alpine Choughs live in pairs or, when the young are hatched, in families; but late in the season they join and form large flocks, which frequently contain a very large number of individuals. According to Bailly they pair for life, and are remarkably true to each other. About the end of March or the commencement of April they take possession of their breeding-places, which, should they not be disturbed, they use year after year in succession; and about the middle of April or early in May, according to the altitude where the nesting-place is, they commence to construct or repair their nest, which is placed in a fissure in the rocks or in an old cave, or else amongst the ruins of some old deserted tower or castle. The exterior portion of the nest, which is a large and bulky structure, is composed of twigs, grasses, and roots worked together and intermixed with lichens and mosses; and the inside lining is composed of leaves, hair, and fine roots. The eggs, from four to five in number, are incubated by both male and female in turn, the term of incubation being about eighteen or nineteen days; and when the young are hatched they are tended with the greatest care and solicitude by their parents.

I possess eggs of the Alpine Chough, obtained in Switzerland, which resemble those of our

common British species (*P. graculus*), but are smaller in size, measuring only from $1\frac{1}{40}$ by $1\frac{2}{40}$ to $1\frac{1}{2}$ by $1\frac{3}{40}$ inch.

The specimen figured (on the same Plate with *Pyrrhocorax graculus*) and described is an adult male from Switzerland in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *ad.* Usern, Switzerland (*Nager-Donazian*). *b*, ♀ *juv.* Piedmont, January 1870 (*Count Salvadori*).

E Mus. Howard Saunders.

a, ♂, *b*, ♀ *ad.* Usern, Switzerland, summer. *c*, ♀. Usern, spring.

E Mus. H. B. Tristram.

a, ♀. Pass of Afka, Lebanon, June 18th, 1864 (*H. B. T.*).

Genus NUCIFRAGA.

Nucifraga, Brisson, Orn. ii. p. 58 (1760).

Corvus apud Linnæus, Syst. Nat. i. p. 157 (1766).

Caryocatactes apud Koch, Baier. Zool. i. p. 93 (1816).

THE Nutcrackers are essentially Palæarctic birds, being found only in the Palæarctic Region, ranging south into the Himalayas, with the exception of one species, *Nucifraga columbiana*, which inhabits the Nearctic Region, and which has very generally been separated generically from *Nucifraga* under the name of *Picicorvus columbianus*; but Mr. Sharpe considers that there is no generic distinction between it and our Palæarctic Nutcrackers. Only one species inhabits the Western Palæarctic Region, its range being given in the following article. In habits the Nutcrackers resemble the Jays; but they frequent conifer-woods in the more elevated mountain districts, and feed chiefly on the seeds of conifers, eating also nuts, fruit, and insects. Their flight is heavy and Jay-like, and their note a harsh prolonged screech. They breed very early in the season, when the snow is still on the mountains, and construct a heavy cup-shaped nest of sticks lined with grass and moss, which they place on a conifer tree in the mountains, and deposit pale greenish-white eggs marked with pale liver-coloured dots.

Nucifraga caryocatactes, the type of the genus, has the bill rather long, smooth-surfaced, stout, straight, tapering to a point, gape-line straight; nostrils basal, covered by bristly feathers directed forwards; wings moderately long, broad, the first quill shorter than the secondaries, the second shorter than the sixth, the fourth longest; tail moderately long, broad, rather rounded; legs and feet stout, the tarsus covered in front with six large and three inferior scutellæ; claws stout, curved, acute.



NUTCRACKER.
NUCIFRAGA CARYOCATACTES.
250

NUCIFRAGA CARYOCATACTES.

(NUTCRACKER.)

- Corvus caryocatactes*, Linn. Syst. Nat. i. p. 157 (1766).
Nucifraga guttata, Vieill. N. Dict. v. p. 354 (1816).
Caryocatactes maculatus, Koch, Syst. d. Baier. Zool. i. p. 93 (1816).
Nucifraga caryocatactes, Leach, Syst. Cat. M. & B. Brit. Mus. p. 18 (1816).
Caryocatactes nucifraga, Nilss. Orn. Suec. i. p. 90 (1817).
Nucifraga caryocatactes, Temm. Man. i. p. 116 (1820).
Nucifraga brachyrhynchos, C. L. Brehm, Lehr. eur. Vög. p. 104 (1823).
Nucifraga macrorhynchos, C. L. Brehm, tom. cit. p. 103 (1823).
Nucifraga platyrhynchos, C. L. Brehm, Isis, p. 973 (1833).
Nucifraga hamata, C. L. Brehm, tom. cit. p. 975 (1833).
Nucifraga minor, C. L. Brehm, tom. cit. p. 970 (1833).
Caryocatactes guttatus, Nilss. Skand. Faun. i. p. 149 (1835).
Caryocatactes caryocatactes, Schleg. Rev. Crit. i. p. 55 (1844).
Nucifraga alpestris, Brehm, Naumannia, p. 274 (1855).
Nucifraga arquata, Brehm, tom. cit. p. 274 (1855).

Casse-noix, French; *Nussheher*, *Nussknacker*, *Nusskrähe*, German; *Notenkraker*, Dutch; *Nocciolaja*, Italian; *Nöddekrige*, Danish; *Nötkråka*, *Nötknäcka*, *Nöddekrage*, Norwegian; *Pähkinähakkinen*, Finnish; *Soyka-turecka*, Polish; *Kedrowka*, *Orechowka*, Russian.

Figurae notabiles.

D'Aubenton, Pl. Enl. 50; Werner, Atlas, *Omnivores*, pl. 10; Kjærb. Orn. Dan. taf. 12; Fritsch, Vög. Eur. taf. 13. fig. 10; Naumann, Vög. Deutschl. taf. 58. fig. 2; Sundevall, Sv. Fogl. pl. 19. fig. 4; Gould, B. of Eur. pl. 215; id. B. of G. B. iii. pls. 65, 66; Schlegel, Vog. Nederl. pl. 142.

♂ *ad.* corpore chocolatino-brunneo, pileo et uropygio saturationibus immaculatis: corpore subtus maculis ovatis albis majoribus, supra minoribus numerosis adperso: gula albo striatâ: alis nigris supra nitentibus, secundariis vix albido apicatis: caudâ nigrâ, rectricibus intermediis albo apicatis, quæ albedo in cæteris augetur: supracaudalibus nigris, subcaudalibus albis: rostro et pedibus nigris: iride fuscâ.

♀ *mari* similis.

Pullus adulto similis sed multo sordidior et pallidior: plumis omnibus laxis, maculis sordidè albis terminatis: pileo et uropygio immaculatis: alis et caudâ ut in adulto coloratis sed sordidioribus, tectricibus alarum albo terminatis, supracaudalibus nigricanti-fuscis, subcaudalibus albis.

Adult Male (Upland, Sweden, 12th August). Body above and below blackish chocolate, profusely spotted with drop-shaped white marks, which are largest on the breast and most sparingly scattered towards

the vent and rump, those on the upper part of the throat being long and narrow, not drop-shaped as elsewhere; crown and nape unspotted uniform blackish chocolate; rump very slightly spotted; under tail-coverts pure white; wings black, on the outer web of the inner primaries and secondaries glossed with greenish black, some of the latter with very small white spots at the tip; tail glossy black, on the central feathers narrowly, and on the outer ones broadly terminated with white; legs and bill black; iris dark brown. Total length about 12 inches, culmen 2·2, wing 7·75, tail 5·5, tarsus 1·85.

Female. Undistinguishable from the male in plumage.

Nestling (Bornholm, May 1862). Head, neck, back, and underparts generally dull dirty brown, each feather having the shaft dirty white, which colour in many widens at the tip into a drop-shaped spot, all these feathers being very loose in texture; wings and tail as in the adult bird, but duller in colour; wing-coverts tipped with dull white; under tail-coverts dirty white.

Obs. In the Himalayas there are two forms of Nutcracker, which, though closely allied to our European bird, are still sufficiently distinct to form good species. The first of these (*Nucifraga hemispila*) is, according to Dr. Jerdon, found throughout the Himalayas, chiefly frequenting the pine-forests. In Sikkim it is rare, and is said to be more abundant in the interior, where pine-forests are more prevalent, and occurs at lower levels than in British Sikkim. The second species (*Nucifraga multimaculata*) has only been found on the hills of the North-western Himalayas and Cashmere. Of *N. hemispila* I have one specimen, obtained by Mr. Blandford in Sikkim, at an altitude of 12,000 feet, in the month of September. It differs from *N. caryocatactes* in having the flanks and abdomen unspotted, the upper surface of the body being also only spotted on the upper part of the back; the outer tail-feathers have also much more white on them than in *N. caryocatactes*, covering an area of 2 inches in length against 0·9 in *N. caryocatactes*. Of *N. multimaculata* I have three specimens from the Himalayas, obtained through the late Dr. Jerdon. These differ from *N. caryocatactes* in being much more profusely spotted than that bird, the spots being also much larger; the secondaries, primary coverts, and some of the primaries are also tipped with white, and the white on the tail-feathers covers a somewhat larger area than in *N. hemispila*. The measurements of the various specimens of these three species (*N. caryocatactes*, *N. hemispila*, and *N. multimaculata*) will be seen from the following table:—

		Culmen.	Wing.	Tail.	Tarsus.
		inches.	inches.	inches.	inch.
<i>Nucifraga caryocatactes</i> . . .	Sweden, ♂.	2·2	7·75	5·5	1·85
" " . . .	do. ♀.	1·7	7·2	5·2	1·65
" " . . .	Ural, ♂.	2·05	7·4	5·3	1·6
" " . . .	Piedmont, ♂.	2·0	7·4	5·2	1·7
" " . . .	Switzerland.	1·8	7·5	5·3	1·65
<i>Nucifraga hemispila</i>	Sikkim.	1·75	8·3	6·0	1·75
<i>Nucifraga multimaculata</i> . .	Himalayas.	1·8-1·65	7·9-8·3	6·1-6·6	1·6-1·7

THE range of the Nutcracker extends over the entire northern and central portion of the Palæ-arctic region, from about 63°-64° N. latitude down to Italy in the western portion, and Japan in the eastern portion of that region; but in most localities it appears at irregular intervals—sometimes in large numbers, and at other times either very rare or at least much less numerous. With us in Great Britain it is but a straggler, a single specimen occurring now and then. Pennant (Brit. Zool. App. p. 488) appears to have been the first to record it as a British species,

and states that one was killed near Mostyn, in Flintshire, on the 5th of October, 1753. Mr. Harting, in his Handbook, enumerates altogether nineteen instances of its occurrence in England, five of which refer only to the bird having been seen but not obtained. Latham records the capture of one in Kent; Montagu says one was seen near Bridgewater in 1805, and one obtained in North Devon in August 1808, in which year one was recorded from Cornwall; Yarrell refers to one seen near Hooe Lake, in Cornwall; Selby to one seen in Netherwitton Wood, Northumberland, in 1819; Moore to one obtained in Devon in 1829; Fisher to one obtained near Yarmouth on the 30th of October, 1844; Borrer to one obtained near Alfriston, Sussex, in September 1844; Rusticus to one obtained near Godalming, and one seen near Guildford; Webb to one obtained on Clandon Common, Surrey, in 1847; Green to one obtained off Yarmouth; Robson to one procured near Whitehaven; Foster to one obtained at Wisbeach in November 1859; Rowe to one seen at Saltram, Devon, in October 1862; Stevenson to one obtained at Gorleston, near Yarmouth, in October 1864; Harting to one procured near Wakefield in 1865; and Gurney to one obtained at Christchurch, Hants, on the 6th of November, 1868. In Scotland it has only been recorded as having occurred on four occasions. Macgillivray says that a specimen in the University Museum at Edinburgh is said to have been killed in Scotland; a second, in the collection of Mr. Arbuthnot, of Peterhead, and a third, belonging to Mr. Henderson, of Edinburgh, were both killed in Scotland; and Mr. Robert Gray (B. of W. of Scotl. p. 188) records a fourth as having been obtained at Invergarry, in Inverness-shire, in October 1868. In Ireland it has not occurred.

In Scandinavia it is resident, but much commoner at some times than at others. Mr. Collett informs me that "it breeds here and there in the forests of Southern Norway, but not regularly at the same place. It generally appears irregularly in the autumn in various parts of the country up to Trondhjemsfiord. Printz found a nest at Land in 1854. Periodical appearances of large flocks take place in all parts of the country, as in 1833, 1844, and especially in 1847, and to some extent in the intervening years, in both the southern and western portions of the country up to Trondhjemsfiord. It has often been found breeding, as on several occasions at Porsgrund and Skiensfiord in the years 1840-48 according to Schrader. Of late years there has been no large migration, but this species has been numerous in certain localities, as in Smaalehnene and Nedernæs, Stavanger, Sondfiord, and Oerkedalen. The most northerly known boundary of its range is Stoerdalen in $63\frac{1}{2}^{\circ}$ N. lat." In Sweden, Sundevall (Sv. Fogl. pp. 114, 115) says that, excepting in the year 1844, so remarkable for Nutcrackers, he does not find any certain record of its occurrence further north than Upland and Wermland. In 1844 it was recorded from Quickjock in 67° N. lat., Sorsele in $65\frac{1}{2}^{\circ}$, and Lycksele and Jemtland, and from those localities it was spread southward through Upland, Östergöthland, Wermland, and Bohuslän, to almost all portions of Skåne. Stejneger says that it breeds commonly at Hesselskog, in Dalsland, in the parish of Kihl, in Örebro-Län and Upsala. In Finland, according to Von Wright (Finl. Fogl. p. 80), it is chiefly found in the south-western portion of the country. In 1844 they literally swarmed from June to November, and one was obtained in Kittilä-Lapland in December. He saw two in Laukkas in the summer of 1846; and in 1847 and 1850 several were seen in Rautalampi in September. Mr. Sabanäeff informs us that it breeds, though rarely, in the Governments of Jaroslaf and Moscow, and he has met with it during the summer season

near Toula. In the months of September and October it is tolerably numerous in Central Russia. In the northern portion of the Government of Perm it is one of the commonest species, and is sedentary there. It is always found on the low branches, and feeds on caterpillars, larvæ, and the seeds of conifers. In the north-east it also feeds on the seeds of the cedar, and occasionally destroys eggs and young birds. Mr. Taczanowski confirms what Mr. Sabanäeff tells me respecting its abundance in the Government of Perm, and adds that it abounds in the Solikamsk, Shadrinsk, and Verhotursk districts, but is rare in Ural, southward of Ekaterinburg, though common on the western slope and in the woods in the Ufim district. Mr. Taczanowski also writes to me respecting its occurrence in Poland as follows:—"The Nutcracker comes to Poland during the autumn migration, but not every year, and in very unequal numbers. It is, however, but seldom seen in great quantities. During the whole time I have studied ornithology I have never found it abundant. Since 1844 numerous bands were then met with during the autumn, migrating in the same manner as Jackdaws and Jays, flying dispersed, not at a great altitude, in the same direction. All the forests were full of them. They merely pass through our country, not remaining during the winter. Professor Kessler, after having said that the Nutcrackers are seen every year during migration in greater or smaller numbers in the month of September and in the first half of October (old style), continues as follows:—"A remarkable exception occurred in 1844 during the autumn preceding a very snowy winter: that winter the Nutcracker appeared in the district of Kieff on the 13th of August (old style), and in about three weeks from then all the forests, groves, and gardens were full of them; but soon after they disappeared by degrees. According to Nordmann they were also seen near Odessa, which is an unusual circumstance. Since that time they have been observed in numbers in Poland on only two or three occasions. Since I have taken up ornithology as a study I have but once seen and killed an individual in the summer. This occurred in the month of June; and the bird was moulting, which I did not think could be natural, as it was not the usual moulting-season. Count Wodzicki states that the Nutcrackers breed in the mountains of Galicia."

The Ritter von Tschusi Schmidhofen gives (in a pamphlet lately published) so careful a *résumé* of all the available information as to its range in Germany, that I cannot do better than translate his remarks *in extenso*, as follows:—"In the northern portions it appears in large flocks at irregular intervals, but breeds in many portions in the south. Zander says that it is at times numerous in Mecklenburg in October and November, as in 1836 and 1844; whereas in 1853 and 1859 it was rare, and other years it does not occur at all. In 1864, according to Cordes-Tetrow, it was common throughout Mecklenburg, and numbers were caught in snares, all of which had short thick bills. Mr. E. von Homeyer says that it seldom visits Pomerania, but when it appears it is in large numbers, as in October 1832 and October and November 1836; in 1844 large numbers appeared, and a few remained until the summer of 1845. Hintz watched a pair which frequented the Vangaroe district, near Schlosskämper, throughout the summer of 1853, but did not succeed in finding the nest. In the autumn of 1859 it was again numerous, and, the winter being mild, several remained; and Hintz was told that a pair nested in the neighbourhood of Bütower, and two eggs were taken out of their nest; later on the bird was shot near the nest. In the autumn and winter of 1864-65 numbers again appeared at Quistorp and Manow, and nine were snared in September. In Eastern Prussia the forester Wiese found it

common all along the Russian frontier, especially near Pillau. In the autumn of 1868, according to Kuwert, numbers appeared; and he is of opinion that its appearances there depend on the forest-fires in Russia, as about twenty years previously, when large tracts in Russia were destroyed by fire, the road from Tilsit to Königsberg swarmed with Nutcrackers, which flew singly or in flocks, and settled at intervals, as their flight was heavy, on the trees skirting the road; and the migration lasted more than eight days without interruption. A few remained behind in the forests of Eastern Prussia. In Brandenburg it is rare, and, according to Gloger, not common in Silesia; but a pair were killed in the Sudeten, which belonged to the race named by Brehm *N. brachyrhynchos*. In some seasons numbers are found in the forests in the lowlands, and nest in the lower and central portions of the mountains. Thienemann found an empty nest in the Riesen-gebirge, the first that is recorded in any collection. Mr. A. von Homeyer, who frequently visited the Riesengebirge, often saw it in August 1867 in mixed conifer-growth near St. Anna-Capelle; and as he also observed it on the 16th of May, 1869, at Steinseiffen, it is probable that it occasionally breeds in the mountains of Silesia. Tobias records its occurrence in numbers in Oberlausitz in 1827, 1836, and 1844; and a pair is said to have nested at Neusalz a. O. on a high oak (?), and were so little shy that they could be easily watched. Another pair is said to have nested in the Petersdorfer district; and Thienemann, in a letter, said that a pair bred in Saxony, but when the nest was discovered it contained fledged young. In Anhalt, according to Habicht, a few appeared in the spring of 1851; several pairs were seen in the Georgsgarten, near Dessau; but though they were seen carrying twigs and nesting-materials, the nest could not be found; but Thiele states (Naumannia, 1857, ii. p. 45) that, according to Mr. Schmidt, a gardener, a pair bred there and hatched their young, which were several times seen. The same year it bred in the forest of Oranienbaum, in the district of Glashau, as also in the castle-garden there. The nest was not found; but, according to Picht, two young birds were shot in July. Baron König Warthausen told Blasius that young birds were seen at Oranienbaum from March to July, and several were shot. In 1864 and 1865 Pässler observed it in the autumn; and on the 30th of March, 1868, a youth found in the Netlitzer district a nest containing four eggs, one of which came into the possession of Dr. Baldamus. In Brunswick it appears on the plains in large flocks during migration; and at Hochgeiss, in the Oberharz, it was seen during the nesting-season, and young birds were also observed. In 1820, according to Mr. C. L. Brehm, numbers appeared in Thuringia both in the mountains and the plains; and Speerschneider speaks of it (Naumannia, 1854, p. 175) as by no means a rare visitant, though not equally common every year or in every district. In 1844 and 1845 several were killed at Rudolstadt and Blankenburg; and he met with it commonly at Paulinzelle in 1847. He did not observe it in the more elevated portions of the Thuringian forest. Römer states that it has appeared on five occasions during the last thirty years in Nassau, being usually seen when the hazel-nuts were very abundant.

“Numbers were seen in Hessen in 1821, and appeared even in the gardens of Mainz; and, according to Jäger, it occurred commonly at Wetterau in 1802, 1803, 1804, 1807, 1835, and 1844; and, according to Meyer, it was very numerous in the same years on the Ysenburger forest, where, at the so-called Gehspitze, several were seen in October 1864. Mr. A. von Homeyer saw a large number on migration near Frankfort-on-the-Main in September 1856; and again in 1859 he found it common. Baron von Droste Hülshoff says that numbers were seen in Westphalia in

1825, and a few visited the island of Borkum, off the coast of Holland. Siedhof also states that it was common in East Friesland in the autumn of 1844. In Bavaria it occurs, according to Jäckel, in many localities, being both a resident and a partial migrant in the high mountains the Alps near Salzburg, the forests of Bavaria, and various localities in Central and Upper Franconia. On the 30th April, 1799, Wolf obtained in the mountains near Hersbrück a young bird which had portions of down still amongst the plumage; and a young man who accompanied Professor Hornschuch on his journey to the Tyrol shot a specimen in May 1826, in a fir-wood near Regensburg, which a pair of these birds frequented. On the 4th March, 1850, a pair were shot, whilst pairing, near Wiesen, in the Bacher forest; and in the years 1802, 1803, 1804, 1807, 1814, 1821, 1822, 1835, 1836, 1844, 1849, and 1850 they literally swarmed in most portions of the country, appearing again, though in much smaller numbers, in 1851 and 1854. Brandt states that a pair bred in the Landgericht Nordhalben in 1850; and on the 28th June an old bird with two young ones, which could not have left the nest more than a couple of days, were seen. In the districts of Schwaben and Neuburg to Leu it is rare, and only observed during the spring and autumn migrations, but is periodically somewhat commoner.

“In Würtemberg it breeds, according to Landbeck (*Syst. Aufzähl. Vög. Würtemb.* p. 19), in the old conifer-woods of Wildbad, Kniebis, Rippoldsau, Freiernbad, &c.; and Von Heuglin states (*Naumannia*, 1850, p. 67) that it breeds tolerably numerous, not only in the old conifer-forests of the Schwarzwald, but also in some of the non-evergreen woods through which conifer-growth is scattered, as, for instance, near Tuttlingen and Mühlheim, on the Danube. Vogel obtained a full-grown young bird in the summer of 1843, not far from Schramberg, and in 1844 watched two old birds on the 10th March, and obtained three young ones about the middle of July at the same place. It breeds in the Schwarzwald of Baden, and Schütt obtained several nests, with eggs, on a portion of the Kandel in 1861 and 1862. In Austria it is numerous in all the alpine forests, though not so common or numerous in the central or subalpine portions of the mountains, and during migration is common in the lowlands. It visited Bohemia in 1844 and 1850 in large numbers, more especially the vicinity of Franzensbad, where Palliardi met with it. According to Fritsch (*Journ. f. Orn.* 1871, p. 202), Zimmermann obtained three examples near Bensen in October 1863, and quite young birds were seen in the Isergebirge. It is also said to occur commonly in the vicinity of Budislav. I never observed it on the Austrian side of the Riesengebirge, though doubtless it is found there, as Mr. A. von Homeyer found it on the Prussian side; nor did I see it during my wanderings through the Böhmerwald; but the district forester, Novotny, showed me a stuffed specimen which was shot in the Sattawa district in May 1870. It doubtless breeds there, but probably only in small numbers, and it certainly inhabits the lower spurs of the mountains. Schwab says that numbers are seen during migration in September and October in Moravia; in 1846 they were common in all the forests, though only rare in 1850 and 1852; but in the middle of the year 1850 so many appeared near Drahomischl that a forester shot thirty in one day. About the middle of September 1864 several appeared in the wooded localities near Olmütz, and in October they were numerous. In Silesia they appear as sporadically as in Moravia. In Lower Austria it is common at Semmering (where Finger obtained recently fledged young on the 29th June, 1853), and on the Schneeberg and Oetscher and their spurs, and also in the mountain-forests of the Danube above Krems. I observed it in

the latter district, especially on the Jauerling, at an altitude of 3036 feet above the sea-level, at all seasons of the year; and it is a bird well known to the peasantry. In September 1864 they were very common, and I observed that small birds, such as Finches, Titmice, &c., mobbed them. On the 23rd May, 1867, I shot a male at Arnsdorf; and the keeper who accompanied me obtained a young bird just fledged. Early in June 1867, at Heinrichschlag, a forester found fledged young; and the same year, about the middle of May, a nest, with three eggs, was found on the Jauerling, but was destroyed. In the mountains of Upper Austria it is nowhere rare, and, according to Brittinger (*Brutvög. Oberösterr.* pp. 75, 76), has been observed near Gmunden, Spital on the Pyhrn, Sandel in the Mühlkreis, and in the Innkreis; and the royal forester Grill records a nest containing young birds as having been found in the Langbaththal in 1858. In the Salzburg district it is found breeding almost everywhere in the mountains. Count Gourcy-Droitaumont shot a very small form at Salzach-Au, which C. L. Brehm (*Isis*, 1833, p. 970) described under the name of *Nucifraga minor*. Althammer speaks of it as common in Northern Tyrol, where it breeds, and appearing periodically in Southern Tyrol. According to Wiedemann it occurs almost everywhere in the more elevated conifer-woods, at an altitude of from 3500 to 4000 feet, and is especially common near Innsbruck, close to the Upper Lanser-Alpe, in the cedar-growth, where many breed. Baldamus saw in July 1863 several families in the low larch-growth near the Oetzthal-Gletscher, and in 1864 obtained several clutches of eggs from there. Professor Huber met with it in the Zillertal in January 1856, where it was numerous close to the villages. According to Professor Gredler it occurs in the Sarnthal, on the Reiterjoch, Joch-Grim, &c. Bruhin observed it at all seasons in the Vorarlberg district; and in Styria it is common, especially in the upper portions of that country. It has been frequently found breeding at Bruck a. Mur; and Dr. Füster obtained nests with eggs there. On the Judenburger and Weit-Alps it occurs everywhere; and late in May 1856 young birds, just able to fly, were observed. In July 1871, when ascending the Sirbitzkogel (7578 feet above the sea-level), I found an empty nest, near which I saw both old and young birds. Mr. Hanf obtained a nest with four eggs from the Jacobsberg on the 29th March, 1872; and Seidensacher observed it in Southern Styria, in the Bachergebirge. In Kärnthen and Krain it is nowhere rare in the mountains. Fiedler saw numbers in July 1872 near Heiligenblut; Küster records it as occurring in the Littoral district, but rarely, during migration. Fiedler states that but few are found in Croatia and Slavonia; and in Siebenbürgen, according to Bielz, it is a partial migrant, being usually found in the more elevated mountain-forests, visiting the lowlands in larger numbers during the autumn. Hausmann saw it commonly on the so-called Pojana, near Kronstadt, in localities where the hazels abounded, and observed it throughout the winter in the Schulergebirge, though he never met with it at a greater altitude than 5000 feet. Hermann met with it in the Bihargebirge, from the foot of the Vlegiasza to Retyiczal, and in the more elevated portions of the Jarathal, on the Hargitazug, &c. In the mountains of Hungary it is nowhere rare; Petényi obtained a nest near Altsohl. In the northern portion of the Neutraer district it is, according to Nagy, a resident, and during the winter occasionally visits the forests surrounding the town of Neutra. Jeitteles records it from Zips. In 1838, and again in 1852, large numbers appeared in the Tokay vineyards and at Miskolez. It visits Sirmien now and then, is a migrant in the non-evergreen forests of Buckowina, and occurs off and on in Galicia; Schauer frequently

saw it in the Tatra mountains. According to Count Wodzicki it breeds there, at an altitude of from 4000 to 5000 feet. Schauer informed me that he shot, in July 1856, many young birds (which had remains of down on the head and nape) in the Stanislauer mountains; and Professor Braun found a young bird, unable to fly, in a wood near Lemberg." In Denmark, Mr. Benzon writes, "it is called *Næddekrige*; and I have never heard the name of *Pletfugl* (which Kjærbølling gives it) used. It occurs sporadically in the late autumn and winter, some years in considerable flocks; and many are snared together with Thrushes, and numbers shot; for they are not shy." In Denmark, also, the Nutcracker has been found breeding; and of Mr. Benzon's most excellent and copious notes on the nidification of this bird a translation will be found below. In Holland and Belgium it occurs but rarely; Baron De Selys-Longchamps says that several were taken in snares in the latter country in September 1836. De la Fontaine speaks of it as occurring at irregular intervals, generally during the autumn, in Luxemburg; and Godron says the same regarding its occurrence in Lorraine. Degland and Gerbe write that it occurs at irregular intervals in Normandy, Lorraine, and Languedoc, Basse-Provence, and Northern France. In 1844 specimens were killed at Douai, Dunquerque, Abbeville, Dieppe, Troyes, and in several parts of Belgium. Von Tschusi Schmidhofen says that Dr. Baldamus informed him that the Abbé Caire found the nest and eggs near Sanières, in the Basses-Alpes, as early as 1846. Dr. Companyo records it from the Eastern Pyrenees as occurring only during very severe winters, and being rare, only coming at irregular intervals.

Lord Lilford writes to me stating that he himself never met with it in Spain; but it is known in the mountains of Aragon, and is recorded as having been met with in Estremadura by Captain Cook Widdrington. Mr. Howard Saunders says (*Ibis*, 1871, p. 222) that Major Irby saw one at Cordova, said to have been killed there, and that Lopez-Seoane mentions it as "rare in the pine-woods of the Sierra Nevada in May." Passing eastward, again, I find it recorded as common in Switzerland, where, Mr. Gatcombe informs me, he found it everywhere in the wooded mountain-passes. Of later years only has its nest been found there, though it has long been known to occur there during the breeding-season. Vogel obtained several nests with eggs from the Jura; and Von Tschusi Schmidhofen says (*Der Tannenheher*, p. 31) that Dr. Stölker obtained a nest with three eggs in Graubünden, taken on the 22nd March, 1872. Dr. Stölker and Von Müller record it from St. Gallen and Appenzell, Tschudi from the canton Glaurus, De Salis from Graubünden, Saraz from Engadin, where it occurs as high as 9000 feet, Vogel from the canton Solothurn, where it breeds, Dr. Rohnert from above Zermatt; and Von Tschusi Schmidhofen himself records it as common in some parts of the canton Freiburg, as on the Barra and in the valleys of Charmey and Laun. Canon Tristram (*Ibis*, 1863, p. 169) stated that he obtained eggs of the Nutcracker from the valley of the Sixt, in Savoy; but subsequently these proved not to belong to this species. Both Cara and Salvadori record it as occasionally appearing in Sardinia; and Lord Lilford writes to me as follows:—"I found this species very abundant in the mountains in the neighbourhood of the Col de Tenda and San Martino de Lantosca, not far from Nice, in August 1858. Our guides assured me that the Nutcracker bred commonly in the pine-forests of that district, and certainly described accurately the nest and eggs; they said that the birds nested early in the year, long before the snow melted, and that the eggs were consequently not easy to obtain. The name they gave this species was 'Elva,' or 'Eleva.'" Doderlein considers that its apparent

rarity in Sicily may partly be owing to the fact of its not being generally known to sportsmen; however, individuals have been obtained at Villica and Ficuzza. Mr. A. B. Brooke writes to me that it is not uncommon in the large pine-forests in the Maritime Alps, about ten miles north of St. Remo, where he saw them repeatedly during winter, generally in small flocks of seven or eight individuals. He saw a specimen in the Museum at Cagliari, which is stated by Cara to have been killed near Aritzu, in the Gennargentu mountains. I do not find it recorded from Greece. "In Southern Russia," Mr. Sabanäeff informs me, "it is only met with during migration, and mostly in the spring, in the Governments of Kiew, Charkoff, Orel, and Voronege. In the south, for instance in Odessa and near Sarepta, it does not occur every year. In the first districts it is seen in September and beginning of October. About the same time they migrate near Moscow. That is, according to my observations, in 1866 it migrated in the middle of September, in 1867 in the beginning of October; in 1869 the first were seen in the beginning of September, in 1870 about the 20th September, in 1871 in the beginning of September; in 1872 they were seen about the first week in August, but were not observed earlier." Von Nordmann says that he did not see it in Abasia, Mingrelia, Imeritia, or the Crimea, and only in the northern portions of Bessarabia and Cherson.

To the eastward it occurs throughout Siberia to Japan and the northern portions of China. Middendorff found it common on the Jenesei, but not ranging above 64° N. lat. On the Stanowoi mountains it was especially numerous on the heights, in some parts not far from the sea-coast. On the 11th of July the young could fly well. Middendorff remarks on the difference in size of the beaks, and states that in the same flock he observed specimens with beaks varying from 42 to 55 millims. in length. Von Schrenck records it as common throughout the Amoor country at all seasons of the year. He procured it in July, at Hadshi Bay, in the autumn at the Nikolaieffsk Post, and in the winter on the island of Saghaliën, in mixed larch, birch, and aspen woods, also in the spring at the mouth of the Gorin river. Dr. G. Radde observed the Nutcracker in the Eastern Sajan, nearly as high as the boundary of tree-growth (7000 feet). Here, on the 29th of July, they were feeding on the unripe seeds of the cembra, and practising their young in flying. When thus employed the small flocks often united in the air, rising higher and higher, flying irregularly here and there, but keeping to a certain area, some occasionally rising almost out of sight; suddenly, however, they would drop down swift as lightning one after the other in succession, and collect on the top of a pine to recommence their aerial evolutions. They would often pass along some distance in a straight line above the trees. On the 17th of July he saw the first lot on the west coast of the Baikal thus practising, and on the 19th he met with a flock of at least five hundred of these birds. In the Bureja mountains this species is rare, and only met with occasionally. Captain Blakiston (*Ibis*, 1862, p. 326) obtained a specimen from a birdcatcher near Hakodadi, in Japan, in September, which he sent home to Dr. Sclater, who compared it with European specimens, and could detect no material difference between them; and Mr. R. Swinhoe saw a live specimen at Peking (which a native brought to the Museum for sale), and subsequently purchased three specimens, all females. According to Von Tschusi Schmidhofen there is a specimen in the Vienna Museum which Count Hahn obtained at Tschifu, in the Gulf of Pe-tschili, in China, in the month of July.

In its habits the Nutcracker somewhat resembles the Jay, but is a less lively and active

bird, and, instead of frequenting the green woods of the plains, it inhabits the dreary pine- and cedar-woods in the more elevated mountain districts. It moves about with great ease and facility amongst the trees, and hops lightly from branch to branch in search of food, often plucking the hazel-nuts from the slender outer twigs (which will not bear its weight) whilst fluttering in the air. When it has selected a conifer-cone it holds it firm with its foot and works out the seeds with its powerful bill, and in like manner holds hazel-nuts fast and breaks the shell with blows of its beak, in order to extract the kernel. It feeds on the seeds of various kinds of conifers, hazel-nuts, beech-nuts, acorns, berries, insects and snails, and small vertebrates. The stomach of one I possess, sent to me by Mr. Collett, contained rowan-berries and kernels and small pieces of hazel-nut shells; and that of another, also obtained by Mr. Collett, contained small fragments of hazel-nuts and acorns and numerous shells of various *Helices*. Specimens obtained by the Ritter von Tschusi Schmidhofen in September had been feeding on *Geotrupes vernalis*, *Prionus*, sp.?, and *Carabus*, sp.?.; and the stomachs of others contained specimens of *Vespa germanica* and *Vespa rufa*, which had been swallowed with their stings. Mr. Jäckel, who examined the stomachs of many shot in 1844, found them containing almost solely insects such as *Helops ater*, *Hylurgus piniperda*, *Forficula auricularia*, *Carabidæ*, *Curculionidæ*, *Locustella viridissima*; and one contained about twenty-five caterpillars of a species of *Noctua*. Petényi found in the stomachs of specimens shot by him various species of *Pæcilus*, *Harpalus*, *Anchomenus*, *Dytiscus*, *Colymbetes*, and *Hydrophilus*. It is said to take young birds out of the nest, and birds out of snares, and devour them; and Naumann records that one tried to get a call-bird out of its cage, and only left it when it was approached so near as nearly to be taken with the hand.

Its flight is heavy, and seldom protracted; and, according to Von Tschusi Schmidhofen, its call-note is a harsh prolonged *kräh, kräh, kräh*, or *krüh, krüh*—whilst uttering which it jerks the wings and tail. This call is uttered frequently, and may be heard at a great distance. When frightened it utters a harsh note, like *dscherr, dscherr*, somewhat resembling the call-note of the Missel-Thrush.

For long the nidification of the Nutcracker remained, like that of the Waxwing, enveloped in utter obscurity; and even now the eggs are a rarity in most collections. The first naturalist who appears to have obtained undoubtedly authentic eggs was the Abbé Caire, who procured several nests near Sanières, in the Basses-Alpes, in 1846. Petényi obtained a nest with four eggs near Altsohl, in Hungary, about 1850. In 1858 the Imperial Forester Grill found a nest containing young birds in the Langbaththal, in Upper Austria; and, according to Hintz (J. f. O. 1861, p. 496), a nest was found in the Butower district in 1860. Mr. Schütt (J. f. O. 1862, p. 125) found a nest, on the 19th March, 1862, at Waldkirchen, in Baden; and in the same year, in May, Messrs. Theobald and Fischer found the first nests on the island of Bornholm, but they were empty. In 1863, in April, they found a nest with three naked young, and in 1864, on the 23rd March, they took the first eggs. In 1864 Dr. Baldamus obtained from the forester Franz, at Schlanders, in the Tyrol, two nests with eggs on the 26th March, and on the 6th and 8th April three others, also containing eggs. On the 23rd March, 1867, a nest with four eggs was obtained at Bruck a. Mur, in Styria, and sent by Seidensacher to Lord Lilford. After Seidensacher's death three nests, each containing four eggs, were taken near Hochschwab early in

April 1868, and sent by Professor Huber to England. One of these came into my possession. Dr. Baldamus found two nests near Tiefkasten, in Switzerland, in May 1867; and a nest containing four eggs was obtained in March 1868, in the Niedlitzer district in Anhalt. Mr. Stenström obtained a nest with small young ones in Dalsland, in Sweden, in April 1868, and in April 1869 he took another containing three eggs. Fuster obtained three nests, each containing three eggs, near Bruck, in Styria, in April 1870; and Stenström obtained a nest with four fresh eggs in April 1870, in Dalsland, Sweden. In July 1871 the Ritter von Tschusi Schmidhofen found an empty nest on the Sirbitzkogel, in Upper Styria; and in March 1872 Mr. Hanf obtained a nest with four eggs, taken at the same place; and the same year Dr. Fuster obtained two nests near Bruck, in Styria, taken on the 15th March. Mr. Meves, of Stockholm, obtained a nest with three eggs, taken in Wermland, Sweden, on the 10th April, 1872; and Dr. Stölker obtained a nest with three eggs taken in Graubünden, Switzerland, in March 1873. Besides the above, other nests have been taken; and M. Fairmaire, the dealer, in Paris, obtained several lots of eggs from Switzerland, many of which I have seen, and am convinced that they are really Nutcrackers' eggs. Mr. Alfred Benzon, of Copenhagen, has sent me copious notes on the nidification of this bird in Denmark, which I translate as follows:—"It was supposed to breed in the woods of Möen and in some parts of Seeland, where it is said to have been seen and shot during the summer season; but the only place where I know for certain that it breeds is Almindingen, on Bornholm, a wood planted on that otherwise heath-covered island, this wood consisting chiefly of hornbeam (*Carpinus betulus*, L.), oaks (*Quercus pedunculata*, Ehr., and *Quercus sessiliflora*, Sm.), and pine (*Abies excelsa*), in which last species of tree the Nutcracker builds its nest. Besides the trees above enumerated, a few birch (*Betula verrucosa*, Ehrh.), larch (*Larix europæa*, DC.), aspen (*Populus tremula*, L.), and ash (*Fraxinus excelsior*, L.) are scattered through the wood; but the hazel (*Corylus avellana*, L.) is scarcely found there, though hazel bushes are round almost every peasant's hut, of which not a few are in the neighbourhood. When, in 1862, I, in company with my friends, Messrs. Fischer, Erichsen, and Theobald, visited this place on the 22nd May, we observed in a pine, close to the top, on a bare branch, resting against the main stem, a nest, about eighteen feet from the ground; and in the branches near it at least five partially down-clad young Nutcrackers flew or hopped about with difficulty from twig to twig. We could not catch one, as they were warned by a sharp cry from the old bird, resembling the words *gré, gré, gré*. Next day we found another nest, though placed higher up, also in a pine tree; and near it several young birds were flying about, which appeared to be older than those we saw on the previous day; of these Mr. Fischer shot three, one of which was sent to Professor A. Newton, and the other two are in my collection and that of Mr. Fischer. We found several more nests, all old ones, and all placed on conifer trees, which grow on the peat-covered stony ground. When we made the above-recorded discovery the breeding-habits of the Nutcracker were still veiled in mystery, and even the well-known collector Thienemann did not possess authentic eggs; so we determined to visit this place the following year rather earlier, so as to get the eggs. Next year Messrs. Erichsen and Theobald visited the above-mentioned locality on the 9th of April, and found a Nutcracker's nest, about thirty feet from the ground, in a pine tree, built like those we found the previous year. The old bird flew noiselessly off, and they found, not eggs, but three almost naked, and still blind, young ones, about a week old;

these young ones had a little greyish white down on the head and back, and the shafts of the wing-quills just commenced to show. On the 23rd March, 1864, however, a nest containing four fresh eggs (subsequently sent to Professor Newton) was found. On the 15th of April, 1865, a nest with three incubated eggs was found, these being the eggs we sent to you; and on the 30th April the same year, another nest with four fresh eggs (now in Mr. Theobald's collection) was found. In 1866 none were found; but on the 12th April, 1867, a nest with four eggs (now in Mr. Fischer's collection) was taken; on the 21st March, 1868, one with five eggs (now in Mr. Erichsen's collection), in 1869 one with five eggs (now in my own collection), and on the 19th April, 1870, another with five eggs (in Mr. Erichsen's collection) were found. In 1871 again none were found; but on the 27th April, 1872, a nest containing four eggs was taken; and these are also now in my collection. Having now had an opportunity of examining thirty-four eggs, out of eight nests, three uninjured nests, and three young birds, I will with this material, together with what notes I have taken, give you the result of my observations.

“The Nutcracker is a noisy, fearless, sometimes foolishly trustful bird, which during the breeding-season, however, is so altered in its habits that it becomes silent, and so shy and quiet in its movements, that a casual observer would consider that its breeding-haunts were deserted in the spring and summer season; and this is probably the reason why its nest, which cannot be mistaken for that of any other bird, is so seldom observed or taken, although it is often, as on Bornholm, built close to paths or roads. The nest is, as stated, placed in a pine tree, from ten to thirty feet above the ground, usually on a bare branch, and resting against the main trunk, under the top of the tree, which acts as a roof, or sometimes in the green top of the tree itself. From being built against the trunk it is more or less oblong; and three nests, A, B, and C, the two former being now in my collection, and C being the one I sent to Professor Newton, measure as follows:—Nest A, taken April 15th, 1865: outside measurement 280 and 330 millimetres in diameter, 150 high; inside, 105 in diameter, 50 deep. Nest B, taken April 19, 1870: outside, 250 and 400 in diameter, 125 high; inside, 100 in diameter, 30 deep. Nest C, taken May 23rd, 1862: outside, 260 and 360 in diameter, 156 high; inside 40 deep,—all these measurements being in millimetres. From these it will be seen that the cup of the nest is small in proportion to the entire structure, which is composed of twigs of birch, larch, &c., and interwoven with lichens, especially *Ramalina polymorpha*, Ach., and in one nest *Usnea barbata*, Linn. Many of the twigs are covered with lichens; and some of the birch twigs are quite fresh, and are covered with buds. On this foundation there is a tolerably thick (65 to 70 millimetres) bed of earth of a light grey colour, which seems to have been collected in an adjoining field; this earth is not worked into a solid substance with the bird's spittle and clay, as in most nests in the construction of which earth is used, but is loose, and on being analysed proved to consist chiefly of sand containing a deal of iron and the rotten mould of decayed wood. The inside lining of nest A consists entirely of *Usnea barbata*, whereas in nest B it is mixed with bast and dry grasses, and in both nests there is a layer of dry grass, on which the eggs are placed. The third (nest C), in Professor Newton's possession, resembles nest B; but as it was carefully described by Mr. Fischer in the 'Naturhistorisk Tidsskrift,' Band ii. p. 62, I need give no further description of it. It seems that the eggs are deposited (as far as those found on Bornholm are concerned) from the middle of March to the end of April; and the difference in time does not appear to be dependent

on weather; for the four eggs taken in the unusually mild spring of the present year (1872) were obtained as late as the 27th of April. It is impossible to say with any degree of certainty if the Nutcracker breeds twice in the year; but I do not think it improbable, as a forester on Bornholm, who knows the habits of this bird well, assures me that he has seen old birds feeding their young as late as September. In number the eggs vary from three to five; for we found one nest containing three eggs, incubated, four containing four, and three containing five eggs; and it has been noted, from those nests which were discovered when the bird had commenced laying, that she deposits one daily.

“In size the eggs vary from 32 by 24 millimetres to 34 by 26 and 35 by 25 millimetres, the normal size being 33·5 by 24·5 millimetres. From this it will be seen that the egg of the Nutcracker rather exceeds those of *Perisoreus infaustus* and *Turdus viscivorus* in size, but is smaller than the egg of the Magpie. They are oval in form, scarcely tapering towards the small end; the grain of the shell is very fine, about as in eggs of *Totanus glareola*, and is composed of round grains which, under the microscope, show a few warty elevations, which are found more especially at the ends, there being more at the small end; these warts are seldom elongated in shape, and are isolated in position, not run together in a network as, for instance, in eggs of *Garrulus glandarius*. I have not found in any the long furrows which are clearly visible in eggs of the Magpie and other corvine birds. The pores in the shell are very fine, and evenly distributed over the surface, which is smooth and polished like a piece of cream-laid paper. Like all thin-shelled eggs, when first blown they are clear, but get afterwards duller; the ground-colour is pale whity blue, just washed with greenish, but varies somewhat in tone. As regards the markings, it was impossible to distinguish between shell- and surface-spots in the eggs we first found, as the thinly scattered isolated dots looked merely like bright-coloured shell-spots; but in several of the eggs found later on, the shell- and surface-spots were clearly distinguishable. Both shell- and surface-markings consist of fine dots and spots, which vary greatly in number, as some eggs are almost unspotted, though never without a few fine dots, very pale in tinge, whereas others are strongly marked with spots, like light-coloured eggs of *Perisoreus infaustus*; but these spots are always evenly distributed over the entire surface of the shell: the spots vary in size, from the minutest dot to a blotch nearly 3 millimetres in diameter; but the normal size is about 0·5 to 1 millimetre. The underlying shell-spots are in colour dirty grey, sometimes tinged with violet, and are often very faint in tinge. The surface-markings are greyish brown, and much richer in tone than the shell-markings. In the eggs taken this year (1872) the surface-spots are on the shell-spots; thus the eggs have double markings, not observed in those previously taken. And I may further remark that the markings vary in eggs out of the same sitting, as one of those last taken was very strongly marked, the others being much less spotted, which arises, I believe, from the supply of colouring-matter becoming less after depositing one or two eggs: thus the one first deposited will be coloured brightest, and the remainder will be paler, according to the order in which they are laid. In the inside the eggs usually appear to be light green, owing to the colour of the shell shining through; but when the inside skin is thick they appear almost white. The yolk is light yellow, and the white of the egg clear and colourless. So far as my experience goes, the egg of the Nutcracker can only be mistaken for those of two other species, viz. that of *Perisoreus infaustus*, which, however, is smaller,

coarser in the grain of the shell, and has more, larger, darker, and less regularly distributed spots, which are often collected at the larger end, and furthermore the small dots are wanting, and the shell has not so polished an appearance.

“The other species is the Magpie, pale and small eggs of which bird approach, at times, in appearance those of the Nutcracker; but the shell of these is stouter, coarse-grained, and has *elongated furrows*, the ground-colour is darker, the shell-markings richer in tone, the small dots are absent, the surface-spots are larger and more unevenly distributed, and the shell is not so polished. Eggs I saw in Paris, which came from the Pyrenees, and were said to be those of the Nutcracker, appear to me to be merely varieties of those of the Magpie; and I should say that those figured in Baedeker’s work, ‘Die Eier der europäischen Vögel,’ are likewise Magpie’s eggs, as they are much darker in colour than authentic Nutcracker’s eggs and are also more spotted, the spots being irregularly distributed, and there appears to be a total absence of the small dots.

“The young birds have the legs brownish grey, and not black as in the adult. In their stomachs I found portions of nut-kernels and insects; and near the nests I always found a small heap of nut-shells, all split from the pointed end; most of them being fresh, they could not have been there long; and from this circumstance I judge that the Nutcracker stores up food for the winter in well sheltered places.”

As comparatively so little has hitherto been known respecting the nidification of the Nutcracker, I will offer no excuse for adding in detail a translation of some excellent notes published by Mr. Vogel, and lately sent to me. This gentleman, who found this bird breeding in the Jura, Canton Solothurn, Switzerland, writes (*Die Fortpfl. des Tannenb. St. Gallen, 1873*) as follows:—“In the unusually favourable spring of 1868 I at last succeeded, after some trouble and exertion, in finding a pair of birds, which by their continued restlessness and calling drew our attention to them; the locality was a precipice in the Jura chain, about a thousand feet above the valley, where the forest was mixed conifer and deciduous growth. These birds, which were carefully watched, soon became quieter, and commenced making the foundation of their nest. For this purpose they made use of dry dead twigs; and the noise they made in breaking them off, which in the dead stillness of the forest could be heard at a great distance, kept my clever collector continually on the track of the birds when busy with the construction of their nest. As soon as they had broken off a suitable twig they flew silently up the mountain further than the eye could reach, and always returned by the same way to procure more material. After earnest and careful watching, following them step by step, now losing the track and again taking up the clue, we at last approached the nesting-place, which was about a mile distant, and soon discovered the pine tree on which the nest was being built. I then, however, avoided visiting the tree so as to avoid disturbing the birds and thus making them forsake the nest.

“On the 15th of March the nest contained four eggs; and several days later, as no more were deposited, it was taken. I did not dare to peril by too eager curiosity this the first oological treasure placed before me; and it seems that I was right; for in 1869, the season being unfavourable, neither nest nor eggs were obtained: and it seemed as if in 1870 we should have the same bad luck; but about the middle of May a nest with eggs was discovered and brought to me. In 1872, however, I was unusually fortunate, as I discovered four nests, and could then

arrange to allow one clutch to hatch out, and thus make some observations on the incubation and bringing-up of the young. . . . The nests of the Nutcrackers which bred on the Solothurn Jura were built at altitudes of 2500 to 3500 feet above the sea-level, in open positions where the sun could shine on them, and on heights sloping to the south or south-east, often near the plateaux of the main mountains, or on one of the smaller ones, always in mixed woods and on a pine or silver-fir tree of 6 to 9 inches diameter, at a height of 15 to 25 feet, the nest being placed on a main branch on the sunniest side of the tree.

“Not one of the nests was on a non-evergreen tree, but all on conifers, generally in a bunch of firs at the edge of a non-evergreen grove where plenty of sunshine was to be had, but still where the nest would be well hidden. Most of the nests, however, were well visible to any one standing below the tree; and one was placed on an old half-dead bough, though plenty of more favourable places were close at hand. The nests measure from 27 to 30 centimetres in diameter, and from 15 to 18 in height; the cup of the nest is 13 centimetres wide and 8 deep; thus it is rather more than half-globe-shaped. The first foundation consists of about half a centimetre of thick or thin twigs of almost all sorts of trees, such as ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), pine (*Pinus abies*), silver fir (*Pinus picea*), common fir (*Pinus sylvestris*); on these twigs all sorts of mosses still remain, giving the outside of the nest a peculiar appearance. On this first foundation a more or less thick layer of peaty stuff or small bushy plants with earth-covered roots is placed, making a somewhat solid mass, and increasing the height to about 3 centimetres. The sides of the nest are constructed of dry twigs of the above-named trees; or often fresh twigs with the foliage still attached are used; and through these are plaited the slender twigs of various forest-bushes, such as *Ligustrum vulgare*, *Corylus avellana*, *Lonicera periclymenum*, *Lonicera xylostemum*, and *Cratægus oxyacantha*. The lining of the nest, however, is composed of quite different materials, being chiefly beard-moss (*Usnea barbata*), grass bents of *Dactylis glomerata*, *Bromus*, and *Carex*, as also common moss (*Hypnum*), and especially the bast or inner bark of the ash, these materials being rather arranged in order than carefully woven together.

“The nest of the Nutcracker, compared with those of allied species, resembles more that of the Crow than of the Jay; and the nest of the common Jay (*Garrulus glandarius*), which in former years has so often done duty for the Nutcracker’s nest, is totally different. Taken all in all it is not a very artistic structure, though peculiar, and, especially when new, pretty, as the bright fresh mosses and green twigs stand out well from the remaining dark materials of the nest. As is the case with many other species, the Nutcracker in some cases makes a much more artistic nest than in others; and a second nest, after the first has been destroyed, is much smaller and more carelessly made than the previous one.”

Mr. Vogel gives a most careful description, with measurements in tabular form, of six nests with eggs which came under his notice, which I may briefly summarize as follows:—The first nest was found on the 15th March, 1868, and contained four eggs, which in appearance most resembled Magpie’s eggs, and in size varied from 33 by 25 to 35 by 25 millimetres; the second nest, taken on the 18th of May, 1870, contained four eggs similar in appearance to those in the first nest, and in size varying from 33 by 24 to 35 by 24 millimetres; the third nest was found on the 10th March, 1872, and likewise contained four eggs, which, however, resembled those of the

Jay, and in size were smaller than those above mentioned, measuring from 30 by 24 to 32 by 24 millimetres; the fourth nest only contained three eggs, resembling Magpie's eggs, all measuring 34 by 24 millimetres, and was taken on the 17th March, 1872. The fifth nest was found on the 19th of March, 1872; and Dr. Vogel did not take the eggs (which were four in number, in appearance resembling Magpie's eggs), but let them hatch out, in order that he might make observations on the incubation, and on the rearing of the young. The sixth nest was taken on the 25th of April, 1872, and contained four eggs, in appearance resembling Jackdaw's eggs, and in size measuring from 33 by 26 to 34 by 26 millimetres.

All the above eggs were fresh when found. As regards their weight, Mr. Vogel gives the exact weight of each egg separately; but I refrain from going into such details, and only say that, when full, the weight varied from 850 to 1150 centigrammes, and, when blown, from 40 to 70 centigrammes per egg, the average weight being 1039 centigrammes when full, and 57 centigrammes when blown.

In stating that the eggs in the above-mentioned six nests resemble those of the Magpie, Jay, and Jackdaw, Mr. Vogel expressly adds that he has stated this as the eggs approach *nearest* to those of the birds mentioned, but that the egg of the Nutcracker is in general a most characteristic egg, and can seldom be mistaken by an oologist.

With regard to the fifth nest, the eggs of which were not taken, Mr. Vogel writes as follows:—"This nest was so advantageously placed, being tolerably low on the precipice, and close to an easy but seldom used mountain-path, that we decided to let it remain, so as to watch the progress of incubation and the bringing-up of the young. On the 14th of March the second egg was deposited, and the last two by the 19th of the same month; thus the bird had deposited her four eggs at intervals of from two to three days, which, I take it, must be put down to the severe season of the year, food not being abundant. From the time the last egg was deposited the female sat close, and did not appear very shy. Her head could be seen from some distance; and when under the nest one could see her peeping curiously over the edge of the nest to see who was below. Her tail was not so visible, being held upwards, so that it showed but little over the edge. Only when the tree was knocked, or on any one commencing to climb it, did she silently and quickly leave the nest and disappear; but directly the danger appeared to have passed, she was on the nest again in an instant. When the nest was taken, on the 18th of May, 1870, five of us watched the nest closely after the female had slipped off, in order to see her return; and after having waited for about forty minutes I approached close to the nest and found her on it, sitting quietly as if nothing had happened. She had passed our cordon unobserved, which could only have been done by dropping down from some altitude into the middle of the pine group, and slipping quietly from twig to twig to her nest. The female alone incubates, the male taking no share in that duty; but, on the other hand, he provides her most assiduously with food. In so doing he is most attentive; and the female in receiving it imitates her progeny by fluttering with her wings and uttering the well-known sobbing notes. She sits very close, and only leaves the nest for the purpose of voiding her excrements, returning again within a quarter of a hour.

"As before stated, when we first began to watch the nest the bird was by no means shy; but from being continually disturbed she became more and more frightened, and would at last leave the nest before we approached, and I was compelled to give orders that she should not be any

further disturbed. On the 7th of April we found three naked, blind young ones in the nest, and one egg, which was afterwards hatched. Thus, as the term of incubation extended over eighteen days, I surmise that the young emerge from the eggs from seventeen to nineteen days after the time when the female commences sitting. We kept away from the nest for some time, and again visited it just when the parent birds were busy feeding the young. From afar we could hear the latter calling for food; and the parents now, directly any danger threatened, betrayed their anxiety by uttering a harsh note of alarm, and would not leave the neighbourhood of the nest. This alarm-note is corvine, but somewhat modulated, and is not unlike the alarm-note of the Missel-Thrush.

“On the 25th of April I had the youngest of the four birds taken out of the nest, killed, and sent to me at Zürich, so that I could take notes of its nestling-plumage, and also examine the contents of its stomach. This latter I found to contain half animal and half vegetable matter, the former consisting of fragments of snails (*Helix ericetorum*, Müll.) and of three species of insects (*Otiornychus niger*, *O. villosopunctatus*, and some sort of *Hister*, which I could not quite make out). The vegetable matter consisted of fragments of the fruit of *Juglans regia*, Linn., of the common hazel (*Corylus avellana*, Linn.), and of the three-cornered seeds of the mountain-ash.”

Most birds allied to the Crows feed their nestling young almost, if not entirely, on insect food; and, as Mr. Vogel justly remarks, it shows the wonderful provisions of nature that the young of this species, which are hatched at a season of the year when it would be almost impossible to procure a sufficient supply of insect food, should be able to subsist equally well on vegetable matter. Mr. Sabanäeff informs me that it breeds in the Government of Perm, in Russia, nesting in April. He found numbers of their old nests in the Ural, in conifer trees at no great altitude. He informs me that, owing to their habit of carrying off seeds of conifers, and especially of the cedar, to great distances, they become unwitting agents in the propagation and distribution of those trees.

I have two clutches of the eggs of this species in my collection—one obtained from Pastor Theobald, consisting of three eggs, taken on Bornholm, April 15th, 1865, and the other taken in Styria in April 1868. The ground-colour of these eggs is pale whitish sea-green; and the markings are pale liver-brown and small in size. The eggs from Bornholm have the spots very much smaller and more sparingly scattered over the surface of the shell than those from Styria. In size they vary from $1\frac{11}{40}$ by $\frac{39}{40}$ to $1\frac{14}{40}$ by $1\frac{1}{40}$.

Before closing this article I must express my acknowledgments to the Ritter von Tschusi Schmidhofen, who, hearing that I was on the eve of publishing my article on the Nutcracker, wrote to request me to defer so doing until he could place at my disposal the mass of materials he had collected, and which he was on the eve of publishing. Having just received a copy of his monograph ‘Der Tannenheher,’ I am enabled to extract from it, as will be seen above, many interesting details respecting the range and habits of the present species.

The specimens figured are those I have described, the adult bird being in my collection, and the nestling in that of Professor Newton.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Upland, Sweden, August 12th, 1871 (*Meves*). *b*, ♂. Wermland, Sweden, 1869 (*Meves*). *c*, ♀. Falsterbo, Sweden, August 6th, 1868 (*T. Buckley*). *d*, ♀. Christiania, October 18th, 1872 (*Collett*). *e*, ♂. Ural, June 20th, 1868 (*Sabanäeff*). *f*. Switzerland (*Fairmaire*). *g*, ♂. Bergamasca, November 1868 (*Salvadori*). *h*, *pullus*. Basses-Alpes (*Fairmaire*).

E Mus. Baron A. von Hügel.

a. Denmark, 1871. *b*, ♂. Switzerland, autumn, 1871. *c*, ♂. Glaurus, Switzerland.

E Mus. H. B. Tristram.

a. Geneva (*H. B. T.*). *b*. Switzerland, 1861 (*H. J. Elwes*).

E Mus. A. Newton.

a, *pullus*. Bornholm, May 1862.

Genus PERISOREUS.

Lanius apud Linnæus, Syst. Nat. i. p. 138 (1766).

Corvus apud Sparrman, Mus. Carls. fasc. iv. (1786-89).

Garrulus apud Vieillot, Nouv. Dict. xii. p. 478 (1817).

Pica apud Wagler, Syst. Av. Spec. 20 (1827).

Perisoreus, Bonaparte, Comp. List, p. 27 (1838).

THIS group forms, as it were, a sort of link between the Nutcrackers and true Jays, and contains four species, three of which (*Perisoreus canadensis*, *P. obscurus*, and *P. capitalis*) inhabit the northern portions of the Nearctic Region, and the fourth (*Perisoreus infaustus*) the northern portions of the Palæarctic Region. These birds are fearless and tame to a degree, appearing to welcome rather than shun the presence of man. They inhabit forests and groves, appearing to prefer conifer to non-evergreen woods. Their flight is Jay-like, but silent; for they move about with scarcely any more noise than an Owl. They feed on insects, berries, small birds, and mammals, and will devour meat hung up to dry. Their note is loud, weird, and harsh; but they also utter at times a low, rather mellow sound. They breed very early in the season, like the Nutcrackers, constructing a strongly built cup-shaped nest of lichens and twigs lined with finer lichens, grass, and a few feathers, which they place on a conifer tree. The eggs, from three to five in number, are pale greenish white marked with purplish grey and brown clearly defined blotches.

Perisoreus infaustus, the type of the genus, has the bill like that of *Nucifraga*, but shorter and comparatively broader; nostrils basal, covered by stiff feathers directed forwards; wings short, broad, rounded, the first quill shorter than the inner secondaries, the second shorter than the ninth, the fifth longest; tail long, slightly graduated; tarsus long, strong, covered in front with four large and three inferior scutellæ; toes moderate; claws curved, acute, moderately long; plumage soft and lax.



SIBERIAN JAY
PERISOREUS INFAUSTUS

PERISOREUS INFAUSTUS.

(SIBERIAN JAY.)

Lanius infaustus, Linn. Syst. Nat. i. p. 138. no. 25 (1766).*Le Geai de Sibérie*, Buff. Ois. iii. p. 154 (1774).*Corvus infaustus*, Sparrm. M. Carl. fasc. iv. pl. 76 (1786-89).*Corvus sibiricus*, Gm. Syst. Nat. i. p. 373 (1788).*Garrulus infaustus*, Vieill. Nouv. Dict. xii. p. 478 (1817).*Pica infausta*, Wagl. Syst. Av. spec. 20 (1827).*Corvus mimus*, Pall. Zoog. Rosso-As. i. p. 395 (1831).*Perisoreus infaustus*, Bp. B. of Eur. p. 27 (1838).

Ulykkesfugl, *Gjertrudsfugl*, Danish; *Lavskrige*, *Rödskjære* (literally *Lichen-Jay* and *Red Magpie*), Norwegian; *Lafskrika*, *Rödtjuxa*, Swedish; *Gnofsak*, *Kukhainen*, Lapp; *Kuusanka*, *Kuusankanärhi*, Finnish; *Rousha*, Russian.

Figuræ notabiles.

Montbeillard, Pl. Enl. p. 608; Werner's Atlas, *Omnivores*, pl. 9; Gould, B. of Eur. pl. 215; Naumann, Vög. Deutschl. pl. 350; Sundevall, Svensk. Fogl. pl. 19. fig. 2.

♂ *ad.* pileo toto et nuchâ saturatè nigricanti-fulvis: fronte pallidiore: collo, gutture, pectore et dorso pallidè cinereis, hâc vix rufescente lavato: uropygio supracaudalibusque lætè ferrugineis: rectricibus ferrugineis, vix cinereo apicatis, duabus intermediis saturatè cinereis: remigibus nigricanti-fulvis, in pogonio externo fusco-cinereis: primariis ad basin ferrugineis: tectricibus alarum minimis scapularibusque dorso concoloribus: tectricibus superioribus fusco-cinereis, in pogonio externo ferrugineis: abdomine, hypochondriis, crissoque pallidè ferrugineis: rostro et pedibus nigris: iride brunneâ.

♀ *ad.* haud a mare distinguendus.

Juv. adulto similis sed saturatior.

Adult Male (Christiania, Norway, December). Crown and nape sooty brown, gradually fading in tinge as it joins the colour of the back; forehead rather paler than the crown, and the feathers covering the nostrils dirty yellowish brown; back and scapulars dull lead-grey, washed, more especially towards the rump, with pale reddish brown; rump and upper tail-coverts bright foxy red; tail bright foxy red, slightly tipped with grey, except the two central feathers, which are pure lead-grey; quills sooty brown on the inner web, brownish grey on the outer web, some of the primaries being marked with rufous at the base of the outer web; larger wing-coverts similar in colour to the quills, but having the outer webs marked with bright rufous, which colour in some pervades almost the entire outer web; lesser wing-coverts brownish grey; chin, throat, and breast grey, rather purer in colour than the back; abdomen, flanks, and under tail-coverts rufous; beak and legs black; iris brown. Total length 12.5 inches, culmen 1.05, wing 5.6, tail 5.7, tarsus 1.4.

Female. Similar to the male.

Young (Quickjock, 14th June). Differs from the adult bird in being much duller in colour, and the rufous portions of the plumage being not so bright.

THIS aberrant Jay is in Europe an inhabitant of the high northern districts of Scandinavia, rarely, if ever, straggling into Northern Germany; but in Asia it is found as low as the island of Saghalien. It has not been met with in Great Britain, Iceland, or Greenland; but as regards its occurrence in Scandinavia, Mr. Collett informs me that it breeds numerous in the interior of Lapland, more especially in the eastern part, and but sparingly to the south towards the forests of Trondhjems stift, more commonly, however, to the south of Trondhjems fiord. Numbers are found in all the conifer-woods of Hamar stift, which cover the highlands, as in the Gudbrandsdale, Osterdale, and in Valdres down to Land—in the highlands round Mjösen, as, for instance, on the Spreifjeld of Thoten—and here and there down to Nordmarken, near Christiania, in the Nume-dale, on Modum, and in Lier. It has even been known to breed as far south as $59\frac{1}{2}^{\circ}$ N. lat. in Christiansands stift, in Thelemarken, and during the autumn has been met with at Næs iron-works, in $58\frac{1}{2}^{\circ}$ N. lat. Thus in Norway it is found over an area embracing eleven degrees of latitude. It is generally met with during the breeding-season in the upper part of the fir-region, and has never been observed on the west coast of Norway where the pine does not grow. Professor Sundevall records its range on the Swedish side as “above that of the Common Jay.” It is said to occur as far south as the Dal-elf, in about $60\frac{1}{2}^{\circ}$ N. lat., but it is not common below 62° . Northwards it is met with as high as the conifer-growth extends, and even into the birch-region. At Alten and in East Finmark it is numerous in 70° N. lat., but is not found at Hammerfest. It seldom wanders far from its summer haunts; and its winter quarters are therefore much the same as those it inhabits at other seasons of the year, though stragglers occasionally wander further to the south. Thus it has been recorded as having been seen near Stockholm, and even in Småland; but these occurrences require corroboration. Dr. R. Sundström also refers to the above-recorded occurrence at Stockholm, and further states that one was killed in the month of May near the town of Askersund, in Southern Nerike. It is, he states, “most common in the conifer-woods of Norrland and Lapland, but is found in Northern Wermland in the autumn and winter. In the high north it is exceedingly tame; and no bird is more curious, for it cannot refrain from examining any strange object. If one meets with a family of Siberian Jays in any quiet place, they can be shot down one after another; for they merely fly to the next tree when a shot is fired. On the fells it is generally found in the conifer-region, but sometimes penetrates into the birch-region.” On the Finnish side it is met with in the high north; but Von Wright records it as having occurred as far south as Helsingfors, where, however, it is rare. I saw several above Åbo, and thence up to Uleåborg, when travelling along the coast, generally meeting with them on the sides of the roads which are cut through the forests. It is not uncommon in Northern Russia. Mr. Meves met with it tolerably often in the large woods in the Archangel Government, more especially when travelling from Onega to Archangel and to Kargopol; and Mr. Sabanäeff informs me that it “breeds in the Governments of Jaroslaf, Wladimir, and even Moscow, but rarely in the last Government. It is probably found during the summer near Odoeff, in the Government of Toula; and Eversmann states that it breeds in

the forests of the Government of Kazan. In the mountains of the Central Ural it is tolerably common, but nowhere so numerous as the Nutcracker and the Jay. It breeds in the pine-woods in the month of April."

Professor Sundevall doubts its ever having occurred in Germany; and certainly the record of its occurrence in Silesia, referred to by Gloger, is open to doubt. Naumann also writes that it has been met with once in the Tatra mountains and twice in Silesia, without, however, giving very close details; and it is possible that he may have been mistaken. It has not been recorded, as I am informed by Mr. Benzon, in Denmark in this century; but in the last, about 1770, it was taken alive, at least twice, on Christiansö, near Borgholm, and was in the possession of a thoroughly good ornithologist, Johann Dietrich Petersen, who wrote, for that time, a most remarkable work, 'Christiansös Fuglehistorie,' which was not printed, but is in two folios of MS. in the Royal Library at Copenhagen.

To the eastward the Siberian Jay is found throughout the Amoor country, where it was met with by Von Middendorff, Radde, and Schrenck. The first-named of these travellers "did not observe it further north than Turuchansk; but near Jakutsk, in the Stanowoi mountains, and on the southern shores of the Sea of Ochotsk, it was numerous." Dr. Gustav Radde met with it near Lake Baikal and in the Lower Angara valley, but never in the Bureja mountains. During the three months he wandered through the forests of the Baikal he only once saw it; but later on he observed it about 60 versts below Irkutsk, in a pine-forest; and here it is said at times to be numerous during the summer. Von Schrenck observed it most numerous at the mouth of the Amoor, and on the island of Saghalien, and near the Nikolaieffsk Post saw it almost daily from August to February. In June and July he met with it scarcely less frequently in the conifer-woods of the Bay of Castries and at Kidsi. Higher up the Amoor it is rarer, but was met with on the Lower Ussuri. Messrs. Dybowski and Parvex merely record it as being rare in Darasun. In its habits the Siberian Jay is fearless and confiding, and reminded me much of its close relation in America, *Perisoreus canadensis*, which, from its tameness, and its habit of frequenting the hunters' camps and sharing with them the produce of the chase, has acquired the name of Camp-bird and Moose-bird. Several times when out shooting in the wild forests of Finland, and seated, eating my frugal meal, I have been startled by the appearance close to me of the Siberian Jay, or by hearing its weird melancholy cry in my immediate proximity; for the bird flies so silently that it drops on to a twig near one like a leaf wafted by the autumn wind.

The notes of the Siberian Jay are strange and weird. Wheelwright not inaptly speaks of its call-note as a "mew;" for though it may best be expressed by the syllables *tjäh, tjäh*, it has a distant resemblance to a screaming mew. Mr. Collett informs me that besides this note, which, with modulations, is the only one I have ever heard, "it sometimes utters a few mellow and flute-like notes, though these latter are but seldom heard."

"When passing through the large pine-woods in the southern valleys of Norway, where the death-like silence is only at long intervals broken by a passing flock of Titmice, accompanied by some Golden-crested Wrens and a few Creepers (*Certhia*), my attention has been suddenly attracted by a peculiar clucking note from the nearest tree, caused by a flock of the Siberian Jay, which, with every sign of curiosity, were gazing at us from the lower branches of the firs. They are not shy birds; and, far from flying away on our approach, they hover noiselessly still nearer to

us; the same clucking note (which cannot be expressed in words) is heard once more, and they soon again disappear in the same silent manner."

The food of this bird consists of insects, small mammals, and, to some extent, berries of various kinds. Pastor Sommerfelt states that when it has young it feeds them on reindeer meat, which it steals when hung up to dry by the Laps. Like the Common Jay, it is said to attack and devour young and weakly birds. Mr. R. Collett writes to me that "in the stomachs of individuals snared in the woods in the neighbourhood of Christiania in the autumn and winter I have found, besides rowan berries, bilberries, and various seeds, remains of a *Sorex pygmaeus*, and larvæ of several insects (*Geometridæ* and *Noctuæ*). Like the Common Jay they also feed on other birds, and are said to kill and eat Thrushes and other species of birds that are caught in snares. I am sure that this predatory instinct is well known to other birds, and I have sometimes seen it mobbed by them as if it were a true bird of prey. In the summer of 1871, on the Dovre, my attention was attracted by a shrill scream of anxiety uttered by a Redshank (*Totanus calidris*), which was conveying her newly hatched young on a marsh covered with small, scattered fir trees; and I observed that a Siberian Jay was fluttering over the brood and clearly intended to seize one of them." Dr. Sundström confirms what Mr. Collett says, and further states that "it is more destructive to small birds than the Common Jay, and kills great numbers of them. It will also feed on dead black game, Hazel-Grouse, and Ptarmigan which have been caught in snares." The Siberian Jay breeds not uncommonly in East Finmark (Lapland), and is there a resident. Pastor Sommerfelt writes that he obtained eggs taken in April and as late as the early part of May; according to that gentleman the bird commences to sit directly the first egg is deposited, in order that the eggs may not be damaged by the severe cold, which is often as much as 20° Réaumur below zero during the season the bird is sitting. Nor will the bird leave her nest however much noise is made, nor yet when the tree is climbed, but she sits crouched close on her eggs, and when lifted off and thrown on one side will immediately return to the nest, even whilst the intruder is close to it. Mr. R. Collett, who has taken the eggs of this bird in Norway, informs me "that the nest is not easy to obtain, as the snow at that season lies very deep in the forest. In March or April it builds its very peculiar nest close to the stem of a pine or fir tree; it is constructed principally of grey lichens (*Usnea barbata* and *Everina sarmentosa*), closely interwoven with dry fir twigs stripped of their spines, a few of its own feathers and those of the Ptarmigan being inserted here and there; fragments of conifer foliage, pieces of other lichens (*Parmelia saxatilis*), and the thin membranous bark of the fir are also interspersed. In the bottom there are stalks of dry grass; and, as unusual materials, I have seen leaves and fragments of a wasp's nest. The outside diameter of the nest is 140 to 150 millimetres, inside 60 to 87 millimetres, height 110 to 120 millimetres. The eggs are from three to five in number, length 29 to 33 millimetres, breadth 20 to 22 millimetres; the size, however, varies considerably in the same nest. In the southern parts of the country the eggs are often laid in the latter end of March or early in April, in Lapland hardly before April. This bird sits very close, and can sometimes be taken with the hand when on her nest."

To Professor Newton I am indebted for the following details respecting the nidification and habits of this bird, as observed by the late Mr. Wolley and himself in Lapland:—"I think it may be confidently asserted that up to the year 1853 no one had placed on record the

positive discovery of the eggs of this bird. Its empty nest had been found by Herr Malm some thirty years ago (Naturhist. Tidsskr. 1845, p. 193), and there was Professor Nilsson's statement of what the eggs were said to be like (Skand. Faun. 2nd ed. Foglarna. i. p. 185); but this seems to have been all that was known. In 'Naumannia' for 1853 (p. 425), Dr. Baldamus describes two eggs from Finland, which he thought could scarcely be those of any other bird; but the warning of his concluding observation, 'Noch unsicher,' is fully borne out by the figure of one of these eggs which he gave in the same journal next year, and is as unlike what we now know to be the egg of *Perisoreus infaustus* as can be required to prove that his supposition was unfounded. At the meeting of the German Ornithologists' Society at Gotha in July 1854, Dr. Kjærbölling exhibited one of two eggs and part of a nest which he had obtained from West Finmark, and ascribed to this species. He said (Naumannia, 1854, p. 310; Journ. für Orn. 1854, p. lxi) that the eggs agreed in size with those of *Turdus iliacus*, but were 'mehr rundlich und zugespitzt,' which seem to be rather contradictory epithets. The history of the eggs is not stated; and I must be pardoned for expressing my belief that the Doctor was mistaken either in assigning them to the Siberian Jay or those with which he compared them to the Redwing. However, be that as it may, in this same year (1854) Mr. Wolley certainly obtained eggs of *Perisoreus infaustus*. These, three in number, were, as he was subsequently told by the finder, Johan Samuel Mantuvaara, in a nest made principally of 'tree-hair' (*lupu*), built about two fathoms from the ground in a small *Pinus sylvestris*, very thick and close in its branches, much overgrown with the same lichen. It was early in the spring, there was still much snow, and he was on a hill near Rowtos-järwi cutting timber; when the tree fell it touched another, and the bird flew out. These three eggs, though much damaged, are now in my possession. The following year (1855) Mr. Wolley obtained five perfect eggs out of fourteen, the contents of four nests found by Johan Eric Rowa—two with four, and two with three eggs in each. These nests were mostly in small trees near bogs, and so low that they could be reached by the hand when standing on the snow; but one was halfway up a much bigger tree. The nests were conspicuous enough, made of sticks and lichen, but not near together. One of Johan's brothers looked for two days without finding a nest, but in this way he got to know the ground the birds frequented. 'In the morning they collect in flocks to feed; and when a pair is seen to leave the rest they can sometimes be traced to the nest; but the flight is performed in a way to avoid observation. At its nest the bird is generally quite silent; but while one is climbing up it will make a little noise. When suddenly started from the nest it flies straight off; but when it has young it will scarcely leave the tree, and scolds roundly at an invader. The best way to find a nest is to quarter the ground regularly; and the *skidor*-marks enable this to be done with great accuracy. The search is best made in the night, when the snow bears, and of course in places known to be frequented by the birds.' In some nests, according to the statement of this man, whose words were taken down by Mr. Wolley, there were young hatched in the first week of May; but a fresh nest was found towards the end of that week or the beginning of the second week; and as the bird did not know of the discovery, she afterwards laid three eggs, which were in due time taken. Just before St. Eric's day (18th of May) eight nests, with young, were found by Johan and his brothers. They thought that it was in the habit of collecting feathers for the lining of its nest in the preceding autumn.

“Mr. Wolley also writes of the same year (1855):—‘This season Ludwig and Anton tried hard with my direction and assistance to find the eggs in Muoniovaara. We put meat in the woods, and watched early and late. Plenty of birds came; but we could not make out their nests. At last Ludwig found one early in April without eggs. I also examined it. Later in the season the tree was cut down; so I have not secured the nest*. It was some twenty feet up in a Scotch fir. In May Ludwig found a nest near it with young. He put them in a cage; but the mother let them out by opening the fastening. This nest is before me. It is made at the bottom of a considerable quantity of old branches, mostly bleached and barkless, and in some cases covered with black lichen, then a lighter-coloured lichen, and on the top feathers with a little hare’s down, spider’s nests, and so forth. The thicker part of three other nests is here—two from Rowa, and one from Mantuvaara. They are a considerable thickness of feathers, lichen, spider’s web, silvery bark (such as is found in Bramblings’ nests), &c. The feathers are mostly Capercally and White Willow-Grouse. The Mantuvaara nest is mostly made of cock-Capercally with a few Lapp-Owl’s feathers; and as the latter bird was so scarce last winter, it would almost favour the notion that the feathers had been collected previously. The Mantuvaara nest was sent with an egg, which I have given to Mr. Newton. The same lad found it who sent me the eggs last year.’

“Besides the six perfect eggs already mentioned as having been obtained in 1855, eight more were brought the same year to Mr. Wolley. In 1856 he did not reach Lapland till too late in the season to take a nest himself; but several were found by his collectors. In 1857 more were found, one of which with its three eggs he sent by Dr. Nylander to the Museum at Helsingfors; and on the 17th of May he had the satisfaction of taking one with his own hands, though it contained but a single addled egg and two young birds some two days old†.

“Mr. Wolley was very anxious to obtain and bring alive to England some of these birds. There was no difficulty about snaring as many as one liked; but, though so tame and familiar when at large, there was at first no getting them to feed in a cage. At last the effort was successful; and when he and I left Muoniovaara in 1855 we had five examples, healthy and brisk, with us, all of which were finally safely deposited in the Zoological Society’s large aviary, where, I regret to say, they did not very long survive, their death being attributed (rightly or not, I know not) to the painting of the aviary while the birds were yet in it. On the way home we stopped for a week at Stockholm; and there these birds created a great sensation. Each in a cage to itself, they were placed at the open windows of our hotel, which looked on a market-place; and their loud and varied calls kept a crowd of small boys in constant excitement. The boys would imitate the Jays’ cries; and the Jays kept replying to the boys. I could only wonder at the forbearance of the neighbours and the police; but I rather think some of them were a good deal diverted by the whole proceeding. More sprightly and cunning birds than those Jays cannot well be, whether caged or not. In their own woods one hears their deep, ringing *kook, kook,*

* “About the middle of April in this year Mr. Wolley left Muoniovaara for Norway.”—A. N.

† “The egg which I exhibited to the Zoological Society, 10th Dec. 1861 (P. Z. S. 1861, p. 396), and then said that I believed it to be that of *Nucifraga caryocatactes*, is, I now hardly doubt, that of *Perisoreus infaustus*.”—A. N.

kook, followed by a series of noises which sounds like a conversation carried on by two or three people in an unknown tongue. One puts up a family party off the ground where they have been feasting on the berries; and away they go through the trees with their wavering unsteady flight, every here and there a gleam of sunshine catching their tails; and turning them into gigantic Redstarts. Or when one halts for any purpose, there comes a Siberian Jay, at first stealthily; but soon, if he sees no sign of danger to him, and a possible legacy in the shape of scraps of food, he displays himself openly, perching almost within arm's length, swinging his tail like a Bullfinch, and turning his head on one side like a Redbreast or a Bluethroat, now erecting his crest and ruffling his long loose plumage, now shaking it all compactly down, calling his neighbours if there be an appearance of entertainment, talking to them as they approach, or thinking aloud if they are slow to come. There is no wonder that these birds excite the attention of all whose business is among the great forests of Lapland; but, so far as I know, Mr. Wolley was of opinion that they were never regarded by Lapps or Finns as birds of bad omen: on the contrary, the woodsman who is discomfited by the call of *Parus cinctus* rather looks upon the *Kukhainen* as a harbinger of good luck; and the name of *Olycksfogel*, by which, according to Linnæus, it is known to Swedes, was most likely given to it by some wandering settler of that nation. Linnæus, in perpetuating the idea thereby conveyed, seems to have been disposed to revenge himself on the species for its pilfering his provisions when he was in Luleå Lappmark; and he adds to his notice of it '*audacissima avis, quæ nobis prandentibus sæpe coram cibum abripuit*'! I first made the acquaintance of this bold robber in the valley of the Tana, and in my subsequent course was always glad when I encountered it. At Muoniovaara I saw *in situ* the nest from which Ludwig took the young birds whose mother liberated them from captivity as above mentioned."

Mr. A. Benzon informs me that he possesses "several nests obtained in Lapland and Norway, which are constructed outside of small twigs, dry straws, lichens, and marsh-cotton, and lined with marsh-cotton. They measured outside from 170 millimetres in diameter by 70 millimetres in height to 200 by 80 millimetres, inside about 75 millimetres diameter, and from 40 to 50 millimetres deep." I am indebted to Mr. Robert Collett for a very beautiful and well-preserved nest of this bird obtained by him in Norway. This nest is built almost entirely of the long pendent lichen (*Usnea barbata*) so common in the northern forests, twigs, chiefly of the larch and pine, and a few roots. The lining is composed of the same lichen as is used in the construction of the foundation, and a few grass bents; and here and there on the edge are pieces of a grey paper-like wasps' nest placed as if for ornament.

Fifteen eggs of the Siberian Jay in my collection vary in size from $1\frac{6}{40}$ by $\frac{34}{40}$ to $1\frac{13}{40}$ by $\frac{35}{40}$ inch, and in colour from dirty white to pale greenish white, spotted and blotched with purplish grey underlying shell-markings, and lighter or darker hair-brown surface spots, which are generally dark, large, clearly defined. Though in one or two they are spread tolerably evenly over the surface of the shell, they are, as a rule, collected closer round the larger end.

The specimens figured and described are both in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *adult*. Christiania, Norway, December 7th, 1871 (*R. Collett*). *b*, ♀. Quickjock, Lapland (*H. W. Wheelwright*). *c*, *juv.* Quickjock, June 14th, 1865 (*Wheelwright*). *d*, ♂. Darasun, Dauria (*Dybowski*).

E Mus. A. Newton.

a, ♂. Muoniovaara, Lapland, August 15th, 1855; *b*, ♀. Muoniovaara, August 25th, 1855; *c*, *juv.* Tana, below Polmak, July 4th, 1855 (*A. N.*).

E Mus. J. H. Gurney, jun.

a. Lapland.

Genus GARRULUS.

Garrulus, Brisson, Orn. ii. p. 46 (1760).

Corvus apud Linnæus, Syst. Nat. i. p. 156 (1766).

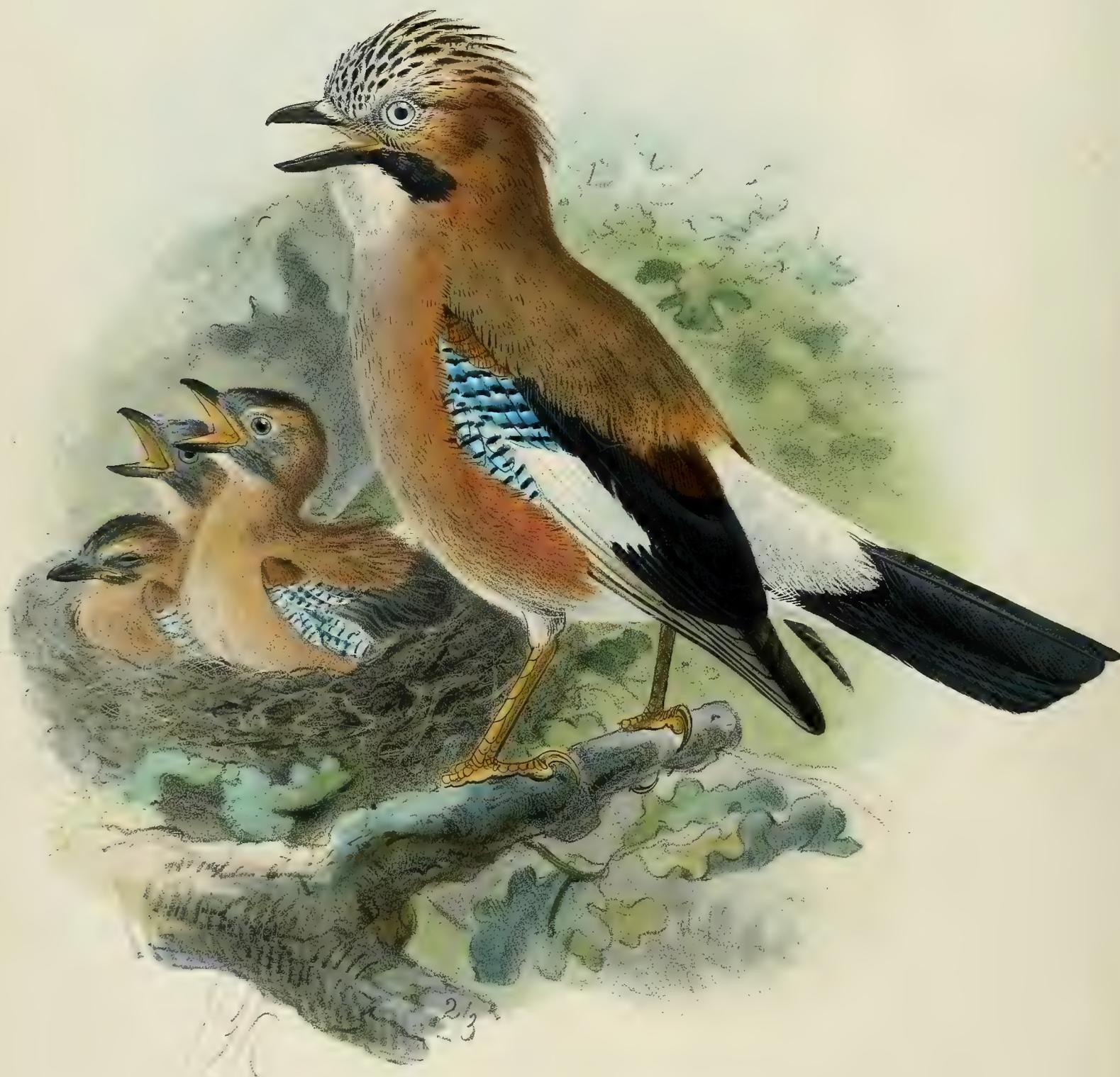
Glandarius apud Koch, Baier. Zool. i. p. 99 (1816).

Lanius apud Nilsson, Orn. Suec. i. p. 75 (1817).

THE true Jays, of which, according to Mr. Sharpe (Cat. B. Brit. Mus. vol. iii.), there are altogether fourteen species known, inhabit the Palæarctic, Ethiopian, and Oriental Regions, five species being found in the Western Palæarctic Region.

They frequent forests, groves, and gardens, are habitually shy and wary, shunning the presence of man, and feed on insects, fruits, &c., as also on small birds and mammals; and they frequently rob other birds of their eggs, which they suck. Their flight is direct and strong; and their note is loud, discordant, and harsh. They construct a rather large cup-shaped nest of sticks and twigs lined with fine roots and grasses, which they place on a tree or bush, and deposit greyish or greenish-white eggs spotted with pale brown.

Garrulus glandarius, the type of the genus, has the bill moderately long, stout, the upper mandible curved towards the point, the lower one also curved upwards from about the centre; gape-line straight; nostrils basal, covered by bristly feathers directed forwards; plumage on the crown full, and inclined to form a crest; wings rather short, rounded, the first quill shorter than the inner secondaries, the second shorter than the eighth, the fourth or fifth longest; tail long, even or slightly emarginate; tarsus long, covered in front with five large and three inferior scutellæ; toes moderate; claws rather short, stout, curved, acute.



COMMON JAY.
GARRULUS GLANDARIUS.

GARRULUS GLANDARIUS.

(COMMON JAY.)

- Corvus glandarius*, Linn. Syst. Nat. i. p. 156 (1766).
Glandarius pictus, Koch, Syst. Baier. Zool. i. p. 99 (1816).
Garrulus glandarius, Leach, Syst. Cat. Mamm. and B. Brit. Mus. p. 18 (1816).
Lanius glandarius, Nilss. Orn. Suec. i. p. 75 (1817).
Glandarius germanicus, Brehm, Vög. Deutschl. p. 180 (1831).
Glandarius septentrionalis, Brehm, Vög. Deutschl. p. 180 (1831).
Glandarius robustus, Brehm, Naumannia, 1855, p. 180 (1831).
Glandarius tæniurus, Brehm, tom. cit. p. 273.
Glandarius leucocephalus, Brehm, tom. cit. p. 273.

Jay, *Jay Pyet*, English; *Screachag-Choille*, Gaelic; *Geai ordinaire*, French; *Eichelheher*, *Nussheher*, German; *De Vlaamsche Gaai*, Dutch; *Gaio*, Portuguese; *Arrandajo*, *Cabezón*, Spanish; *Ghiandaja*, Italian; *Skovskade*, Danish; *Næddeskrige*, Norwegian; *Nötskrika*, Swedish; *Hohkanärhi*, *Paskanärhi*, Finnish; *Soika*, Russian.

Figuræ notabiles.

Werner, Atlas, *Omnivores*, pl. 8; Naum. Vög. Deutschl. ii. taf. 58. fig. 1; Gould, B. of Eur. iii. pl. 214; Yarr. Brit. B. ii. p. 116; Kjærb. Orn. Dan. Afb. xii. fig. 3; Schl. Vog. Nederl. pl. 143; Fritsch, Vög. Eur. tab. 27. fig. 10; Sundev. Sv. Fogl. pl. 19. fig. 1; Gould, B. Gt. Br. pt. 1.

Ad. suprà pallidè vinaceo-cinereascens, dorso postico vix in cinnamomeum vergente: uropygio et supracaudalibus purè albis: pileo cristato vinaceo-rufescente, fronte et regione anteculari albis, plumis medialiter nigro quasi lineatis et indistinctè cinereo transversmiculatis: regione paroticâ et collo laterali vinaceo-rufescentibus: genis omninò nigris, fasciam mystacalem magnam formantibus: tectricibus alarum minimis sordidè castaneis: majoribus extimis et primariorum tectricibus argenteo-cyaneis nigro et minùs conspicuè albo transfasciatis, majoribus intimis velutino-nigris: primariis brunneis extùs latè cineraceo-albo limbatis, secundariis nigris extùs dimidio albis ad basin cyanescente et nigro transfasciatis, remige intimo plerumque castaneo ad apicem velutino-nigro: caudâ nigrâ, subtùs pallidiore: gutture fulvescenti-albido: corpore reliquo subtùs pallidè vinaceo-rufescente, hypochondriis et subalaribus vix cinnamomeis: abdomine imo, crisso et subcaudalibus albis: rostro nigricanti-brunneo: pedibus dilutè rufescenti-brunneis: iride pallidè argentescenti-cyaneâ.

Adult Male (Hareskov, Zealand, Denmark, September 13th). Head covered with a thick full crest, whitish in colour, each feather with an oblong central black mark, giving a striated appearance to the head; nape and back delicate light brownish vinous, on the back washed with grey, and paler towards the rump, which latter, with the upper tail-coverts, is pure white; tail black, the outer feather on each side blackish brown; primaries blackish, the outer web dull white; secondaries rich velvety black, each with

a long white patch on the basal half of the outer web, the innermost secondary rich chestnut, with an oblique black patch at the tip; wing-coverts dusky black on the inner web, and on the outer web barred with black, white, and pale blue alternately; from the base of the bill, passing below the eye, a long black patch; chin dull white; lower part of the throat, breast, and underparts generally dull buffy white, dull reddish on the flanks; under wing-coverts dull reddish buff; vent and under tail-coverts dull white; beak blackish brown; iris bluish white; feet and legs light reddish brown. Total length 15 inches, culmen 1·5, wing 7·2, tail 6·5, tarsus 1·5.

Female. Similar to the male, but somewhat duller in colour.

THE Common Jay is found throughout Europe, from the central and northern parts of Scandinavia down to Algeria, and eastward to the Ural. In Great Britain it is a common bird, sedentary in most parts, and, according to Mr. A. G. More, found during the breeding-season "as far north as the middle of Scotland." Macgillivray describes the Jay as "found here and there in the woods skirting the Grampians, from Forfar to Dumbarton, and in all the more or less wooded districts southward." Colonel Drummond-Hay marks the Jay as breeding regularly in Perthshire; and Captain Orde describes it as occurring in Argyleshire "wherever there is much copse-wood." In Scotland, Mr. R. Gray writes, it is "in some districts now rare through the persecution of gamekeepers; but in others it appears to maintain its ground in spite of all attempts to destroy it. The Dumbartonshire woods, especially those in the neighbourhood of Loch Lomond, still give shelter to limited numbers; and in many parts of Argyle and Inverness shires the species is still a conspicuous ornament. I have seen it in pairs in the higher reaches of Shemore glen, Loch-Lomond-side, frequenting a thin clump of trees on the hilly slope, about a thousand feet above the sea-level. Mr. William Hamilton has informed me that this bird is common in the woods of upper Loch Fyne; and the Rev. Alexander Stewart of Ballachulish has sent me word that it has, of recent years, become rather common in the district of Lochaber, Inverness-shire. 'Ten or twelve years ago,' writes Mr. Stewart, 'there was not a Jay in this part of the country; but within the last few years they have been seen occasionally about Nether Lochaber, and north, as far as Glengarry, along the woods skirting the Caledonian Canal, and about Lochiel's seat of Achnacarry.' According to Mr. Shearer (see Proc. Royal Physical Soc. of Edinb. vol. ii. p. 338), it is found even in Caithness. The species appears to have occurred but once in Shetland."

There are few parts of England where the Jay is not common. We have ourselves found it in the northern and western counties, as well as in Devonshire, Sussex, Surrey, Kent, and the other southern counties. In some parts of Kent it is especially numerous. Mr. Stevenson writes that it is "common throughout the year, breeding in Norfolk, and, like *Pica caudata*, would seem to receive, at times at least, considerable accessions to its numbers in autumn. Every sportsman knows the small flocks of these birds which occasionally present themselves during a day's covert-shooting; and many a gamekeeper, who prides himself on the extinction of 'vermin,' is suddenly disgusted, on his rounds, by finding more noisy Jays, during one day's round, than he has had a chance of shooting in a twelvemonth. Yet these, most probably, are but native-bred birds, which, forming themselves into companies, as is their custom late in the season, rove from one plantation to another in search of acorns and berries as food becomes scarce during sharp

weather. The far larger bodies, however, occasionally observed, can scarcely be accounted for in the same manner, of which a very memorable instance occurred near the coast in an adjoining county, and is thus given by Messrs. Sheppard and Whitear:—"Some years since, as two gentlemen were sporting at Tunstall, in Suffolk, distant about five miles from the sea, they observed an extraordinary flight of Jays passing in a single line from seaward towards the interior. This line extended further than the eye could reach, and must have consisted of some thousands. Several of them were killed as they passed; but the firing at them did not occasion the rest to deviate from their line of flight." I have also observed these birds in some years to be extremely plentiful in spring, and have known many pairs killed as late as the beginning of April, when they may be supposed to pass us again on their return northwards."

It is not uncommon in Scandinavia, as high as about 64° N. lat., or somewhat higher. Our friend Mr. Collett records it as common in Norway, breeding from the lower portion of the southern and eastern provinces up to Snaasen, in Trondhjem Stift (64° N. lat.); along the west coast it is rarer, but has been observed at several places, such as Ryfylke (by Bahr), Etne in Hardanger (by Sommerfeldt), at Bergen (by Koren), and at Nordfjord (by Krogh). On the fells it disappears in the upper part of the fir-region. On the Swedish side it is met with about as far north as in Norway; and Wheelwright considered that it occasionally straggles into Lapland. Dresser met with it commonly in all parts of Finland, where, according to Von Wright, it is found throughout the year, even in the northern and central portions. Throughout the whole of the forest-region of Russia it is, as Mr. Sabanäeff informs us, a common species, and is more especially found in pine and oak woods. It is everywhere sedentary, or at least nearly so. During the winter season it is tolerably rare in the Governments of Jaroslaf and Moscow; but on the Ural numbers are found at all seasons of the year. Mr. Sabanäeff informs us that the Jay found in Perm, and even in Simbirsk and Kazan, is an intermediate species between *G. glandarius* of Europe and *G. brandti* from the Altai; but specimens sent to us by him from the Ural belong certainly to the latter species, and on comparison with typical examples of Brandt's Jay from Japan we fail to find any difference. The Ural range is therefore, we conclude, the eastern boundary of the range of the Common Jay; and here it meets *Garrulus brandti*, which species extends from the Ural through Siberia into Japan. Our Common Jay is a numerous species throughout the Baltic Provinces, Poland, Germany, Denmark, Holland, Belgium, and France, chiefly frequenting the non-evergreen woods and groves. Professor Barboza du Bocage records it as common in Portugal; and Major Irby informs us that it is "resident and abundant in the Cork Wood, and to be met with on most of the wooded hills and mountain-sides in the vicinity of Gibraltar. Occasionally seen in winter on the 'Rock,' though not regular in appearance. I only saw them in the winters of 1870-71 and 1871-72."

Mr. H. Saunders also writes that in Southern Spain it is "abundant in all wooded districts, except those south of Seville, where I never met with it. Near Granada and further north it breeds plentifully." In Southern France, Switzerland, Savoy, and Italy it is everywhere common and, as elsewhere in Europe, sedentary. Mr. A. B. Brooke writes to us, saying that it is extremely common in Sardinia at all seasons of the year; and Dr. H. Giglioli states the same as regards the neighbourhood of Pisa. Lord Lilford and Captain R. M. Sperling both found it abundant and breeding in Epirus and Corfu; and the various writers on the ornithology of Greece all agree in

saying that it is common throughout that country. Dresser met with it everywhere on the Danube where there were oak-forests; and we have received several specimens from Mr. Robson, obtained by him in the neighbourhood of Constantinople. Here it meets the Black-headed Jay, which, in that country, appears to be the most numerous species. Professor von Nordman, who speaks of the Black-headed Jay as a mere variety of the common species, writes that "the Common Jay is very common in Bessarabia and New Russia, but in the Crimea and the Caucasus it is replaced by the Black-headed Jay." In September he says he saw individuals intermediate between these two species near Sou Dagh, in the Crimea; but we have never been able to find any specimens such as he appears to refer to, unless he can have had young examples of the Black-headed Jay. In the forests of Abasia and the mountains of Ghouriel the Black-headed Jay alone occurs; but Ménétries refers to the present species as being found in the forests of the Caucasus and Lenkoran, but not higher up the mountains than about 3000 feet above the sea. Mr. Blanford lately brought back a Jay from Persia which differs considerably from our common species, being smaller, not so grey on the back, and having a much darker crest. In Asia Minor the Black-headed Jay replaces the present species, which is also not found in North-eastern Africa; but as regards Algeria we consider that the bird referred to by Loche, under the name of *Garrulus minor*, Verr., is nothing else but the Common Jay.

In its habits the Common Jay is wary and shy; and though its presence is usually heralded by its harsh discordant cries, it is very difficult of approach, and knows well how to keep out of gunshot. It is no favourite with the gardeners, on whose crop of peas it often levies black mail with impunity; and its taste for eggs also brings it under the ban of the gamekeepers, in whose collection of "vermin" nailed against a barn-door, or hung on a convenient tree at the edge of some wood, the bright-coloured wings of the Jay are often conspicuous. It is often followed and mobbed by various species of small birds, proving that they look on it as an enemy, and with justice, as it frequently kills their young and sucks their eggs. Macgillivray writes that "it is not less shy and suspicious than the other species of the Corvine family, although it frequents gardens for the purpose of feeding on the fruit, as well as beans and peas, of which it seems to be particularly fond. Its food, however, is not confined to these objects; for it also searches for worms, larvæ, and snails, plunders the nests of small birds, and pounces on mice and sometimes birds. The principal substances which I have found in its stomach in winter were acorns, mixed with fragments of quartz. It is scarcely gregarious, although for some weeks the members of a family keep together, in which case it is almost impossible to procure one of them, as they flit before you in the woods, taking care to keep beyond reach of a shot, and uttering at intervals their ordinary harsh scream. The flight of the Jay in an open place is somewhat similar to that of the Magpie or Missel-Thrush, being direct, and performed by quick beats, with short cessations at intervals. It glides through the woods and thickets with great ease and dexterity, flits along the hedges, and rarely approaches the habitation of man, except in search of food for its young, its affectionate concern for which will induce it to brave dangers from which on ordinary occasions it would shrink." As a cage-bird it is often to be met with about the country villages; and its bright plumage, together with its power of mimicry, render it a great favourite with the cottagers. Referring to this, Yarrell writes that "young birds are easily brought up from the nest, soon become very tame, and in

confinement appear to prefer meat to any other description of food. Although the most common notes of the Jay are harsh and grating, the bird in captivity soon becomes an amusing pet, from the facility with which it imitates the sound of the human voice, and indeed almost any other sound that is to be heard sufficiently often to afford the opportunity of acquiring it." Montagu says that it will sometimes in the spring utter a sort of song in a soft and pleasing manner, but so low as not to be heard at any distance, and at intervals introduce the bleating of a Lamb, the mewing of a cat, the note of a Kite or Buzzard, the hooting of an Owl, and even the neighing of a horse. These imitations are so exact, says Montagu, even in a natural wild state, that we have frequently been deceived. Bewick says, "we have heard one imitate the sound of a saw so exactly that, though it was on a Sunday, we could hardly be persuaded that there was not a carpenter at work in the house." A correspondent in the 'Magazine of Natural History' says, "I have heard the Jay perform an uninterrupted song. It mocked the Greenfinch most inimitably; and it was a considerable time before I could persuade myself that it was an imitation. But what amused me most of all was, its imitation of the neighing of a horse. This was so near the truth, that some companions who were with me were a long time before they could be convinced that the sounds proceeded from a bird. The neighing was very subdued and suppressed, but it bore the most striking resemblance to the neighing of a colt at a distance; indeed, so close was the imitation, that, without a sight of the bird, no person could possibly, I think, be persuaded that the sound proceeded from such an agent. These imitations were accompanied, occasionally, with more subdued and melodious notes."

"I have been favoured with a communication on this subject from G. W. Edgington, Esq., Surgeon, of Binfield, in Berkshire, who, at the time of writing, had a male Jay that became an excellent mimic before it was twelve months old. "The calling of the fowls to their food and the various noises of the fowls themselves were given in perfection; but the crowing of the cock was not managed so well. The imitations of the barking and cry of the house-dog could not be distinguished from the sounds made by the original."

The food of the Common Jay consists during the summer season of various insects, worms, fruit, mice, birds' eggs, and young birds, and, according to Naumann, small frogs. It is fond of taking its share of garden-fruit; and many of our readers are doubtless aware of its partiality for peas. In the autumn and winter it feeds on nuts, berries of various kinds, and especially on acorns, of which latter it often stores away a considerable quantity, and will thus sometimes plant oaks by storing away the acorns in the ground and forgetting them.

Like many other birds the Jay is subject to albinism, and we have seen several specimens partly white, though none altogether of that colour. Mr. J. T. Moggridge, however, in a letter to 'The Ibis' (1863, p. 158), says he saw in the Jardin des Plantes this species in a cage, "the bird being entirely white as to plumage, having dark eyes, while its beak, tarsi, and feet were flesh-colour." The Jay is an early breeder, laying in April, or, according to some naturalists, even in March; the nest is a somewhat bulky structure of sticks and twigs, inside rather neatly finished, and lined with grasses and fine roots. It is usually placed in a high bush or a tree, and tolerably well concealed. The eggs, usually six in number, are greyish white or greenish grey, thickly speckled with pale brown dots and spots, which in some are collected at the larger end. In a series in Dresser's collection, obtained in England, North Germany, Styria, and Finland, the

measurements vary from $1\frac{5}{40}$ by $\frac{3}{40}$ to $1\frac{13}{40}$ by $\frac{3}{40}$ inch. Mr. Benzon writes to us respecting its habits and nidification in Denmark as follows:—"It occurs in most of our forests; but its shy nature causes it to hide its nest, so that it is but seldom found; and as it rarely brooks others near its breeding-place, they nest only here and there. It is a most destructive bird, and not only sucks the eggs of other birds, chiefly of Thrushes, but kills their young. After the breeding-season large flocks of this noisy bird range through the woods, and are most numerous in the forests of North Zealand, being there less molested; it probably breeds occasionally twice in the season, as I have eggs obtained in May and on the 10th of June, whereas it usually lays in April, and, according to Kjærbølling, as early as March. Eggs in my collection measure from 29 by 21·5 to 33·5 by 24 millimetres." Dr. Rey informs us that he has found eggs in Saxony from the 24th of April to the 9th of June; one nest was placed so low on the branches of an oak-tree that he had no difficulty in looking into it, though standing on the ground. He further states that, although six appears to be the usual number of eggs, as many as seven are often found. The average of a hundred eggs he measured he gives as 31·6 by 23, the largest measuring 35 by 23, and the smallest 29 by 21 millimetres respectively.

The specimens described and figured are in Dresser's collection; particulars as to locality are given above.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a. Kent (*H. E. D.*). *b.* Surrey (*H. E. D.*). *c.* Near Reading, February 5th, 1870 (*C. Howlett*). *d.* ♂, *e.* ♀. Zealand, Denmark, March 1871 (*A. Benzon*). *f.* ♀. Stockholm, April 18th, 1864. *g.* ♂. Gibraltar, April 21st, 1872 (*Major Irby*). *h.* ♂, *i.* ♀. Piedmont, June and February (*Count Salvadori*). *j.* ♂. Olympus, Macedonia, November 6th, 1869 (*Dr. Krüper*). *k.* ♀. Petna Hore, Turkey, December (*Thos. Robson*). *l.* *juv.* Belgium (*Dubois*).

E Mus. H. B. Tristram.

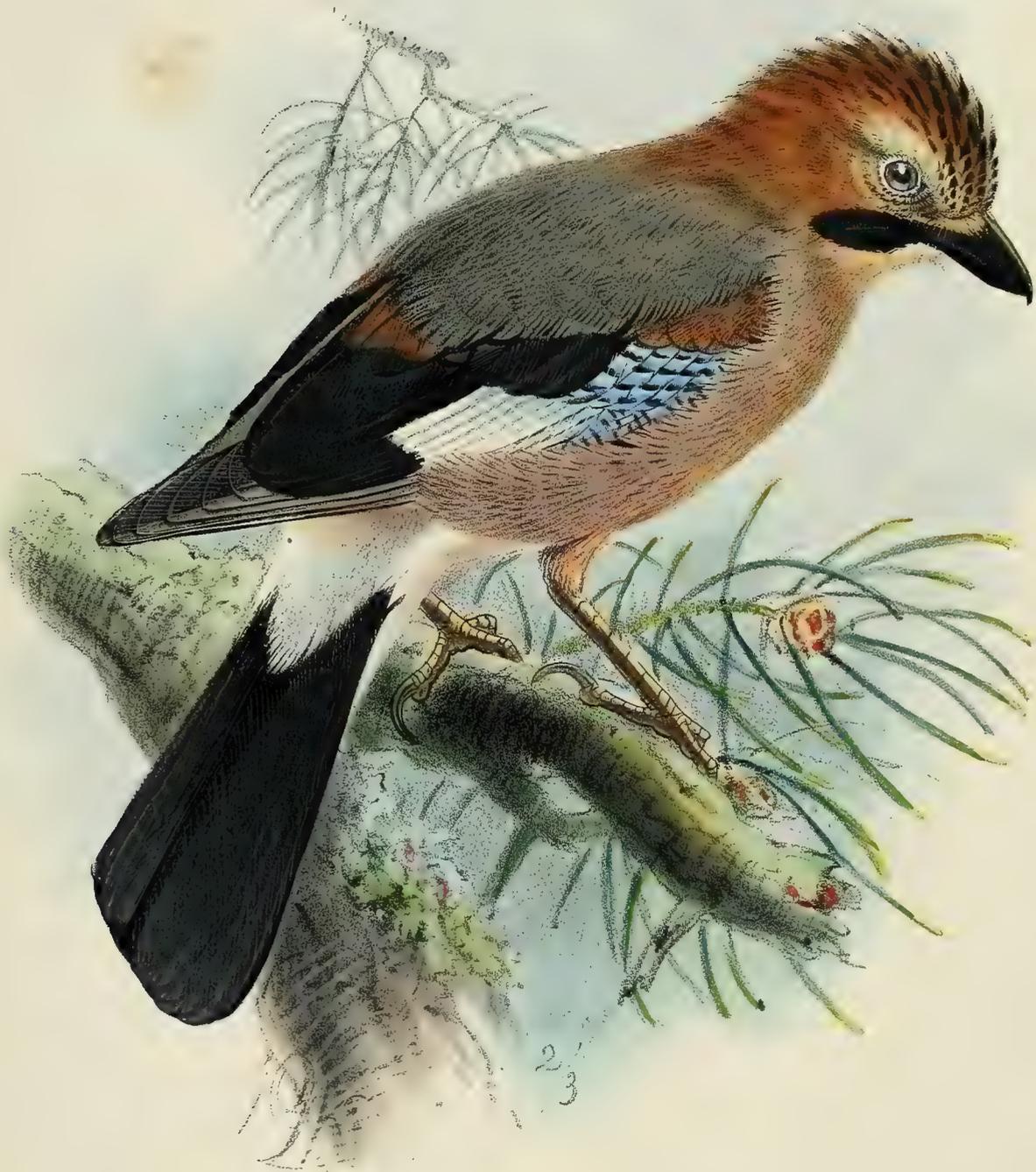
a. ♂. Epping Forest, July 1863 (*J. E. Harting*). *b.* Castle Eden (*H. B. T.*). *c.* ♀. Hampstead, January 2nd, 1866 (*H. M. Upcher*).

E Mus. Lord Lilford.

a. ♂. Lilford, Northants, March 1866 (*L.*).

E Mus. J. H. Gurney, jun.

a. ♀. Wolsingham, April 20th, 1867. *b.* Keswick, October 1870. *c.* Norfolk, December 27th. *d.* ♂. Moscow, September 1869 (*J. H. G.*). *e.* ♂ *juv.* Sparham, Norfolk (*F. Norgate*).



BRANDT'S JAY.
GARRULUS BRANDTI
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GARRULUS BRANDTI.

(BRANDT'S JAY.)

Garrulus brandtii, Eversmann, Add. Pall. Zoogr. iii. p. 8 (1843).*Garrulus brandtii* (Eversm.), Hartlaub, Rev. Zool. p. 52 (1845).*Borovaya sorochka*, Rousha, Russian; *Urman soeskan*, Bashkir; *Kenia*, Ziranin.*Figura unica.*

Whitely, Ibis, 1867, pl. iii.

Ad. alâ caudâque ut in *G. glandarius* picturatis: pileo cristato et collo postico lætè cinnamomeo-rufis, hâc lætiore, pilei plumis cristatis medialiter nigro striatis: supercilii plumis albido notatis: facie laterali anticâ, regione opththalmicâ genisque nigris: regione paroticâ posticâ, facie laterali reliquâ et collo laterali lætè cinnamomeo-rufis nuchæ concoloribus: dorso toto cineraceo, uropygio vix vinascente: supracaudalibus albis: subtùs ut in *G. glandarius* coloratus, sed paullò sordidior: rostro brunnescenti-nigro: pedibus cinerascenti-brunneis: iride pallidè violascenti-brunneâ.

Adult Male. Head and nape rich rufous-red, the feathers on the crown elongated, forming a crest, and having broad black centres on the terminal half; back and scapulars ashy grey, lighter and washed with buff towards the rump; upper tail-coverts white; tail black, the outer feather on each side slightly washed with brown; wings as in *Garrulus glandarius*; lores and a broad patch from the base of the bill, passing downwards by the eye and bordering the upper part of the throat, jet-black; chin and upper part of the throat buffy white; lower part of the throat rufous-buff, shading off into pale greyish rufous; this latter colour pervades the underparts to the vent, which, with the under tail-coverts, is pure white; under wing-coverts dull rufous-buff; beak blackish brown; iris light bluish red or violet-brown; legs dull greyish brown. Total length 14 inches, culmen 1.1, wing 6.9, tail 6.2, tarsus 1.55.

Nestling (Meves in epist.). Differs from *G. glandarius* far more in this plumage than in the adult dress; the head and nape are light rusty yellow, and the crest is much shorter than in the latter; the feathers on the forehead and crown have faint blackish points, whereas in *G. glandarius* the markings are very broad black stripes along these feathers, and are especially conspicuous on the whitish forehead, giving a very different appearance to the two species.

AMONGST the Asiatic forms of our common European species there are a few which are met with just within the limits of the Western Palæarctic Region; and one of these is the present bird, which meets its western representative in that portion of Russia which adjoins the Ural range. Mr. W. Meves, who has just returned from a visit to the Ural, where he found this Jay, writes as follows:—"The first of these birds that I met with was a young male in nestling plumage, which I procured on the 2nd of July in a wood near Ekaterinburg; it was seated on a telegraph-post, from which I shot it. On the 4th of August, when near Soijmensk, on the

Mija river, I saw a family of five or six individuals which appeared to be in full moult; and on the 16th of August I shot a nearly moulted female near the village of Tjabuk. The last that I saw were in a swampy wood near Kungur, on the Western Ural, which I visited on the 29th of August, but I did not then succeed in shooting any." We have not yet been able to examine the specimens procured by Mr. W. Meves; but we are indebted to Mr. Leonida Sabanäeff for several very well-preserved specimens of this Jay, obtained by him in the Ural, where, he states, it is common, and more widely distributed than the Siberian Jay, numerous in the oak-woods in the Government of Ufa, and in the pine-woods of the Keshtemsky and Kaslinsky Ural. These specimens we have carefully compared with skins from Japan, and find that they agree precisely, except that the rufous colour on the nape is not quite so bright in the Ural specimens; but the difference is so very slight that it is scarcely possible, after the closest examination, to distinguish them apart. Mr. Sabanäeff, however, considers that the Ural bird is really distinct from *Garrulus brandtii*, as will be seen from the notes he has sent us on the present species; but we cannot, for the reasons above stated, agree with his views. In a letter to Dresser he gives the following notes respecting the present species:—"I do not consider the specimens I sent to you to be true *Garrulus brandtii*, Eversmann, as the colour of the head in examples of this latter species from the Altai is chestnut-brown, much brighter than in those I sent, and separated more abruptly from the grey colour of the back; but I look on the Ural bird as an intermediate form between *Garrulus glandarius* and *Garrulus brandtii*, approaching somewhat nearer to the former than to the latter. This variety has been named by Professor Bogdanoff *Garrulus glandarius*, var. *severtzoffii*. It is met with not only in all the wooded portions of the Government of Perm, but even in the Governments of Simbirsk and Kazan, where *Garrulus glandarius* also occurs, but is much rarer than the present species; and I may here remark that I never met with *Garrulus glandarius* in the Ural. In the Government of Perm the present species of Jay inhabits the conifer-woods only, except in the south-eastern portion of that Government and in the Government of Ufa, where it is more generally to be met with in the oak and other non-evergreen woods. In the summer I did not meet with it in the birch-woods of the districts of Shadrinsk and Cheliabiansk, Government of Orenburg; but it is common as far as the Nijnitochilsky zavod (works), though rarer in the Bogoslawfsky Ural, and much less numerous than the Nutcracker (*Nucifraga caryocatactes*)."

To the southward this Jay extends into the Altai range, from which it was first described by Eversmann, and to the eastward through Siberia into Japan. According to the best known and most reliable of the Siberian travellers, it appears to be the common species found in that country. Von Middendorff observed large numbers in the forests between Malmysch and Kungúr in the middle of December, and again between Atschinsk and Krasnojarsk, but not further to the eastward; Radde obtained it at Lake Baikal, from near Irkutsk, and in the Bureja mountains; Von Schrenck observed it all through the Amoor country to the coast, and also on the island of Saghalien, everywhere numerous and resident, in spite of the severe cold. In December 1854, when the thermometer fell to 26° and 31½° Réaum., Von Schrenck found them on several occasions dead—as it appeared, killed by the severe cold; but, again, in scarcely less severe weather he noticed many in Liman, on the island of Saghalien, and all along the Tymy river. He observed that near the Nikolajeffsk Post they frequented the mixed conifer and non-evergreen

woods which fringe the Amoor, but higher up that river they inhabit the oak woods and hazel thickets. Radde writes that in the winter they betake themselves to the well-sheltered wooded valleys, and were found there in November. Where such localities were wanting, as on the islands of the Onon, they took refuge in the densest thickets of *Cratægus*, *Pyrus*, *Spiræa*, &c. Both in the Bureja mountains and on the lower Amoor some were found in January 1858 frozen to death. He found two dead under his roof not far from the chimney. In the Bureja mountains most were paired on the 21st of March in the spring of 1858. Von Schrenck states that he never observed either *G. glandarius* or *G. japonicus* in Siberia, and does not believe that they are ever found there. In Japan it appears to be by no means an uncommon bird. Captain Blakiston obtained a young bird, probably a female, in October, in Northern Japan; and Mr. Whitely also procured several near Hakodadi in October 1869, and states that they were there common, and that he found them to vary considerably in size. Beyond this but little is known respecting the range of this Jay; and specimens are any thing but common in collections.

In its habits, writes Mr. Sabanæeff, "it differs in no way from the Common Jay (*Garrulus glandarius*), which occurs in the neighbourhood of Moscow; so I need give you no further details on this head. Very few are met with during the winter season, but almost all migrate to the southward, the season of migration commencing about the end of August, and extending from then to about the middle of November; and during that season they may continually be heard, calling loudly, as is their wont, in the birch-woods on the eastern slope of the Ural range. About the end of February or the beginning of March, they again by degrees reappear; and about the 20th of the latter month the main body arrive in pairs: and I may here remark that I have never observed either this Jay or *Garrulus glandarius* migrating in large flocks. The eggs of Brandt's Jay are in no way distinguishable from those of the Common Jay; from four to seven are deposited; and I have found them late in April and early in May. Early in the month of June the young are able to fly, and have the tail fully grown."

Mr. Meves also writes that he observed nothing in its habits or note that in any way differed from *Garrulus glandarius*; he generally met with it in woods in the immediate vicinity of a river, and observed that it was often pursued with loud cries by small birds—a proof that the latter looked upon it with more than suspicion.

Dr. Dybowski, who states that it is a resident in Dauria, but rare, frequenting thickets and woods near the valleys, says that its nest is placed on a pine-tree, is constructed of dry birch twigs, and lined with fine grass-roots. Mr. Taczanowski, who published the above notes from Dr. Dybowski, writes that "two eggs of this Jay, 'sent home by that gentleman,' one from Kultuk and the other from Ussola, closely resemble those of the Common Jay; but the markings are finer, and the shell is glossier; one of these eggs has the ground-colour more yellowish, whereas in the other it approaches to olive-green, the spots being of a corresponding colour; in the former there is a distinct ring of confluent spots round the larger end, and in the latter the ring is scarcely perceptible; one is rather pointed towards the smaller end, and the other is oval in shape. They measure 32 by 22·8 and 31 by 22 millimetres respectively."

The specimen figured and described is a fine male obtained in the Southern Ural in May 1869, by Mr. L. Sabanæeff, by whom it was sent to Dresser, in whose collection it now is.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Southern Ural, May 1869 (*L. Sabanüeff*). *b*, ♀. Southern Ural, May 22nd, 1869 (*L. Sabanüeff*).
c, ♂. Ekaterinburg, June 9th, 1868 (*Dr. Renard*).

E Mus. Lord Walden.

a, ♀. Hakodadi, October 15th, 1865 (*H. Whitely*).

E Mus. H. B. Tristram.

a, ♂. Hakodadi, Japan, October 27th, 1865 (*H. Whitely*).



GARRULUS KRYNICKI

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SYRIAN JAY
GARRULUS ATRICAPILLUS.

GARRULUS ATRICAPILLUS.

(SYRIAN JAY.)

Garrulus atricapillus, Isid. Geoffr. St.-Hilaire, Etud. Zool. fasc. 1 (1832).*Corvus stridens*, Hemp. & Ehrenb. Symb. Physic. Av. dec. 1 (1833).*Garrulus melanocephalus*, Gén , Mem. Accad. Torin. xxxvii. p. 298 (1834).*Garrulus iliceti*, Licht. Nomencl. Av. Mus. Berol. p. 9 (1854).

♂ *ad.* fronte, facie laterali et gul  albis immaculatis; pileo cristato nigro immaculato: fasci  nigr  a rostro angustiore et paullo longiore quam in *G. glandario*: dorso cum tectricibus alarum rufescenti-isabellinis, illo vers s uropygium pallidiore: uropygio albo, vix rufescente lavato: supracaudalibus albis: subt s albus, pectore imo, abdomine et hypochondriis rufescente isabellino lavatis: crisso et subcaudalibus albis: alis ut in *Garrulo krynicki* picturatis, sed remigibus in pogonio externo magis albo notatis: caud , rostro, iride et pedibus ut in *Garrulo krynicki*.

♀ *mari similis.*

Adult Male (Hebron, 8th February, 1864). Forehead, sides of head and face, and throat pure white, not washed with vinous, as in *G. krynicki*; moustachial patch very narrow; crest very black, rather narrow and elongated; back and wing-coverts very pale fawn-brown or rufous buff; rump white, washed with pale fawn-brown; upper tail-coverts white, underparts white, on the breast, flanks, and upper part of the abdomen washed with pale rufous buff; under tail-coverts white; wings and tail as in *G. krynicki*, except that in the former the white patch is much more developed; tail and soft parts as in *G. krynicki*. Total length 13 inches, culmen 0.85, wing 7.1, tail 6.0, tarsus 1.10.

Obs. For long no little confusion has existed as regards the Black-headed Jays; and whereas some authors have lumped all together, others have subdivided them in various ways. I have therefore deemed it necessary to collect together as large a series of Jays as possible, in order to decide as to which species should stand; and thanks to Lord Walden, Canon Tristram, Mr. Blanford, and others, I have at last succeeded in examining a considerable number of specimens from various localities; and taking the species admitted by Mr. G. R. Gray in his well-known 'Hand-list,' I may make the following remarks:—

6070. *G. glandarius*, L., is the type of the present genus, and has been fully treated of in a former part.

6070 *a.* *G. hyrcanus*, Blanford (Ibis, 1873, p. 225), is a clearly distinct and good species, differing from the *G. glandarius* in being smaller in size, about equal to *G. japonicus*; but, unlike this latter, it has the crest dark vinous grey, washed with rufous, much darker and differently coloured than in *G. glandarius*, the colour being about the same as that on the back of the latter species: the black on the face is distributed as in *G. glandarius*. In one or two examples the tail is at the base conspicuously barred with blue; in others this character is very slightly defined. A specimen obtained in the Elburz mountains in February measures—culmen 1.3 inch, wing 6.5, tail 5.3, tarsus 1.6.

So far as is at present ascertained, this species is only known from Persia.

6071. *G. japonicus* differs from *Garrulus glandarius* in being considerably smaller in size, darker on the back, and having more black on the face, this colour extending all round the eye; the crest is white to the nape, each feather having a broad black central line. I have several specimens before me, all from

- Japan; an adult male from Yokohama measures as follows:—culmen 1·25 inch, wing 6·3, tail 5·9, tarsus 1·5.
6072. *G. brandti*, Eversm., is a very distinct and clearly recognizable species, having the head and nape rich rufous, the sides of the head and face being of the same colour; the back is much greyer, and the moustachial patch is much larger than in *G. glandarius*; and the black on the face extends almost round the eye. The feathers on the crown have a central black line. This bird is found from Japan through Siberia to the Ural, as stated in our history of this species.
6073. *G. melanocephalus*, Gén , will sink into a synonym of *G. atricapillus*, as shown below, this latter name having the precedence by two years. This species is recognizable by its pure white forehead and face, and by the different coloration of the back. It is perhaps nearest allied to *G. krynicki*, which it replaces in Syria, that species inhabiting Asia Minor and Southern Russia, whereas this bird is found in Syria, Palestine, and eastward into Persia, whence Mr. Blandford brought back several specimens, which closely resemble others obtained by Canon Tristram in Palestine.
6074. *G. cervicalis*, Bonap., is one of the Black-headed group, and is most closely allied to *G. atricapillus*, though clearly distinguishable by its rufous nape. This species is, so far as I can ascertain, confined to North-western Africa.
6075. *G. bispecularis*, Vigors, P. Z. S. 1830, p. 7 (*ornatus*, Gr.), differs considerably from all European Jays in having the crown similarly coloured to the back, only rather paler, and quite unstriped. In colour this Jay is light fawn-brown, paler towards the rump and vent, which latter and the upper tail-coverts are white; a black stripe passes from the gape below the eye and ear-coverts; wings having the blue-barred patch extending over the secondaries, forming a double speculum, and the white markings absent. According to Dr. Jerdon this Jay is found “throughout the Himalayas, common towards the north-west, rare in the south-east.” I am almost inclined to refer *G. sinensis* and *G. taiwanus* to the present species, in which case the range will be extended over into China.
6076. *G. krynicki*, Kalen., is a Black-headed Jay allied to *G. atricapillus*, but differing in having the forehead spotted, not pure white, the face washed with vinous, and the back grey. It inhabits Turkey, Asia Minor, and Southern Russia. Full particulars have been given as to its history in a former part.
6077. *G. taiwanus*, Gould, P. Z. S. 1862, p. 282 (B. of Asia, pt. xvi.), is said to differ from *G. bispecularis* and *G. sinensis* in its smaller size, and in the black colouring of the feathers covering the nostrils, and is only known from the island of Formosa. I have not been able to examine a specimen. The measurements given by Mr. Gould are:—total length 10·5 inches, bill 1·12, wing 6·12, tail 5·5, tarsus 1·37.
6078. *G. sinensis*, Gould, is the Chinese representative of *Garrulus bispecularis*; and, so far as I can judge from one specimen in Canon Tristram’s collection, obtained at Fokien, I am inclined to refer it to that species; for I can detect no difference, except that the colours generally are a trifle darker than in any Indian example. Lord Walden also informs me that he considers it the same as *G. bispecularis*. Mr. Swinhoe gives its habitat as South China, westwards to Szechuen. Canon Tristram’s specimen measures—culmen 1·25, wing 6·65, tail 5·6, tarsus 1·55.
6079. *G. lidthi*, Bonap. (P. Z. S. 1850, p. 80, Aves, pl. xvii.) is one of the most beautiful and peculiarly coloured of the Jays. It was described from a specimen in the collection of Professor van Lidth de Jeude, of Utrecht, the habitat of which was not given; but it formed part of a collection made by Baron van der Capellen, Dutch Governor of Malasia. I have never had an opportunity of examining a specimen of this rare Jay, and can only repeat the description given by Prince Bonaparte, to the effect that it is rufescent-vinous, the head, neck, tail, and wings dull blue; forehead and lores blackish; feathers on the throat lanceolate, having white shafts; wing-coverts banded with black; quills and tail-feathers blackish towards the tip, and finally tipped with white. Later investigations point to Japan as the true habitat of this Jay.
6080. *G. lanceolatus*, Vig., is a very distinct species, and has been separated from the true Jays and placed

in another subgenus, that of *Celalyca*, by Professor Kaup. It has the entire head and crest jet-black, the throat covered with peculiar lanceolate blackish feathers having a pure white line down the centre; the blue bars on the wings are extended over the basal half of the secondaries, and on the tail nearly to the end of the terminal portion, the latter being black and then pure white. Dr. Jerdon gives the habitat as "only the North-west Himalayas, extending to Nepal; not known in Sikhim." I have only had for examination one specimen, from Lord Walden's collection, obtained at Simla.

THE present species closely resembles the Black-headed Jay from the Caucasus and Asia Minor, but is distinguishable by its pure white forehead and cheeks, and different coloration on the back. First described by Isidore Geoffroy Saint-Hilaire, in 1832, from a specimen obtained by M. Botta on Mount Lebanon; it has subsequently been redescribed by Gén , from the same locality, and by Hemprich and Ehrenberg from Syria. I had considerable difficulty in referring to Geoffroy Saint-Hilaire's original description, as I was unable to get the work, in which he described it, here in England; but finally, on writing to invoke the assistance of my friend M. Jules Verreaux, that gentleman kindly transcribed and sent to me the article in question. The differences on which the species was based are the black head and the form of the beak; but I do not find that this latter character holds good.

I observe that Prince Bonaparte (Conspectus, p. 375) and Canon Tristram refer to the present species as *Garrulus melanocephalus*, Bonelli; but I am unable to discover where Bonelli described it, though I have carefully searched all the available writings of that naturalist. But little has been written respecting the habits of this bird, which, indeed, appears to differ in no respect, either as regards habits, note, or nidification, from the Common Jay or its close relation, *Garrulus krynicki*. It has only been met with, so far as is at present known, in Palestine, Syria, and Persia. Canon Tristram, writing on the ornithology of Palestine, states that he "met with it on the Lebanon, where it was very scarce and cautious. On the coast it never occurred till we reached the wooded district of Mount Carmel; and in the scattered oak-groves on the road to Nazareth we obtained our first specimen."

Mr. Blanford informs me that Major St. John met with it in the oak forests near Shiraz, in Persia (at an altitude of from 4000 to 7000 feet), in the month of June; but this gentleman is unable to give me any notes respecting its habits. Two eggs of this species, obtained by Mr. Cochrane in Palestine, closely resemble those of *Garrulus krynicki* in size and colour, but are slightly paler.

The specimen figured and described is the one from the collection of Lord Walden; and on the same Plate I have figured, for comparison, the nearest approach to it that I could select out of a series of specimens of *Garrulus krynicki*.

In the preparation of the above article I have examined the following specimens:—

E Mus. Lord Walden.

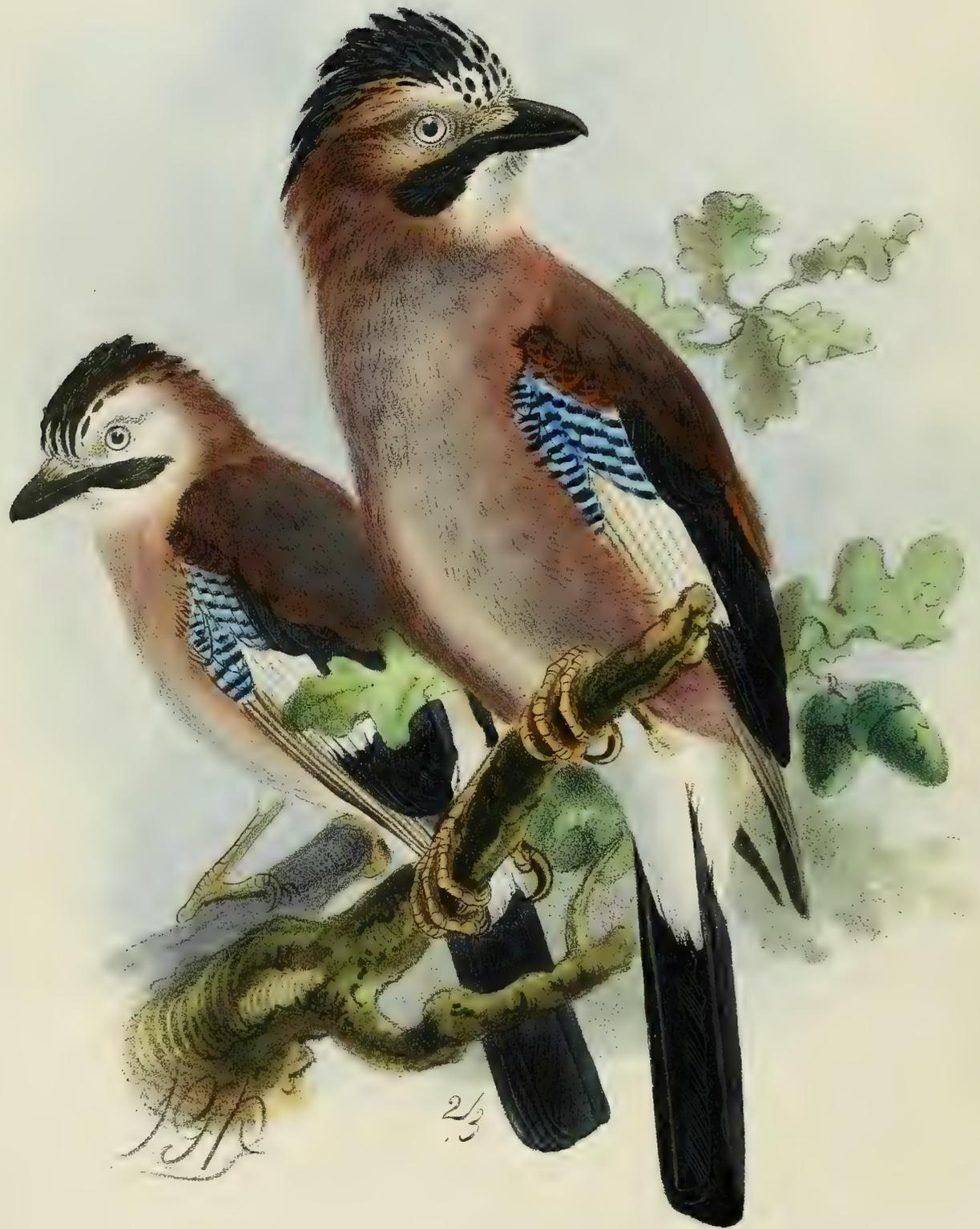
a, ♂. Hebron, February 8th, 1864 (*H. B. Tristram*).

E Mus. H. B. Tristram.

a, ♂. Wady el Beerka, Palestine, April 1864. *b*, ♂. Kirjath Jearim, March 25th, 1858. *c*, ♂. Samaria, December 19th, 1863. *d*, ♂. Hebron, February 8th, 1864. *e*, ♀. Near Nazareth, December 16th, 1863. *f*, ♀. Bethoren, January 23rd, 1872. *g*, ♀. Bashan, March 14th 1864 (*H. B. T.*).

E Mus. Ind. Calc.

a, ♂, *b*. Oak forest, near Shiraz, June 1870 (*Major St. John*).



BLACKHEADED JAY

GARRULUS KRYNICKI

GARRULUS KRYNICKI.

(BLACK-HEADED JAY.)

Garrulus glandarius, var. (pileo nigro), Hohenacker, Bull. Soc. Mosc. tom. x. p. 141 (1837).
Garrulus krynicki, Kaleniczenko, Bull. Soc. Mosc. tom. xii. p. 319, pl. 9 (1839).

Figura unica.

Kaleniczenko, *tom. cit.* pl. 9.

♂ *ad.* fronte griseo-albâ nigro maculatâ: pileo toto ad nuham nigro, immaculato: facie albâ rufescente lavatâ: fasciâ a rostro nigrâ longiore et angustiore quam in *Garrulo glandario*: dorso cinereo, versûs uropygium rufescente lavato: crisso et uropygio albis: parauchenio rufescenti-vinaceo: caudâ, alis et corpore subtûs ut in *Garrulo glandario*.

♀ mari similis.

Juv. adolescenti similis, sed paullo sordidior.

Adult Male (Ortakeuy, Turkey, 5th February). Forehead greyish white, each feather with a black spot extending almost entirely over the terminal portion of the feather; entire crown to the nape covered with a crest of jet-black elongated feathers; nape and back greyish, much more grey in tinge than in *Garr. glandarius*, but washed with rufous towards the rump; rump and upper tail-coverts white; wings, tail, and underparts generally as in *Garrulus glandarius*; but the face is somewhat whiter, and the black moustachial stripe rather narrower than in that bird; beak, legs, and iris as in the Common Jay. Total length 14.5 inches, culmen 1.35, wing 7.4, tail 6.4, tarsus 1.8.

Female. Similar to the male.

Young. Like the adult, but duller in colour.

CONSIDERABLE confusion appears to have existed with regard to the various species or climatic races, as some ornithologists prefer to consider them, of the Black-headed Jays; and some naturalists, as, for instance, Professor von Nordmann, have even gone so far as to look on the Black-headed Jay as a mere variety of the Common Jay, and not even a permanent race. There are, however, we contend, three distinguishable and good species of this division—the present species, the Syrian Jay, and the Algerian Black-headed Jay—the first two of which are nearest allied, the last being very distinct.

The first of these, the present species, inhabits Southern Russia, Turkey, and Asia Minor, being replaced in Syria by the second species, *Garrulus stridens*, Hemp. et Ehr., which differs from the present in being much paler in colour, in having the forehead and sides of the face pure white, and the back rufous, washed with vinous, instead of grey. This species approaches closest to its northern ally, and is one of those birds of which it is difficult to say whether it should

be described as a distinct species, or considered only a climatic race; for as yet ornithologists have been unable to define with any degree of certainty the boundary where a race ends and a species begins. In the large series we have before us we can find some specimens which somewhat approach the allied species; but placed side by side they can always be distinguished. One specimen of *G. krynicki* in fully adult plumage from Smyrna agrees exactly with examples from near Constantinople, and can certainly not be looked on as an intermediate form. The Syrian Jay is found in Syria and Palestine, ranging eastward into Persia. We propose shortly giving a full history of this species, and reserve further particulars as to its range until then.

The third species, the Algerian Black-headed Jay (*Garrulus cervicalis*), is confined to North-west Africa, and is easily distinguishable by its rufous nape and by the distinct grey bars on the base of the tail-feathers.

The present is the commonest species near Constantinople, whence also, we may add, we have had specimens of *Garrulus glandarius*. Dresser when in Bulgaria saw several Jays which he believes were this species, but he did not succeed in procuring any. Messrs. Elwes and Buckley write that it is found near Constantinople, and that, Mr. Robson states, it breeds in the Forest of Belgrade. From the latter we understand that in its habits, voice, and mode of nidification it does not in any respect differ from its ally *Garrulus glandarius*, its eggs being also similar to those of that species. It was first described by Dr. Kaleniczenko from a specimen sent to him from Georgievsk, in the Caucasus; and this gentleman, in a paper on a collection made by Professor John Krynicki in the Caucasus and Taurus, gives its range as Taurus, especially near Sudak and Theodosia, and in the Caucasus near the springs of Piatigorsk and the town of Georgievsk, where it is far from rare; but it does not extend as far north as the Ukraine. There is no doubt as to the bird described by Dr. Kaleniczenko being the present species, and not *Garrulus stridens*, as he especially refers to the pure grey-coloured back, spotted forehead, and rufous-tinged cheeks so characteristic of this present species. Respecting its habits Dr. Kaleniczenko says but little, merely stating that it frequents the mixed forests, chiefly the beech-woods, and during the winter season approaches the villages and small towns; and we may infer that in its habits and mode of nidification generally it differs but little, if at all, from the Common Jay. Professor von Nordmann writes that in the Crimea and the Caucasus it replaces the Common Jay, and is the only species found in the forests of Abasia and the Mountains of Ghouriel. Ménétries certainly speaks of *Garrulus glandarius* as being found in the forests of the Caucasus and Lenkoran, as well as in the mountains, to an altitude of about 3000 feet; but we think that future research will prove that he referred to the present species, and not to the Common Jay.

With regard to its occurrence in Asia Minor we have no further details than those published by Dr. Krüper, who records it as "tolerably widely distributed near Smyrna, but not very numerous. During the summer it frequents the thick groves and the old, well-wooded Turkish graveyards on the plains, as well as the woods on the hills. In its habits it differs but little from the Common Jay of Europe." He further states that he found several old nests near Burnabaschir, and on the 19th of May observed a Jay fly out of an apricot-tree, in which he soon discovered the nest, which was placed tolerably far from the main trunk, on a branch, and was built similarly to that of *G. glandarius*, but, in comparison with the bird, was small; it was

carefully lined with fine roots, and contained four fresh eggs. We may, however, here remark that Dr. Krüper, in a letter to Dresser, states that seven is the usual complement of eggs deposited by this Jay. In Dresser's collection are four eggs obtained by Dr. Krüper near Smyrna on the 1st of June 1871; these eggs, compared with those of *Garrulus glandarius*, can scarcely be distinguished, the only difference being that they are, if any thing, a shade darker in colour than the eggs of the Common Jay; but in size there is no perceptible difference.

The specimens figured and described are in Dresser's collection; the adult birds were obtained by Mr. Robson, near Constantinople, and the young bird by Dr. Krüper, near Smyrna.

In the preparation of the above article we have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Ortakeuy, Turkey, February 5th, 1871 (*T. Robson*). *b*, ♂. Petnahore, Turkey, December 22nd, 1870.
c, ♂. Petnahore, May 23rd, 1871 (*T. Robson*). *d*, *juv.* Smyrna, June 24th, 1871 (*Dr. Krüper*).

E Mus. Lord Walden.

a, ♂. Broussa, Asia Minor, February 7th, 1866 (*T. Robson*). *b*, ♀. Belgrade, Servia, December 13th (*T. Robson*).

E Mus. Salvin and Godman.

a, ♀. Asia Minor (*Robson*).

E Mus. H. B. Tristram.

a ♂. Smyrna, November 11th, 1863 (*H. B. T.*).

E Mus. Howard Saunders.

a, ♀. Ismidt, Asia Minor, December 16th, 1866 (*Robson*).



ALGERIAN BLACK-HEADED JAY.

GARRULUS CERVICALIS

GARRULUS CERVICALIS.

(ALGERIAN BLACK-HEADED JAY.)

Garrulus cervicalis, Bonap. Comp. Rend. de l'Acad. des Sc. vol. xxxvii. p. 828 (1853).*Garrulus melanocephalus*, Malh. Bull. Soc. Nat. Hist. de la Moselle, p. 19 (nec Gén , 1855).*Garrulus atricapillus*, Levail. jun., Expl. Scient. de l'Alg. pl. 6 (nec Is. Geoff., 1855).*Garrulus cervicalis* (Bp.), Loche, Expl. Scient. de l'Alg. p. 120 (1867).*Figuræ notabiles.*

Levaillant, jun., loc. cit. ; Bree, B. of Eur. vol. i. p. 144.

Ad. Garrulo atricapillo persimilis, sed nuchâ conspicuè ferrugineâ et fronte nigro punctatâ faciliè distinguendus*Juv.* adulto similis, sed paullò sordidior : nuchâ sordidè ferrugineâ.

Adult Female (Northern Africa). Forehead white, spotted with black ; crown covered with a thick black crest, the feathers of which towards the nape are washed with rufous ; nape and fore part of the back rich rusty red ; back pale greyish, slightly washed with faint rufous buff ; upper tail-coverts white ; tail dark grey, at the base barred with black, otherwise plain black ; wings as in the Common Jay ; face, auriculars, and throat pure white ; moustachial patch thick and jet-black in colour ; underparts pale buffy white ; flanks and under wing-coverts rufous buff ; soft parts as in the Common Jay. Total length 14 inches, culmen 1.3, wing 7, tail 6, tarsus 1.6.

Adult Male. Similar to the female.*Young.* Similar to the adult, but duller in colour, and having the rufous nape less defined, and the crest smaller.

THIS clearly distinct Jay, easily recognizable by its rich rufous nape, inhabits a comparatively limited area, being met with merely in North-western Africa, where the various travellers who have explored Algeria have found it by no means uncommon. Canon Tristram met with it in Eastern Algeria, and captured an example near Bou Hadjar. Mr. J. H. Gurney, jun., observed it near Tibremt and Medea, and often saw them in cages ; and Mr. Osbert Salvin "saw it on several occasions near Souk Harras, but lost sight of it on passing to the less wooded country." Mr. Taczanowski found it tolerably numerous in the mountain-groves in the province of Constantine, and states that it is shy, and not so noisy as the Common European Jay. "I have," he says, "met with it always in small parties, consisting of several individuals. Their habits are the same as those of the European Jay ; they keep a certain distance one from the other, and advance in a similar manner, singly, moving in the same direction ; they are timid and cautious, but are not noisy, and are therefore considered scarcer than they really are." According to Loche, "it especially affects the mountainous districts well wooded with oak. To Europeans it is known as the *Geai à calotte*. It feeds principally on acorns and fruit, of which it is fond, and

berries; but it also eats caterpillars and insects. It replaces the Common Jay (*Garrulus glandarius*) in Algeria, this latter never occurring there. Like the Common Jay this species is quick and brusque in its movements, and has a harsh and disagreeable cry, which it often repeats to call other individuals of its own species when danger threatens; and all the other Jays immediately respond and try to drive off the common enemy, uttering loud cries. Its antipathy to the Wood-Owl is extreme, and can be made use of to trap it; but it is not bold, except by necessity. Though as inquisitive as the Magpie, it is neither as cautious nor as clever as the latter, but impatient and passionate; it thrives well in captivity, and soon learns to talk and sing, besides accommodating itself to almost any sort of food.

“It nests on high trees—the nest being composed of small twigs interlaced with roots, and lined with some soft material. The eggs, four to five in number, are grey, with a greenish tinge, covered with numerous small spots of a reddish brown colour, collected chiefly at the larger end, and measuring from 32 to 33 millimetres by 22 to 23 millimetres.” With regard to what Loche writes as to the non-occurrence of *Garrulus glandarius* in Algeria, I may refer to our article on that species, in which we state that *Garrulus minor*, Verr., from Algeria is nothing but our Common Jay, and may add that in a letter lately received from M. Jules Verreaux, he himself states that his *Garrulus minor* is but a small race of *Garrulus glandarius*, differing merely in size.

It is scarcely probable that this Jay has ever been met with on the northern side of the Mediterranean. Baron de Selys Longchamps (*Ibis*, 1870, p. 451) refers to a specimen in the well-known collection of Count Ercole Turati, at Milan, which was given to that gentlemen as coming from Spain; but further particulars respecting the authenticity of this bird as a European-killed specimen appear to be wanting.

The adult bird figured and described is in the collection of Captain H. J. Elwes, and the young bird in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *juv.* El Djerid, Algeria (*Fairmaire*).

E Mus. H. B. Tristram.

a, ♂, *b*, ♀. Boghar Forest, May 30th, 1856 (*H. B. T.*).

E Mus. Salvin and Godman.

a, ♂. Kef Laks, Algeria, April 24th, 1857 (*O. Salvin*).

E Mus. H. J. Elwes.

a, ♀ *ad.* Northern Africa (*Verreaux*).

Genus CYANOPICA.

Pica apud Wagler, Syst. Av. (1827).

Cyanopica, Bonaparte, P. Z. S. 1850, p. 86.

Cyanopolius apud Bonaparte, ut suprâ.

Dolometis apud Cabanis, Mus. Hein. i. p. 222 (1850-51).

ALTHOUGH in general form and habits the Azure-winged Magpies closely resemble the true Magpies, yet in their rich coloration they approach the Jays, and may justly be placed between *Garrulus* and *Pica*. Only two species belong to this genus, one of which inhabits the western portion of the Western Palæarctic Region, and the other the eastern portion of the Eastern Palæarctic Region.

In habits they resemble the Magpie more closely than the Jay, though some authors affirm that this is not the case. In their flight they resemble the Magpie; but, unlike that bird, I generally found them to be very silent. Like the Magpie they feed on insects and on any refuse that may be cast out; but I am not aware if they suck eggs like that species. They construct cup-shaped nests of dry sticks interwoven with plants and grass, and lined with fine grass, which they place on a tree, and deposit greenish white or buff-coloured eggs marked with purplish grey and dark brown.

Cyanopica cooki, the type of the genus, has the bill as in *Pica*, but rather more slender; nostrils basal, covered by stiff feathers directed forwards; wings short, broad, the first quill shorter than the inner secondaries, the second shorter than the ninth, the fourth, fifth, and sixth nearly equal, the fifth longest; tail long, much graduated; tarsus long, rather slender, covered in front with five large and three inferior scutellæ; toes moderate, claws rather short, stout, curved, acute.



AZURE-WINGED MAGPIE.
CYANOPICA COOKI.

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CYANOPICA COOKI.

(AZURE-WINGED MAGPIE.)

Pica cyanea, Wagler, Syst. Av. Genus *Pica*, no. 6 (1827, partim).*Pica cyanea*, Cook, P. Z. S. 1831, p. 96 (nec Pall.).*Pica cyana* (Pall.), Keyserl. & Blas. Wirbelth. Eur. p. 45 (1840, partim, nec Pall.).*Pica cooki*, Bp. Brit. Assoc. Birming. 1849, p. 75.*Cyanopica cooki*, Bp. P. Z. S. 1850, p. 86.*Cyanopolius cooki*, Bp. tom. cit. p. 86.*Dolometis cooki* (Bp.), Cab. Mus. Hein. i. p. 222 (1850).*Cyanopica europæa*, Schlegel, fide Bp. Consp. Gen. Av. p. 382 (1850).*Rabilongo*, Portuguese; *Mohino*, *Rabilargo*, Spanish.*Figuræ notabiles.*

Gould, B. of Eur. pl. 217; Susemihl, Vög. Eur. ii. tab. 5; Bree, B. of Eur. i. pl. to p. 140.

♂ *ad.* capite suprâ et lateraliter nuchâque intensè velutino-nigris: dorso, uropygio cum scapularibus brunnescenti-cinereis: tectricibus alarum, remigibus dorso proximis, cæteris in pogonio externo, et caudâ totâ cæruleis: remigibus primariis in pogonio externo a medio ad apicem albis, duobus externis ferè omnino nigris: corpore subtùs albo: pectore, abdomine et crisso brunnescente cinereo lavatis: caudâ cuneatâ: rostro et pedibus nigris: iride saturatè fuscâ.

♀ *ad.* haud a mare distinguenda.

Adult Male (Madrid, May). Crown, nape, and sides of the head velvety jet-black; back, scapulars, and rump brownish grey, or dove-coloured; upper tail-coverts washed with bluish grey; first and second primaries black, slightly marked with blue at the base of the outer web, remainder black on the inner web, and on the outer web rich blue on the basal half or two thirds, and white on the terminal third or half; secondaries rich blue, the outer ones, however, being black on the inner web; tail rich blue, some of the outer feathers very slightly tipped with dirty white, much graduated, the central feathers being 4 to 4½ inches longer than the outermost; underparts white, on the breast, flanks, and under tail-coverts washed with ashy brown; beaks and legs black; iris blackish brown. Total length 13·25 inches, culmen 1·0, wing 5·3, tail 8·2, tarsus 1·4.

Adult Female (Madrid 15th May). Closely resembles the male, but is, if any thing, a trifle duller in colour.

Young. I have no specimen of the young; but, so far as I recollect, they have the black on the head duller than in the adult, and the feathers there edged with greyish brown. Susemihl also figures the young bird thus.

THE range of this, one of the most beautiful of our European birds, is very restricted; for it occurs solely on the Iberian peninsula, and is there only locally distributed. Singularly enough,

a species very closely allied to our Azure-winged Magpie, differing only very slightly in coloration, and in having the central rectrices broadly terminated with white, inhabits Eastern Siberia, China, and Japan; and throughout the vast tract of country intervening between there and South-western Europe neither this species nor any other at all closely allied to it is to be met with; nor can I at all account for the fact that two so very closely allied forms should inhabit countries so far apart. I have compared two specimens from China, in the British Museum, and two from Japan, one in the British Museum and the other in the collection of Mr. Howard Saunders, with the series of *Cyanopica cooki*, and find that the eastern species has invariably a broad terminal patch of white on the central rectrices, whereas in *C. cooki* it is almost always totally absent, one specimen alone having it very slightly developed. The Spanish bird is, moreover, much browner on the back, the eastern birds having that portion of the body greyish, but very faintly tinged with brown in some specimens. In size they vary very slightly indeed, and on taking the average of the entire series of each species the difference is scarcely perceptible. First discovered in Spain in 1831 by Captain S. E. Cook, it has since been found to be common in many parts of that country, but is exceedingly local. The only part where I met with it was in the Royal Gardens, close to Madrid, where I took several nests within sound of the bells of the capital, and, indeed, within twenty minutes' walk of the centre of the city. I never saw it near Aranjuez; and Lord Lilford also writes (*Ibis*, 1866, p. 378), "it is a remarkable fact that *Cyanopica cooki* should be quite unknown in that neighbourhood. I could not discover that any of the keepers or woodmen were acquainted with it, although it is so plentiful about Madrid, at a distance of about twenty miles—the only reason I can imagine to account for its absence being the want of the evergreen oak, to which it certainly exhibits a very remarkable partiality." I am further indebted to his Lordship for the following notes respecting this species:—"The local distribution of this bird is certainly one of the most curious points in its natural economy. In the pine-forests and open cork-dotted monte of the Coto de Doñana I did not meet with it, whilst in the Coto del Rey it is in certain spots very abundant, the character of these two districts being very similar, though the pine-woods of the latter are not so extensive or so dense as those of the former. About Cordova, and indeed in all the wooded parts of the Sierra Morena, it positively swarms, whilst in the vicinity of Algeiras and Gibraltar it seems to be quite unknown, and I know many officers who have spent their term of service on the Rock, and been on shooting-expeditions thence near and far to north-east and west, without even seeing a bird of this species. I speak under correction; but my impression is that it is not met with to the south of the great southernmost chain of mountains from Tarifa, or perhaps I may say from Cadiz to Cartagena. North of the Sierra Morena it abounds in most parts of Estremadura, La Mancha, and New Castile, though absent at Aranjuez, in the latter province; it is not found in the neighbourhood of the city of Valencia, and is, I think, uncommon in most parts of that province. We found it at the foot of the northern side of the Guadarama, at San Ildefonso, in Old Castile; I have heard of its occurrence near Salamanca and in the neighbourhood of Leon, the most northerly locality for the species with which I am acquainted. I never met with or heard of its occurrence in Galicia, Asturias, the Basque provinces, Aragon, or Catalonia." Major Irby informs me that it does not occur nearer Gibraltar than the vicinity of Seville; and Mr. Howard Saunders writes (*Ibis*, 1871, p. 222) that "though

local it is extremely abundant in the wooded districts, becoming rare in such cultivated portions to the east as Valencia and Murcia." It occurs also in Portugal, where, as in Spain, its distribution is very local. The Rev. A. C. Smith writes (*Ibis*, 1868, p. 447) as follows:—"This beautiful bird was the chief prize I proposed to myself to procure before I started for Portugal, as I fondly hoped, from Mr. Mathews's account, I should have no difficulty in finding it. But though I wandered for days in search of it in the most likely spots, I never saw it alive; indeed Professor du Bocage assured me that, though by no means rare, it is very local, and of so exceedingly shy a nature that it is seldom seen, and that, though he has employed collectors to hunt expressly for it, he cannot obtain additions to the three specimens which the Lisbon Museum possesses. Thus, to my chagrin, I left Portugal without a single example, though, when on my return through Madrid, I fell in with three skins and three eggs of this bird at the shop of Señor Sanchez, in the Calle de Alcalá, with whom I had dealings years ago." On the other hand Dr. E. Rey, who met with it in Portugal, writes (*J. f. O.* 1872, p. 144) that it is "common in Estremadura, near Lisbon, on the Tagus, where they are usually seen in flocks of twenty to thirty individuals, which appear always to frequent the same localities, and revisit these places very regularly, so that when once their haunts are discovered they are easily shot, though otherwise they are extremely difficult to obtain."

In its habits, though resembling the common Magpie, the present species is also not unlike the Shrikes and Jays, though I cannot agree with Dr. Rey, who says that it bears far closer affinity to these latter than to the true Magpies. I found it breeding near Madrid, not exactly in colonies, but wherever one pair was breeding one or two others were sure to be in the immediate vicinity. Most of the nests were placed in poplars which skirted the walks in the Royal Gardens, and were placed in the branches close to the main trunk, at from ten to twenty feet from the ground. When I approached the nest the female would usually sit until I touched the tree, and then slipped silently off, uttering no sound, and either settled in some tree not far distant, or flew round in evident dismay at being disturbed. The nests were tolerably well constructed of dry sticks interwoven with dried plants and lined with grass, in general form and mode of construction bearing great resemblance to the nest of our common Jay (*Garrulus glandarius*). One nest, taken close to the house of the Royal keeper, was neatly ornamented and partly lined with kid-clippings, the remnants of work done by the keeper's daughters, who were employed in the manufacture of gloves. The usual number of eggs deposited is five or six; but in two nests I found seven. The keeper, Manuel de la Torr , told me that the Great Spotted Cuckoo occasionally deposits its eggs in the nest of this species; but Mr. Howard Saunders writes (*Ibis*, 1871, p. 222) that, so far as his experience goes, this is never the case. In Portugal, however, this sometimes occurs; and Dr. E. Rey showed me several sittings of Azure-winged Magpies' eggs, with each of which was a single egg of the Great Spotted Cuckoo; and he writes (*J. f. O.* 1872, p. 144) that all the nests he obtained were placed in cork-trees, at an altitude of from ten to twenty-five feet, and were constructed of a few dry sticks worked together with clay in the foundation and interwoven with plants and moss, the inner lining consisting chiefly of brown sheep's or goat's wool. He obtained more than eighty nests, none of which contained more than seven eggs, the usual number being five or six, most frequently the latter number. Three nests contained each an egg of the Great Spotted Cuckoo.

I have thirty-five eggs of the present species, all obtained near Madrid, which vary somewhat both in coloration and markings, some having the ground-colour dull white, with a faint sea-green tinge, and others dark buff or dull stone-colour. The markings, which consist of pale purplish brown underlying shell-markings and dark brown surface-spots, are sometimes small and generally distributed over the surface of the shell, and at others larger and confined more to the larger end. One dark egg is very richly blotched all over the surface; and another has scarcely any marks except a few very large blotches at the larger end. Two have the markings, which are small, collected chiefly at the smaller end. In size they vary from $1\frac{1}{40}$ by $\frac{31}{40}$ to $1\frac{5}{40}$ by $\frac{33}{40}$; and one unusually small egg measures only $\frac{37}{40}$ by $\frac{29}{40}$ inch. I have a considerable series of eggs of *Cyanopica cyanea*, the species found in Eastern Asia; and on comparing them with my series of the present species, I find them undistinguishable either in size or colour.

The specimen figured is an adult male, obtained near Madrid, now in my collection, and is the specimen described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, ♂. Madrid, May 1866. *c, ♀*. Madrid, May 15th, 1866, shot from the nest (*H. E. D.*).

E. Mus. Brit. Reg.

a, b. Spain.

E Mus. Howard Saunders.

a, ♂. Seville, Spain, April 16th, 1869 (*H. S.*). *b, ♂*. Seville, Spain, December 27th, 1869. *c*. Granada, Spain, October 1870. *d, ♀*. Granada, Spain, August 1869. *e, ♂, f, ♂, g, ♂, h, ♂, i, ♀*. Granada, Spain, November 1872.

Genus PICA.

Pica, Brisson, Orn. ii. p. 35 (1760).

Corvus apud Linnæus, Syst. Nat. i. p. 157 (1766).

Garrulus apud Temminck, Man. d'Orn. iii. p. 63 (1835).

Cleptes apud Gambel, Journ. Ac. Nat. Sc. Phil. 2nd ser. 1847, p. 47.

THE Magpies resemble the Crows in many respects, differing chiefly in having a much more elongated tail and shorter wings. Of the three species usually included in this genus, one, *Pica mauritanica*, inhabits North-west Africa; the second, *Pica nuttalli*, is only found in the western portion of the Nearctic Region, whereas the third, *Pica rustica*, ranges throughout the Palæarctic and is also found in the Nearctic Region; but it is doubtful if it ranges into the Ethiopian Region.

The Magpies are shy and wary birds; but they frequent cultivated places close to human habitations, as well as groves and woods. In some countries, however, where they are seldom molested, they are almost as tame and impudent as Sparrows. Their flight is rather heavy, but tolerably swift; and on the ground they walk, like Crows, with ease. They are noisy, and, especially when disturbed, utter a loud, harsh chattering cry. They feed on grain, fruit, carrion, and any animal food they come across, as well as eggs and young birds, and are said to feed also on fish on the coasts. They build a rather large nest of sticks, lined with roots and grass, and domed with sticks, and deposit pale greenish or bluish-white eggs spotted with brown or greenish brown.

Pica rustica, the type of the genus, has the bill moderately long, straight, curved towards the tip, rather stout at the base, the upper mandible slightly notched, gape-line nearly straight; nostrils basal, covered by stiff bristly feathers directed forwards; wings moderately short, broad, the first quill shorter than the inner secondaries, the second shorter than the eighth, the fourth and fifth nearly equal, the latter longest; tail long, much graduated; tarsus stout, long, covered in front with five or six large and three inferior scutellæ; toes moderate; claws rather short, stout, curved, acute.



MORISH MAGPIE
PICA MAURITANICA
COMMON MAGPIE
PICA RUSTICA
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PICA RUSTICA.

(MAGPIE.)

- Corvus pica*, Linn. Syst. Nat. i. p. 157 (1766).
Corvus rusticus, Scop. Ann. I. Hist. Nat. p. 38 (1769).
Pica melanoleuca, Vieill. N. Dict. xxvi. p. 121 (1818).
Pica europæa, Boie, Isis, 1822, p. 551.
Corvus hudsonius, J. Sabine, App. Narr. Frankl. Journ. p. 671, "Hudson's Bay" (1823).
Pica albiventris, Vieill. Faun. Fr. p. 119 (1828).
Pica germanica, C. L. Brehm, Vög. Deutschl. p. 177 (1831).
Pica septentrionalis, C. L. Brehm, tom. cit. p. 178 (1831).
Pica hiemalis, C. L. Brehm, ut suprâ (1831).
Garrulus pica, Temm. Man. d'Orn. iii. p. 63 (1835).
Pica caudata, Keys. & Blas. Wirbelth. Eur. p. 45 (1840).
Pica bottanensis, A. Delessert, Rev. Zool. ii. p. 100, "Bhootan" (1840).
Pica megaloptera, Blyth, J. As. Soc. Beng. xi. p. 193, "Bhootan" (1842).
Pica media, Blyth, J. As. Soc. Beng. xiii. p. 393, "Andes" (1844).
Pica varia, Schleg. Rev. Crit. Ois. p. 54 (1844).
Pica sericea, Gould, P. Z. S. 1845, p. 2, "Amoy."
Cleptes hudsonicus, Gambel, J. A. N. Sc. 2nd ser., 1st Dec. 1847, p. 47, "New Mexico to California."
Pica tibetana, Hodgs. Ann. & Mag. Nat. Hist. 2nd ser. iii. p. 203, "Thibet" (1849).
Pica varia japonica, Temm. & Schleg. Fauna Japonica, p. 18, "Japan" (1850).
Pica hudsonica, Bonap. Conspectus Gen. Av. p. 383, "N. America" (1850).
Pica japonica, Bonap. tom. cit. p. 383, "Japan" (1850).
Pica chinensis, Schleg., id. ut suprâ, "China" (1850).
Pica bactriana, Bonap. ut suprâ, "Afghanistan" (1850).
Pica butanensis, Delessert, id. ut suprâ (1850).
Cleptes pica, Cab. Mus. Hein. i. p. 229 (1851).
Pica vulgaris auctt., Brehm, Cab. Journ. 1858, p. 173, "Europe."
- Pie ordinaire*, French; *Elster*, *Heister*, *Schalaster*, German; *Marica*, *Urraca*, Spanish; *Pega*, Portuguese; *Carcarazza*, Sicilian; *Ciaula baida*, Maltese; *Gazza*, *Cecca*, Italian; *Ekster*, Dutch; *Almindelig Skade*, Danish; *Skjære*, Norwegian; *Skata*, Swedish; *Harakka*, Finnish; *Sroka*, Polish; *Soroka*, Russian.

Figuræ notabiles.

- D'Aubenton, Pl. Enl. pl. 488; Werner, Atlas, *Omnivores*, pl. 7; Kjærbo. Orn. Dan. taf. xii.; Fritsch, Vög. Eur. pl. 27. fig. 6; Sundevall, Sv. Fogl. pl. xix. fig. 3; Naumann, Vög.

Deutschl. taf. 56. fig. 2; Gould, B. of Eur. pl. 216, B. of Asia, parts xiv. & xv.; Schlegel, Vög. Nederl. pl. 141; Bettoni, Ucc. Lomb. tav. 101; Audubon, B. of Am. pl. 227.

Ad. capite, collo, dorso et pectore superiore velutino-nigris viridi et purpureo nitentibus: scapularibus niveis: uropygio grisescenti-albo: supracaudalibus nigris: remigibus in pogonio externo nigris et in pogonio interno albis, versùs apicem nigro marginatis et eodem colore conspicuè apicatis, secundariis nigris cærulescenti-purpureo nitentibus: rectricibus centralibus pulchrè nigricanti-purpureis viridi refulgentibus, ad apicem purpurascanti-violaceis, reliquis in pogonio interno nigricanti-violaceis et in pogonio externo pulchrè viridi refulgentibus: abdomine albo: tibiis et crisso nigris: rostro et pedibus nigris: iride brunneâ.

Adult. Head, neck, back, and breast velvety black, glossed with bottle-green and violet-green; scapulars pure white; lower part of the back and rump dull white; upper tail-coverts black: primaries black on the outer web, white on the inner web, except at the tip, along the inner edge, and on the basal third, where they are black; secondaries black, glossed with violet; central tail-feathers bottle-green, except at the tip, where they are deep violet-black; the remaining rectrices bottle-green on the outer web, and deep violet-black on the inner web and at the tip; abdomen pure white; thighs, anal region, and under tail-coverts jet-black; bill and legs black; iris brown. Total length about 18½ inches, culmen 1.4, wing 7.4, tail 10.2, tarsus 1.85.

Obs. The late Mr. G. R. Gray, in his well-known 'Hand-list,' enumerates nine species of Magpie as being distinct; but, having carefully examined a large series from various parts of the world, I propose to reduce these to three (or, should *P. leucoptera* be a good species, then four), viz. :—

Pica rustica, the present species, the range of which I give below;

Pica mauritanica, Malh., distinguishable by its short wing, by having the bare patch behind the eye bright blue, and by never having white on the rump. This species is only found in North-Western Africa; and

Pica nuttalli, Aud., which is at all ages distinguishable by its bright yellow bill, the bare skin round the eye being also of that colour. This species appears to be exclusively a Californian bird.

OUR Common Magpie varies exceedingly, both as regards size and also in the distribution of white on the rump and of black on the primaries; and these variations have been the cause of its having been so often described from various localities as a distinct species. I have examined specimens of all the supposed species enumerated by Mr. G. R. Gray, excepting *P. bottanensis*, Deless., which is said to differ in having the rump quite black. This I should at first have regarded as being sufficient to constitute it a distinct species; but after having examined a series of skins I find that they vary exceedingly in the amount of white on the rump, one in particular, from Erzerum, having on the rump a pure milk-white patch, whereas in others from Central Europe this patch is dull greyish white. The black-rumped variety appears again in Southern Spain, from which locality I have examined nine specimens, some of which, from Granada and Seville, have the rump pure black, whereas others, amongst which I may name two from Granada, have a patch of dirty white across the rump, thus being intermediate between the black-rumped and the common varieties. In measurements these specimens from Southern Spain agree with others from Central Europe. Two specimens from Oporto do not differ from the ordinary run of European specimens. It may be well here to remark that I have before me British specimens which have the white on the rump quite as little developed as in the two

specimens from Granada to which I refer above, and one from Greatham has it much less conspicuous than in either of these birds. This last specimen has also the feathers on the throat white towards the base, as in the American Magpie. In Eastern Siberia there is a local race or subspecies described by Gould under the name of *P. leucoptera* (B. of Asia, part xiv. 1862), which my friend Dr. Otto Finsch assures me is a perfectly good species, having on the feathers of the throat a concealed white mark as in *P. hudsonica*, the primaries on the inner web, excepting a small edge, pure white, the first to the eighth to the extreme base, and the ninth and tenth only being to within a third of the basal portion darker, whereas in *P. rustica* the base of the primaries is always greyish black. In *P. leucoptera* the first secondary has on the inner web an apical white spot, and on the rump is a pure white spot at least an inch wide. I have only seen two specimens of this bird, and am therefore unable to give an opinion as to whether it is really a good species; but seeing that the common European Magpie differs so greatly in the amount of white on the primaries, I should not be surprised to find that in a series *P. leucoptera* runs into it.

The American Magpie has usually a longer tail than the European bird, and its bill is somewhat stouter; but these differences are not constant.

In order to show how variable the measurements are, I give the following Table:—

			Culmen. inch.	Wing. inches.	Tail. inches.	Tarsus. inches.	
<i>Pica rustica</i>	Great Britain.	6 specimens.	1·4 -1·8	7·0 -7·7	9·45-10·3	1·95-2·05	
„	Holland.	1 „	1·6 —	7·8 —	10·4 —	2·2 —	
„	Belgium.	1 „	1·65 —	7·5 —	10·5 —	1·9 —	
„	Silesia.	1 „	1·55 —	7·5 —	10·9 —	1·9 —	
„	Italy.	3 „	1·45-1·75	7·0 -7·8	9·2 -11·2	1·8 -2·1	
„	Portugal.	2 „	1·5 —	7·1 -7·4	7·5 -10·5	2·0 -2·05	
„	Spain.	9 „	1·4 -1·6	7·15-7·8	9·5 -10·7	1·85-2·1	
„	Cyprus.	1 „	1·65 —	7·2 —	10·2 —	1·8 —	
„	Asia Minor.	1 „	1·6 —	7·5 —	9·4 —	1·9 —	
„	Erzeroom.	1 „	1·5 —	7·6 —	10·2 —	1·75 —	
„	(<i>P. bactriana</i>)	Ladak.	1 „	1·65 —	8·2 —	12·3 —	1·9 —
„	(<i>P. sericea</i>)	China.	1 „	1·6 —	8·5 —	10·6 —	2·05 —
„	(<i>P. japonica</i>)	Japan.	1 „	1·5 —	7·4 —	9·0 —	1·8 —
„	(<i>P. hudsonica</i>)	N.-W. America.	4 „	1·4 -1·7	7·3 -8·0	10·5 -12·0	1·7 -1·75
<i>P. leucoptera</i>	Siberia.	1 „	1·6 —	8·3 —	10·3 —	1·9 —	
<i>Pica mauritanica</i>	Algeria.	5 „	1·45-1·5	5·9 -6·4	9·5 -11·15	1·8 -2·0	

The range of the common Magpie may be given as extending over the entire Palæarctic region, and a local race which I consider identical, being found in Western North America.

In Great Britain it is exceedingly common in most localities where the game-preservers have not kept it down; for it is very destructive to game. In Scotland, according to Mr. Robert Gray, it “appears to adhere strictly to the mainland, being seldom found on any of the islands. It is wholly unknown in the Outer Hebrides, but is occasionally seen in Islay and Mull, where, however, it does not breed. Twenty years ago the Magpie was abundant in the neighbourhood of Glasgow. In my early morning walks, about three miles from the city, I have seen as many as

twelve or fourteen hopping on the public road. So recently, indeed, as three years ago, I counted twenty-eight perched on one tree at Scotstown, between Glasgow and Yoker. This was late in the afternoon, in winter time; and the Magpies had apparently assembled there with the intention of remaining over the night, the noise of their chattering being very extraordinary. Two years ago a pair of these birds had their nest near Sandyford, and within the city bounds; they were quite familiar in their manners, and made themselves at home, as if in the full knowledge that they were safer there than in the country. It is a pity that the Magpie is so mischievous and destructive to eggs and young game, as he is really a pleasing object when seen flying alongside a green belt of plantation, or perched on the summit of some tall poplar, trying to balance himself by a graceful movement of his ample tail. Its ordinary cry is harsh and grating, not unlike the noise of a policeman's rattle, or an old woman's pattens clattering on the pavement. Although subjected to the usual amount of persecution among game-preservers, the Magpie still maintains its hold in all the wooded districts of Scotland, from Wigtown to Sutherlandshire. It is yet very common in some parts of Ayrshire. I lately saw a dozen on a small property near Girvan, the owner of which did not preserve the game, and consequently had no keeper on the ground. Magpies, indeed, soon find out places unfrequented by keepers, although they seldom lose their naturally jealous and distrustful character, unless when living in the immediate vicinity of large towns." In England it is generally distributed throughout the country. In the northern and central counties I have repeatedly seen it; and as regards its distribution in the south, Mr. Cecil Smith informs me that it is "resident and common all through the west, being quite crafty enough to keep out of the way of the gamekeeper. In the Channel Islands it does not appear to be very plentiful, being probably too mischievous to be allowed to live long. I have, however, seen a few both in Guernsey and Sark. Some time ago I noticed a decided dislike to certain animal food, which dislike is probably common to all carrion-eating birds. My note on the subject was as follows:—Dec. 19th, 1869, trapped several Rats all through November, and with them one Stoat and one Weasel, or 'fair or fairy,' as it is here called; the Magpies eat all the Rats, leaving only the tails, but the Stoat and Weasel were left entirely untouched. I often watched the Magpies eating the Rats from some adjacent cover."

In Ireland, though now common, it is said not to have been met with in early times; and Smith, in his 'History of Cork,' states that about the year 1670 it was not known in Ireland. Yarrell, who refers to this, says that "even so late as the year 1711 it seems to have been confined to the neighbourhood of Wexford."

It does not occur in Iceland, but is very common in Scandinavia, from the extreme south to the North Cape. Mr. R. Collett writes that it "occurs throughout West Finmark, as far north as Gjaesvaer, North Cape ($71^{\circ} 15'$), in almost all of the fishing-localities, or in spots inhabited the year round. In East Finmark it would seem to occur less abundantly. On the sea-shore, in places destitute of tree-growth, it builds sometimes under the eaves of dwelling-houses, sometimes in piled-up brushwood. In West Finmark, where they are protected by the inhabitants, being regarded as harmless birds, they live chiefly on the refuse of fish. So late as the 30th of June (1872) I observed a pair at Gjaesvaer, each day busily engaged in building their nest, underneath a jetty. In this spot the same pair had brought up an earlier brood in the spring of the year." In Sweden it is common in every part of the country; and when travelling through

the country in the winter I was often astonished to see the numbers of Magpies collected round the post-houses and on the roads in or near the villages.

Pastor Sommerfelt records it at the Varanger fiord as occurring now and then in the spring; it breeds at Hopseidet, and used formerly to breed in Tana. The Laps kill it whenever they can, as they believe that its chattering brings bad luck.

In Finland I met with it almost equally common in all parts of the country, and more especially along the main post-roads. Meves found it numerous in Northern Russia, in the Archangel Government; and Mr. Sabanäeff writes that it is "very common in Russia, and especially in the southern portion of the Government of Perm."

Mr. Taczanowski informs me that it is common and sedentary in Poland, though it utterly shuns some localities, and, for instance, has never been seen near the town of Suwatki. Borggreve records it as a wanderer throughout North Germany, but rare in the mountains in the eastern part, even wanting altogether in some localities. Along the Elbe, and especially in Holstein, I found the Magpie very common; and Mr. Fischer says the same regarding its occurrence in Denmark. In Holland and Belgium it is resident and common; and also in Luxemburg, where, according to De la Fontaine, it was very rare upwards of thirty years ago. Throughout France it is found very generally distributed in the northern departments; but as regards the southern portion of that country Jaubert and Barthélemy-Lapommeraye state that, "though common in Provence, it is a somewhat local species, and is never found in the Marseilles basin, though abundant ten or twelve metres distant." It is likewise common in Spain, where in the south it has a tendency to lose the white on the rump, many specimens having the rump pure black. In a letter just received from Lord Lilford, he writes that it is "exceedingly common in certain districts of Spain, notably about Aranjuez and in the Cotos del Rey and de Doñana, nesting promiscuously in high trees and low bramble-bushes. This bird and the Spanish Magpie (*Cyanopica cookii*) do not (so far as my observation goes) consort together, or frequent the same localities, though they are to be met with within a short distance of each other." It is evidently common near Granada, as Mr. Howard Saunders writes (*Ibis*, 1871, p. 222) that it is "abundant in the wooded districts, especially in the Cotos, and near Aranjuez, but very local." This gentleman has lent me several specimens obtained in Southern Spain, most of which have the rump pure black. It is found in Portugal, but, Dr. Rey informs me, it appears to be rare in Algarve. I have examined two specimens from Oporto which have the white on the rump well developed. It is found in all the countries on the north side of the Mediterranean, and is abundant in Italy and Sicily, especially in the eastern districts of the latter. Mr. C. A. Wright, writing from Malta (*Ibis*, 1864, p. 56), says, "Schembri informs us that one of these birds was shot on the 7th October, 1839, probably a straggler blown off the southern coast of Sicily, where it exists in great numbers;" and Captain Rowland M. Sperling writes that he "observed it in Albania during the summer, and in abundance both at Missolonghi and Patras during the winter, where two or three of them were generally to be seen anxiously watching the 'rooting snouts' of the half-wild Pigs, availing themselves of any grubs or worms turned up by them. I have never noticed anything to lead to the idea that these birds migrate." Mr. H. Seebohm informs me that "it is found in Greece all the year round. It begins to breed there early in April. It can scarcely be called a common bird, as it is rarely, if ever, seen on the mountains. In the Parnassus I met

with it only in the valleys, in the regions of the olive and vine. I obtained many eggs in the second week of May in the valley north of the Parnassus. Most of them were more or less incubated. The usual number in each nest was seven." Throughout Southern Germany it is everywhere numerous; and the Ritter von Tschusi Schmidhofen informs me that varieties are not uncommon in collections formed in that part of Europe. I observed it along the Danube; and Dr. Radde writes that "in Southern Russian its range is peculiar, as it is common in the steppes, as also on the other side of the Tschatirdach Mountains, but is never found on any part of the south coast. It is a resident, and pairs already in February." Mr. G. Cavendish Taylor met with it in the Crimea; and it is also found in Asia Minor, where Dr. Krüper met with it, especially in the interior, and found its nest near the sea, not far from Burnova. In Palestine it is, Canon Tristram writes (*Ibis*, 1866, p. 60), "conspicuous by its absence. Nowhere could we meet with or hear of *Pica caudata*. He may exist in Northern Syria; for Russell, in his 'Natural History of Aleppo,' compiled more than one hundred years ago, mentions it in his scanty catalogue, though without further remark, as inhabiting the environs of that town. It is abundant in Asia Minor, and especially in the island of Cyprus, within sight of the coast of Syria; and we shot several specimens close to the town of Larnaka, on our way to Beyrout. But we did not meet with a trace of it in the Lebanon, or in any other apparently promising district. Its absence cannot be accounted for by the want of suitable localities; for the Lebanon valleys, the northern portions of Galilee, and, above all, the vast glades of Gilead would seem admirably adapted for its resort. Yet the Arabs knew nothing of such a bird, nor had they any name for it; and our muleteer, Khadour, a very intelligent and observant man, who had spent years in travelling over all parts of Syria, assured me, when I showed him a Cyprus skin, that he had never seen such a bird in the country. Nor did I obtain any further recognition from Arab fowling, who likewise saw the skin. Thus the southern limit of the range of the Magpie seems very sharply defined." It is said to have occurred in North-east Africa; but Captain Shelley, in his useful work on the birds of Egypt, writes that, "according to Bonaparte, the Magpie is to be met with in Egypt and Nubia; and Rüppell states that it is tolerably plentiful in Lower Egypt during the winter. Von Heuglin, on the other hand (*Orn. N.O. Afr.* p. 497), affirms that it was never seen by Hemprich and Ehrenberg, Brehm, or himself in the course of all their travels in North-eastern Africa. There is a Magpie in the Frankfort Museum labelled 'from Egypt;' but as this may have been a tame bird, and as the statements of Bonaparte and Rüppell are not always to be relied upon, I feel that I should not be justified in including the Magpie among the true Egyptian birds." In North-western Africa it is replaced by *P. mauritanica*.

To the eastward the common Magpie occurs in Persia, where, according to De Filippi, it is rare to the south of Elburg, but more common about Ghilan; and thence it is found through the Himalayas to China and Japan, and northward in Siberia and Kamtschatka.

Mr. G. Henderson, in his notes on the ornithology of Lahore and Yarkand, writes that "the Afghan or White-rumped Himalayan Magpie was first met with at Dräs, soon after crossing the Zoji-lá Pass into Ladák. All through this latter province it was common about every village until the Pángong Lake was neared. A similar Magpie, believed to be the same, but of which unfortunately no specimens were procured, was observed at Sánju, where the road emerges from the hills into the plains of Yarkand, both in going and returning, viz. on the 16th August and

the 12th September. No Magpie was seen elsewhere in Yarkand. Early in July, when the expedition passed through Ladák, the young birds were just able to fly, and several were caught. In Ladák this species appears to bear the title of Hashambri." The bird referred to by Mr. Henderson does not in the least differ from our common European form; but in Bhootan there is a race similar to that found in Southern Spain, having the rump black, of which I have not been able to examine a specimen. Pallas writes that in Siberia it becomes rarer towards the east; and later travellers confirm this statement. Von Middendorff writes that he found it very numerous in the steppes of Baraba, Omsk, and those situated between Bernaul and Tomsk; but it does not appear to occur north of Syrjanskoje, as he saw the last rather below $61\frac{1}{2}^{\circ}$ N. lat. He did not observe it in the Stanowoj Mountains, nor at Udskoj Ostrog, or on the south coast of the Sea of Ochotsk. Dr. Radde did not observe it on the mountain-range from which the Oka, the Irkut, and other rivers rise, and on the eastern side first met with it near the Changinskischen post, whence towards the Lake Baikal it gradually appeared to increase in numbers, and was common on the Tunka and Toros plains, as also on the Central Irkut. Dr. von Schrenck found it common on the Southern Amoor, but states that its range in Eastern Asia appears to be near the mouth of the Amoor. It occurs again in Kamtschatka, and, according to Pallas, extends thither from China and Japan, along the Kurile chain of islands. In China it is, Mr. Swinhoe writes, common everywhere, and he observed numbers on the large level tracts near Taiwanfoo. Writing on the ornithology of Hainan (*Ibis*, 1870, p. 350), he says "the Magpie was everywhere abundant in Hainan, following the Chinese colonist, and gladdening his heart with its lively movements and auspicious notes. It was breeding in February; and we frequently saw its nest, often placed in the basket-shaped cross-trees of the poles that stand in front of mandarin offices, and once in the heart of the leaf-crown that tops the cocoa-nut tree. According to the Chinese 'Gazetteer' of Hainan, the Magpie was introduced into Hainan A. D. 1450-56, from the Chinese main. It says, "Tcheo," commonly called the "Bird of rejoicing." Hainan was originally without this bird. In the King-tai reign of the Ming dynasty, Admiral Le-yih brought from Haipih [north of the sea, applied to Leen-chow-foo, at the head of the Gulf of Tonquin] ten or so males and females and let them loose. These having bred freely, the bird has become extremely numerous."

In America its range is given by Professor Spencer F. Baird in his work on North-American birds, now in the press, as "from Arizona on the south to Alaska on the north-west. It has been met with as far to the east as the Missouri river, and is found from there to the Pacific. It is abundant at Sitka; it was observed at Ounga, one of the Shumagin Islands, and was obtained by Bischoff at Kodiak." After a careful examination of five specimens of the American Magpie with my series of the European and Asiatic birds, I have come to the conclusion that they cannot be separated. Prince Maximilian von Wied, in a most elaborate article on the Magpie (*Cab. Journ.* 1855, p. 1971), in which he argues that they are distinct, states that the American bird is larger, has a stouter bill, has the feathers on the lower neck spotted with white, rears but two young ones, and has a distinct note. Against this I may urge:—the measurements given above, which show that the variation in size is great, and that on an average the American bird is not larger than the European species (but, at the same time, I must acknowledge that the former, *as a rule*, has a somewhat stouter bill than the latter, though they both vary greatly *inter se*);

that I have found the white on the throat quite as much developed in several British specimens as in any of the American birds I have examined; that Mr. John Keast Lord, an excellent field-naturalist, states in his 'Naturalist in British Columbia' (vol. ii. p. 71) that the American Magpie "builds much the same kind of nest as our British species, and lays *seven* or *eight* eggs." As to the difference in note, Mr. Lord evidently did not find this the case, as he further states that "seeing them in freedom they appear to be identical." As a rule the American bird has a longer tail—but not always, as I find that, in the specimens I have examined, the length of the tail varies from $10\frac{1}{2}$ to 12 inches. Mr. Blyth (*l. c.*), in describing *Pica media*, incorrectly gives South America as the habitat of the Magpie; for it never even occurs so far south as Mexico.

In its habits the Magpie varies according to circumstances. Here in England, where it is followed and shot by gamekeepers whenever they get within range, it is exceedingly shy and wary; and hence the popular saying that it can smell the powder. On the other hand, in Scandinavia, where it is a universal favourite and a protected bird, it is as tame and impertinent as a London Sparrow. I have often approached within a few yards of several which were busily searching on the road for any thing eatable they could pick up, and have even seen nests in gooseberry-bushes close to a cottage.

The Magpie builds a large, bulky nest, constructed of sticks, generally such as have the thorns still on them; and it is made with a strong dome, covering and protecting the nest itself. This latter is formed of fine roots and dried grass, placed on a foundation of earth plastered on the sticks which form the bottom of the outside structure. The eggs, from six to eight in number, vary considerably as to colour and markings, and are pale bluish white, covered closely with brownish or greenish brown spots. In size those in my collection vary from $1\frac{1}{4}\frac{1}{0}$ by $\frac{3}{4}\frac{8}{0}$ inch to $1\frac{1}{4}\frac{7}{0}$ by 1 inch. The nest is placed at some altitude in a tree, but often quite low in a bush or hedge; and in Norway, as I am informed by Mr. Collett, they sometimes build under the eaves of houses or even in treeless localities on the ground.

The note of the Magpie is a chatter, often harsh, but during the breeding-season modulated and softer than at other seasons of the year. In the winter they often collect in considerable flocks, and when going to roost make a great noise. I have often in Scandinavia seen many in company together, especially in midwinter. It feeds on carrion, small birds, and mammals, eggs, and indeed any animal food that comes handy, and is very destructive to game and poultry, picking up the young birds, and destroying eggs, whenever it gets the chance of so doing. Mr. Collett informs me that on the Norwegian coast it feeds chiefly on dead fish and the refuse cast out by the fishermen; and he further states that he has known it to make raids on the ripe cherries.

Sir John Sebright states that Magpie-hawking is most excellent sport. Yarrell, quoting from him, writes that "nothing can be more animating than this sport; it is, in my opinion, far superior to every other kind of hawking. The object of the chase is fully a match for its pursuers—a requisite absolutely necessary to give an interest to any sport of this kind; and it has the advantage of giving full employment to the company, which is not the case in Partridge-hawking. A down or common, where low trees or thorn-bushes are dispersed at distances of from thirty to fifty yards apart, is the place best calculated for this diversion. When a Magpie is seen at a distance, a Hawk is immediately to be cast off. The Magpie will take refuge in a

bush the moment he sees the Falcon, and will remain there until the falconer arrives, with the Hawk waiting on in the air. The Magpie is to be driven from his retreat; and the Hawk, if at a good pitch, will stoop at him as he passes to another bush, from whence he is to be driven in the same way, another Hawk having been previously cast off, so that one or the other may always be so situated as to attack him with advantage. The second Hawk is necessary; for the Magpie shifts with great cunning and dexterity to avoid the stoop; and when hard pressed, owing to the bushes being rather far apart, will pass under the bellies of the horses, flutter along a cart-rut, and avail himself of every little inequality of the ground in order to escape. Four or five assistants, besides the falconer, who should attend solely to his Hawks, are required for this sport. They should be well mounted, and provided with whips; for the Magpie cannot be driven from a bush by a stick; but the crack of a whip will force him to leave it, even when he is so tired as hardly to be able to fly. The Magpie will always endeavour to make his way to some strong cover; care therefore must be taken to counteract him, and to drive him to that part of the ground where the bushes are farthest from each other. It is not easy to take a Magpie in a hedge. Some of the horsemen must be on each side of it; some must ride behind and some before him; for unless compelled to rise, by being surrounded on all sides, he will flutter along the hedge, so as to shelter himself from the stoop of the Falcon. Many requisites are necessary to afford this sport in perfection—a favourable country, good Hawks, and able assistants.”

Before closing this article I feel bound to add that Dr. Otto Finsch writes that he does not agree with me in uniting *P. hudsonica* with *P. rustica*, and looks on the former as being a good geographical race, having always the white patch on the feathers of the throat, the tail longer than in *P. rustica*, and the two central feathers extending further beyond the others. He likewise says that he can confirm from personal observation what Prince Max von Wied states as to the note of the American Magpie being different from that of our bird. He found the American Magpie occurring sporadically throughout the Rocky Mountains, first observing it on the road to Georgetown, at an altitude of from 7000 to 8000 feet above the sea-level, and again on the Humboldt river. On the plains he never saw it.

The specimen figured and described is in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, ♀. Hampstead (Davy). c, ♂, d, ♀. Piedmont (Count Salvadori).

E Mus. Brit. Reg.

a. Belgium. b, c. Oporto. d. Seville, Spain (Irby). e. Erzeroom. f. Asia Minor. g. Hainan, March 1860 (Swinhoe). h. Japan. i, k. British Columbia (J. K. Lord). l, m. W. of Rocky Mountains.

E Mus. Howard Saunders.

a, ♀. Silesia. b, ♂. Girgenti. c, ♂, d, ♂. Granada, October. e, f, ♂, g, ♀. Granada, November. h, ♀. Granada, January. i, ♀. Granada, May. k, ♀. Sierra Nevada, June.

E Mus. H. B. Tristram.

a, ♀. Greatham, October. *b*, ♂. Cyprus, November (*H. B. T.*). *c*. Leiden, Holland, November. *d*. China (*Swinhoe*). *e*. Ladak, June 25th, 1870 (*Dr. Henderson*). *f*. Kodiak, N. Pacific (*F. Bischoff*).

E Mus. J. H. Gurney, jun.

a, ♂. Walsingham, April. *b*, ♂. Devonshire, April. *c*, ♂. Durham, September.

PICA MAURITANICA.

(MOORISH MAGPIE.)

Pica mauritanica, Malh. Mém. de la Soc. d'Hist. Nat. de Metz (1843).*Pica mauritanica*, Malh., Levail. jun. Expl. Scientif. de l'Alg., Atl. Ois. pl. 8; Loche, Expl. Scientif. de l'Alg. Ois. i. p. 118 (1867).*Figura unica.*

Levaillant, jun., tom. cit. pl. 8.

Ad. Pica rustica persimilis, sed alis brevioribus, uropygio nigro, et ponè oculum maculâ conspicuè cæruleâ facile distinguendus.*Adult Male* (El Djerid). Generally resembles *Pica rustica*; but the head and back are more glossed with green than in that species; and behind the eye there is a large and very conspicuous bare spot bright cobalt-blue in colour; the rump is black, not dull white as in *P. rustica*; and the black on the breast extends much further down than in that species. Total length 18 inches, culmen 1.45, wing 6.2, tail 10.7, tarsus 1.75.*Obs.* Dr. O. Finsch informs me that there is a specimen in the Bremen Museum which measures—culmen 1.15, wing 8.6, tail 11.3, and tarsus 2 inches.

THIS species, differing from our common European Magpie in having the bare spot behind the eye blue, and in having a shorter wing, is found only in North-western Africa, where it appears to be scarcely so common as our bird is in most parts of Europe. Mr. Taczanowski writes to me that he "met with it in the province of Constantine, where it appears to be less numerous than the common Magpie is in Poland." During his sojourn in Algeria he "saw large numbers in the mountains of Bouarif and in the neighbourhood of Batna. It is found in the neighbourhood of dwellings, though not so frequently as is the common Magpie in Europe, and is much more shy than that bird." Mr. Osbert Salvin found it common in the Eastern Atlas; and Canon Tristram states (Ibis, 1859, p. 292) that "a few pairs may occasionally be found in the northern portions of the Sahara." Mr. John H. Gurney, jun., observed numbers at the Dayat of Tibrem; and Mr. C. Tyrwhitt Drake records it as abundant in Morocco. Loche writes that it occurs chiefly in the wooded portions of the three provinces of Algeria, and is to be met with near Boghar, Teniet-el-Had, la Calle, Philippeville, Tlemcen, and Oran; it feeds on fruit, seeds, caterpillars, insects, and remains of flesh, is very voracious, and plunders the nests of small birds, devouring the eggs or young, and committing great havoc amongst them. Like the common European Magpie it is fond of shining objects, and has the habit of stowing away such objects, as well as a supply of food, in some convenient place in a hollow tree. In its habits it in general closely resembles *Pica rustica*, and utters a call-note like that of this species, which may be described as resembling the words *agaz, agaz*, from which, Major Loche states, it bears in Algeria the name

of *El-Agaaz*, a name closely resembling that of the common Magpie amongst the French peasantry, who call it *Agasse*. The Moorish Magpie, Major Loche writes, "constructs its nest of twigs, roots, and grass, and lines it with fine grass-straws, moss, fine rootlets, and down, the number of eggs deposited being from three to five. Both male and female assist in the work of incubation; and when the female has charge of the young she takes the greatest care of them, and will defend them from birds much larger than herself; but when in danger of being overpowered she utters loud cries, so as to alarm the other Magpies that may be near, and they all join in driving off the common enemy.

"At all seasons this Magpie is seen in pairs, and is very long-lived, as I kept one in captivity for upwards of ten years, when it was killed by accident. In captivity it becomes very tame and familiar, but is as fond of using its wings as when in a wild state, which proves often inconvenient. It is easily taught to pronounce a few words, and to imitate the calls of various animals."

I do not possess the eggs of this species in my collection, but have examined one in the collection of Mr. Godman, which closely resembles that of our common Magpie, but is somewhat darker.

The specimen figured (on the same Plate with *P. rustica*) and described is in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a. El Djerid, Algeria (*Fairmaire*).

E Mus. H. B. Tristram.

a, ♂. Algeria (*H. B. T.*). *b, juv. albino.* Mediah, 1856 (*H. B. T.*).

E Mus. Brit. Reg.

a, b. N. Africa.

E Mus. W. W. Saunders.

a, ♂. Algeria.

Genus CORVUS.

Corvus, Linnæus, Syst. Nat. i. p. 155 (1766).

Monedula apud C. L. Brehm, Isis, 1828, p. 1274.

Colæus apud Kaup, Natürl. Syst. p. 114 (1829).

Corone apud Kaup, op. cit. p. 99 (1829).

Frugilegus apud Lesson, fide Bonaparte, Consp. Gen. Av. i. p. 384 (1850).

Trypanocorax apud Kaup, Journ. f. Orn. 1854, Suppl. p. lv.

Corax apud Kaup, ut suprâ.

Rhinocorax apud Sharpe, Cat. B. Brit. Mus. iii. p. 45 (1877).

IN the present genus I have included several species which have been referred to separate genera by several authors, but which it seems to me are better united together in one and the same genus. Mr. Sharpe, in the Catalogue of the Birds in the British Museum, subdivides the European Crows into five genera—viz. *Trypanocorax*, Kaup (type *Corvus frugilegus*), *Corvus*, Linnæus (type *Corvus corax*), *Colæus*, Kaup (type *Corvus monedula*), *Corone*, Kaup (type *Corvus corone*), and *Rhinocorax*, Sharpe (type *Corvus affinis*), only the second of which should, it appears to me, be recognized.

The Crows have a very wide range, being universally distributed, except in New Zealand and South America, eight species being found in the Western Palæarctic Region.

In habits the Crows are wary, though at the same time, when frequenting towns and villages, they are impudent and thievish. They frequent groves, woods, inhabited places, the shores of the sea and rivers, and, indeed, almost any place where they can find food; and they are omnivorous, feeding on grain, fruits, insects, flesh, fish, and on offal of almost any kind. They walk sedately, but with ease, fly with tolerable rapidity; and their note varies from a harsh croak or caw to a series of modulated notes which may almost be termed a song; and when domesticated they can be taught to mimic various sounds and even utter words.

They construct nests of sticks, roots, wool, &c., which they either place on a tree or in the hole of a tree, or else in the holes and crannies of ruined buildings and rocks, and deposit several pale greenish-blue eggs spotted and blotched with blackish brown and olivaceous.

Corvus corax, the type of the genus, has the beak strong, hard, stout, compressed, sharp at the edges, straight at the base, curved towards the tip; gape-line curved; nostrils basal, covered by stiff bristles directed forwards; wings long, rather pointed, the first quill shorter than the sixth, the second shorter than the fifth, the fourth longest; tail moderate, rounded; legs and feet strong, the tarsus covered in front with four large and three inferior scutellæ; claws stout, curved, acute.

I have been unable to find where Boie uses the generic term *Lycos* for the Jackdaw. Giebel gives the reference as Isis, 1828, p. 1273; and Sharpe gives it as *Lycos*, Boie, Isis, 1822, p. 55; but I cannot find it referred to in either of the above places.



JACKDAW.
CORVUS MONEDULA.

CORVUS MONEDULA.

(JACKDAW.)

Monedula nigra spermologos, Frisch, Vorst. Vög. Teutschl. taf. 68.*Corvus monedula*, Briss. Orn. ii. p. 24 (1760).*Corvus monedula torquata*, Briss. tom. cit. p. 27 (1760).*Corvus monedula candida*, Briss. tom. cit. p. 27 (1760).*Corvus monedula nigra*, Briss. tom. cit. p. 28 (1760).*Corvus monedula*, Linn. Syst. Nat. i. p. 156 (1766).*Le choucas*, Montb. Hist. Nat. Ois. iii. p. 73 (1775).*Le chouc*, Montb. ut suprâ (1775).*Corvus spermologus*, Vieill. Nouv. Dict. viii. p. 40 (1817, ex Frisch).*Lycos monedula* (L.), Boie, Isis, 1822, p. 551.*Colæus monedula* (L.), Kaup, Natürl. System, p. 114 (1829).*Monedula turrium*, C. L. Brehm, Vög. Deutschl. p. 172 (1831).*Monedula arborea*, C. L. Brehm, op. cit. p. 173 (1831).*Monedula septentrionalis*, C. L. Brehm, op. cit. p. 173 (1831).*Corvus collaris*, Drummond, Ann. & Mag. Nat. Hist. xviii. p. 11 (1846).*Monedula nigra*, Brehm [ubi?], Bp. Consp. Gen. Av. i. p. 384 (1850).*Lycos collaris* (Drumm.), Bp. tom. cit. p. 384 (1850).*Monedula spermologos*, C. L. Brehm, Vogelfang, p. 60 (1855).

Cathag Corrachan, Gaelic; *Choucas gris*, French; *Taccola*, Italian; *Dohle*, *Thurmkrähe*, *Schneedohle*, German; *Kerkkaaww*, Dutch; *Kaa*, *Allike*, Danish; *Kaje*, Norwegian; *Kaja*, Swedish; *Naaka*, Finnish; *Galka*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 522, 523; Werner, Atlas, *Omnivores*, pl. 6; Kjærb. Orn. Dan. taf. xl.; Frisch, Vög. Deutschl. taf. 68; Fritsch, Vög. Eur. taf. 28. fig. 2; Naumann, Vög. Deutschl. taf. 56. fig. 1; Sundevall, Svensk. Fogl. pl. 20. fig. 4; Gould, B. of Eur. pl. 223; id. B. of G. B. iii. pl. 61; Schlegel, Vog. Nederl. pl. 140; Roux, Orn. Prov. pl. 133.

♂ *ad.* pileo, regione ad basin rostri, loris et mento intensè nigris: nuchâ, capitis et colli lateribus et collo postico griseis, in nuchæ et colli imi lateribus fere albis: corpore suprâ, alis et caudâ nigris, his purpureo nitentibus, dorso et uropygio vix griseo-nigro tinctis: corpore subtûs sordidè nigro vix schistaceo tincto: pedibus et rostro nigris: iride griseo-albâ.

♀ *ad.* mari similis, sed vix sordidior, nuchâ, collo postico et colli lateribus grisescentioribus.

Adult Male (Stehag, Sweden, 17th March). Crown, space at the base of the bill, including the lores, and

chin glossy black; entire nape, sides of the head and neck, and hind neck light grey, nearly pure white on the sides of the nape and of the lower neck; upper parts, including the wings and tail, raven-black; the wings and tail glossed with purple; the back and rump slightly tinged with greyish black; throat and underparts dull black with a slate-grey tinge; legs and bill black; iris nearly white. Total length about 13 inches, culmen 1·3, wing 9·0, tail 5·2, tarsus 1·9.

Adult Female (Sweden). Resembles the male, but the grey on the neck is a trifle less pure, and rather darker.

Nestling (Sweden). Duller than the adult, the underparts much greyer, and the grey on the neck much darker and duller.

Obs. After a most careful examination and comparison of specimens from various parts of Europe with those in the collection of Canon Tristram, I entirely fail to find any character by which the form described under the name of *Corvus collaris* can always be distinguished from typical *C. monedula*. Taking the Scandinavian bird to be the typical *C. monedula* of Linnæus, I find that examples from there agree precisely with Colonel Drummond-Hay's description of his *C. collaris*; and compared with a specimen sent to me by Canon Tristram, I find that the specimen I have described has the hind neck far lighter grey, and the upper parts are similarly shaded with grey, but the undersurface of the body is not quite so grey. It may not be out of place to transcribe here Colonel Drummond-Hay's description of *C. collaris*, viz.:—"About the same size as the common Jackdaw, but differs in having the hinder part of the neck of a light silvery gray, and a large white crescented patch on each side of the neck; the whole of the back and upper tail-coverts dusky, and shaded with ash; throat black, the whole of the lower parts lead-colour, each feather darker in the centre; the ring on the female is not quite so conspicuous as in the male."

I may name that I have seen British specimens with very white napes; and from North Russia I have both dark-naped and white-naped specimens, one with the ring on the lower neck well developed, and others with it scarcely visible. Mr. Seebohm also informs me that he has seen every intermediate form in the same flock in North Russia.

THE Jackdaw is found throughout Europe, but is rather local in its distribution. It also occurs in North Africa and Western Asia; but it is rather difficult to define the eastern limits of its range. As a rule it is a resident, remaining throughout the winter, even in Northern Russia; but in most parts of the high north it migrates southwards for the winter, and is, moreover, a partial migrant in many other parts of Europe.

Throughout Great Britain it is a tolerably common species, and is found both inland and on the coast, especially on the latter, where there are rugged cliffs, in the clefts of which it finds suitable nesting-places; but it appears to decrease somewhat in numbers towards the north of Scotland. Mr. Cecil Smith informs me that it is by no means numerous in Guernsey, where the Chough takes its place, but it is commoner on the small islands of Jattoo and Herm.

I have found it common on the Isle of Wight and on the south coast of England; and it is met with in all the counties of England. It is resident and common in Scotland, but is not often seen in Shetland. A few are said to breed annually in South Ronaldshay, in Orkney.

Thompson says that it is met with throughout Ireland, especially in such parts as are well cultivated and where there are old buildings.

It is said to straggle as far as Iceland, where, however, it is of rare occurrence, as also on

the Færoes, where it has been obtained on three occasions by Mr. H. C. Müller. In Scandinavia it is common. Mr. R. Collett sends me the following note respecting its range and habits in Norway:—"The Jackdaw breeds in portions of Eastern Norway up to the borders of Nordland (in 64° N. lat.); in the southern districts it is only seen during passage; and along the west coast, north of Stavanger it is at all times very rare, and only stragglers are met with. It is chiefly to be found in the lower parts of Romerige, Hadeland, Hedemarken, as well as, north of the Dovre, in the districts bordering the Trondhjemsfiord, as for instance in the Værdale, &c. Further north it is never seen, as it finds no suitable breeding-places. It arrives in February or early in March together with the Starling, and leaves in October or November; but during mild winters many flocks remain not only in the southern districts, as for instance Smaalenene, Stavanger, &c., but even in the outer portions of its range. Thus in 1864 large flocks were seen at Trondhjem in January and February; and in 1870-71 many wintered on the northern shores of the Trondhjemsfiord, and frequented the fields near the sea-coast. It breeds in colonies in the old wooden churches, and in hollow trees. Close to the town of Lillehammer, on the north shore of the Mjösen Lake, I never found its nest except in trees, especially in aspens, where it made use of deserted Woodpeckers' holes. It lays with us four, five, or even six eggs early in May; and so far as I know it never breeds in towns in Norway. Specimens which I have dissected in the early spring had their stomachs filled with barley and wheat." Mr. Meves informs me that it breeds in most of the provinces of Sweden, especially where old towers, churches, and ruins are found, but it also breeds in hollow oaks and aspens. He never observed it further north than Helsingland; but, according to Westerlund, it ranges on the coast as high as 63°-64° N. lat. Numbers breed in the Upsala Cathedral, and in the ruins of Calmar and Bergholm Castles, where I have also seen it. In Finland, Von Wright writes (*Finl. Fogl.* p. 75), it is "found in the southern portion of the country; but during winter and in the spring individuals wander some distance, and it is then seen far in the interior, as, for instance, at Kuopio." I used to see it often at Wiborg, in Southern Finland, during the summer I remained there. In Russia it is extremely common, at least as far north as Archangel, where it breeds in all the church-towers. Mr. Sabanäeff informs me, however, that in the Ural it does not range far north, and is somewhat rare in the Pavdinskaya Dacha, but in the southern portion, especially in the Bashkir birch-woods, it is very common. I found it common in all parts of Russia I have visited, especially in the towns; and Mr. Meves informs me that he found it everywhere breeding in the houses and frequenting the farmyards, and adds that in harvest-time it does great damage to the crops. In the Government of Olouetz he observed flocks of thousands in the fields where the wheat was in stooks; and all the exposed ears were cleared of grain. In the South-east Ural it was equally numerous. I should certainly say that it is a resident in Russia and the Baltic provinces; for I have seen it in the summer, and found it exceedingly numerous in St. Petersburg and Moscow during the coldest portion of the winter; but Borggreve states that in the eastern portion of North Germany it is merely a summer visitant, though in the west it is resident. In Denmark it is, as a rule, a resident, though during severe winters it migrates, doubtless owing to the scarcity of food. Baron von Droste Hülshoff states that on the island of Borkum it only occurs during passage in October and March; but in Holland it is, Mr. Labouchere informs me, a common resident, frequenting, as in England, the church-towers and ruined buildings. In Belgium

it is resident and very abundant; and in France it a resident in some parts, and a migrant in others, but is somewhat local and rare in the south, except towards Savoy, where it arrives in flocks in the autumn, but very few breed there.

Professor Barboza du Bocage includes it in his list of the birds of Portugal; but Dr. E. Rey states (*J. f. O.* 1872, p. 145) that he only observed it in one place in that country, viz. in a valley which runs from the Villa do Bispo towards the Atlantic, where it was numerous. In Spain, Mr. Howard Saunders says (*Ibis*, 1871, p. 221), "I found this a very local species. Though abundant in the Cotos, where it breeds in hollow trees, I never saw it again till 1869, when I noticed a pair near Aranjuez." Colonel Irby also states (*Orn. Str. Gibr.* p. 128) that he never saw it anywhere except in the Coto del Rey, near Seville, where, late in April, he found it breeding. It is found in Italy, where in some parts it is abundant, though local, whereas in others, as, for instance, in Modena, Piedmont, and Venetia, it is somewhat rare. In Sicily and Sardinia it is common; and Mr. C. A. Wright states it is a resident in Malta, being most numerous in the southern and south-western parts where the cliffs are rugged.

In Southern Germany it is common, and resident in every part. Dr. Fritsch remarks, it is singular that in the Polica country albinos occur regularly, and that Hromadko has obtained these white varieties several years in succession. I observed it in Styria, in some parts numerous; and it is stated to occur generally in the countries bordering the Danube. In Greece it is common, though somewhat local. Lord Lilford found it common in the summer in Epirus, and only occasionally saw one during the winter months; but Dr. Krüper writes that it winters in Greece and Asia Minor in large flocks, and when those which arrive from the north leave Greece, in February or March, the birds which breed there take possession of their nesting-haunts. In Macedonia, in Thessalonica and the adjacent villages, it frequently nests under the eaves. Lindermayer also says that it is resident, and very numerous in some parts, inhabiting the southernmost islands in the Greek archipelago. He met with it on the island of Eubœa, in Northern Samia, and in the Peloponnesus. Messrs. Elwes and Buckley write (*Ibis*, 1870, p. 190) as follows:—"The Jackdaw is about the commonest bird in Macedonia, every house and village being tenanted by a large number. They are never molested by the natives, and are consequently very tame; but if the least notice is taken of them, or a shot fired, they alter their habits at once, and become as wary as an old Magpie. Every evening the Jackdaws from the whole plain of Salonica used to assemble in large bands and fly to a great roosting-place in the impenetrable marshes of the Karasmak river. The numbers there must be something extraordinary; for we found that the Jackdaws from every place where we stayed at in the country left at night for the same roosting-place, in some instances thirty miles away. The collared race is found in Bulgaria, the Crimea, and up the Danube into Servia; but in Greece we saw none at all."

In Southern Russia it is common, and is, Dr. Radde states, especially numerous in the Crimea. Dr. Krüper says that it is a resident, and is numerous in Asia Minor; and Canon Tristram met with it in Palestine. "It resorts," he writes (*Ibis*, 1866, p. 65), "in great numbers to the Mosque of Omar in Jerusalem; but these are the only two very large colonies we observed. It occurred elsewhere, but not in great numbers. I shot one near Nazareth, and saw a few at a ruined temple, Thelthathah, near Hermon. It may thus be looked upon as rather local. In the

Jordan valley and in Eastern Palestine its place appears to be taken by the closely affined or climatic variety *C. collaris* of Drummond, with which we frequently met." Lord Lilford informs me that he found a colony of Jackdaws breeding in the walls of Famagousta, Cyprus, April 22nd, 1875; but it was not observed elsewhere in the island.

In North-east Africa it appears to be a rare species. Rüppell certainly states that it is common in Lower Egypt and Arabia Petræa; but Von Heuglin remarks that he believes that it is only an accidental straggler, if found there at all; and Captain Shelley informs me that he never met with it in Egypt. It is, however, found in North-west Africa: Loche records it from Algeria; and Canon Tristram states (*Ibis*, 1859, p. 292) that it is "extremely abundant wherever there are rocky gorges near an oasis." Mr. C. F. Tyrwhitt-Drake observed large flocks of the present species, though only at Tetuan; but Colonel Irby states (*l. c.*) that neither he nor Favier ever met with it in Tangier. According to Dr. C. Bolle it occasionally visits the Canaries; and he says (*J. f. O.* 1854, p. 451) that, in February 1830, after a heavy south-east wind, several were killed at Laguna.

To the eastward the European Jackdaw is found at least as far as the Punjâb, in India; but, so far as I can judge from the materials I have at hand, I should consider the species of Black Jackdaw inhabiting Eastern Asia specifically distinct from our European bird. This bird, *Corvus neglectus*, Schl. (*Notice sur le genre Corvus*, p. 16), appears never to have, in any plumage, the grey nape so characteristic of our bird; and Mr. Swinhoe informs me that he certainly considers it to be distinct. It agrees tolerably well with the description of *Corvus spermologus*, Vieill. (*l. c.*); but the latter, being from the south of France, cannot be the same species, but must be a dark-necked form of our common European Jackdaw. *Corvus neglectus* differs in lacking the grey neck altogether, the entire upper parts being glossy black, and the underparts dull greyish black; and it is smaller than our bird, measuring—culmen 1.05, wing 8.65, tail 5.2, tarsus 1.65. Mr. Swinhoe informs me that *Corvus neglectus* interbreeds not unfrequently with the other species of East-Asiatic Jackdaw (*Corvus dauricus*); and I have had an opportunity of examining several hybrids in Mr. Swinhoe's collection.

To return, however, to our common European species, I find that neither Mr. Blanford nor Major St. John met with it Persia. The latter says that, if found there at all, it must be in the extreme north-west; in the highlands of Armenia (across the frontier) and in the Caucasus it is common. De Filippi speaks of it as common in the Caucasus and Armenia, and "rarer in Persia." Dr. Henderson writes (*Lahore to Yarkand*, p. 239) that he found it "very common almost everywhere in Cashmere, where it lives in the villages, and makes its nest under the eaves of the houses and in old buildings." Dr. Jerdon speaks of it (*B. of Ind.* ii. p. 303) as being "tolerably abundant in Cashmere and in the Punjâb, in the latter country in the cold weather only." Dr. Severtzoff states that it is resident and common throughout Turkestan; but I find it impossible to trace its range further east, or to ascertain where the range of *Corvus neglectus* begins.

Exceedingly active, noisy, and cheerful, the Jackdaw differs from the Raven and the Crow markedly, and is much pleasanter and less staid and solemn-looking than either of those species. Essentially gregarious, it either seeks the company of others of its own species or will associate with Rooks for the sake of society; and one not unfrequently finds Jackdaws living

altogether in company with Rooks. Although pert and familiar, the Jackdaw is wary, and knows well when danger threatens, permitting an unarmed man to approach quite close, but keeping well away from any one carrying a gun. I have often observed how very tame they are in the large towns of Russia, where they frequent the courtyards, and will stalk about within a few paces of the servants; on the other hand, outside the town the same birds are as wary and cautious as an old Raven. I used frequently to put food outside my window on the broad sill, and have sat at the window when a dozen Jackdaws were seated outside within a foot or so of me; but they always waited until I had closed the window, when they did not seem to object to being watched through the glass. Wherever there are old ruins, there the Jackdaw appears to be most at home; but it is almost as fond of an old steeple or church-tower, or any large building where it can find crannies and suitable places for nidification.

It walks with ease and much more grace than any other of the Crows, and searches much on the ground after food. It frequents pastures and ploughed fields in search of larvæ and insects of various kinds, and in the towns will wait about in the yards to pick up any refuse that may be thrown out. It will feed also on shell-fish, crustaceans, and even carrion, being as omnivorous as others of the Crows, but appears to prefer insects when they are to be had.

Its flight is rapid and extremely wavering; and one seldom sees it flying soberly in a direct line like a Crow: it performs evolutions in the air, uttering its clear short caw, which when uttered by a large flock becomes modulated and is not disagreeable.

It breeds in May, selecting for the purpose of nidification ruined towers or large buildings, church-steeple or towers, hollow trees, clefts and crannies in the cliffs, or even in some instances rabbit-burrows. Its nest is a bulky and careless structure, consisting of a groundwork of sticks, on which are heaped straw, feathers, wool, and any soft material, upon which the eggs, from four to seven in number, are placed. These latter are subject to considerable variation: in ground-colour they vary from pale sea-green, almost white, to rich though pale bluish green, and are more or less spotted and marked with dots and small blotches of dark umber-brown on the surface, the shell-markings, which are small, being pale dull purplish or light purplish brown. Some eggs in my collection are tolerably closely spotted all over the surface, whereas others only have a few scattered spots. One egg is marked with liver-brown spots or dots, and much resembles some eggs of the Nutcracker. In size they vary from $1\frac{11}{40}$ by $\frac{38}{40}$ to $1\frac{6}{40}$ by $1\frac{1}{40}$ inch.

Mr. C. Bygrave Wharton has called my attention to a curious instance of the Jackdaw daubing its eggs over with a thick coating of clay. This gentleman writes to me as follows:—“On the 30th April, 1872, I took from a hole in an old elm tree in Cassiobury Park, Herts, four eggs of this bird which were so evenly daubed all over with clay that the shell was almost completely invisible, and the shape and weight alone told them to be eggs. The one I washed turned out to be rather a highly coloured egg, but of the ordinary type. I may mention that in the nest I also found a piece of hard clay (about the size of the smallest of the four eggs) with distinct marks of a bird's beak upon it. The only reason I can think of to account for this strange conduct on the part of the Jackdaw is that it may have been done to make the eggs less conspicuous to any wandering Jay, the nest being placed not far from the mouth of the hole, and the eggs consequently more or less in sight of a passing bird. I showed the eggs and clay to Professor Newton and others after one of the ‘Zoo.’ meetings; and if I remember rightly, you

also saw them yourself; if not then, you have seen them in my cabinet, and will remember them. On the 26th of April, 1874, I took four eggs out of the very nest above mentioned; but they had nothing extraordinary about them."

I have seen the eggs above described by Mr. Wharton, and can confirm what he says respecting their being evenly and carefully daubed; and I should say that there is no doubt that it was done by the bird itself; but for what reason, it is impossible to say with certainty. It appears probable that it was done for the purpose of concealment.

The specimen figured is the one described, and is in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

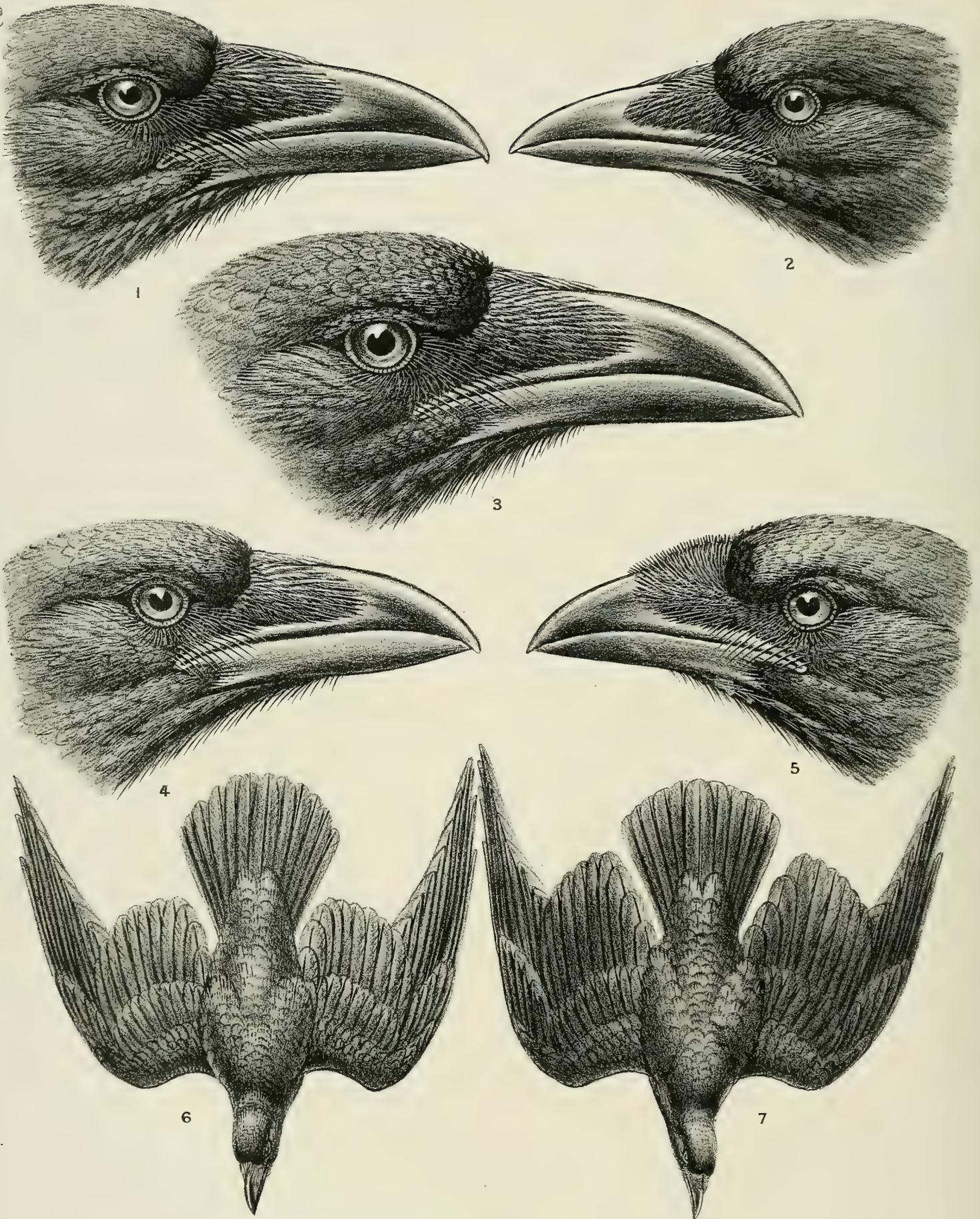
a, ♂. Pelham, March 30th, 1863 (*H. E. D.*). *b*, ♀. Skâne, Sweden, November 11th (*Meves*). *c*, ♂. Trostenäs, Sweden, June 22nd, 1875 (*Meves*). *d*, ♀. Skâne, Sweden, March 17th, 1875 (*Meves*). *e, juv.* Belgium. *f*, ♀. Granada, June 20th, 1871 (*H. Saunders*). *g*, ♂, *h*. Zaostrovji, Archangel, September 13th, 1873 (*J. Piottuch*). *i*, ♀. Uima, N. Russia, November 18th, 1873 (*J. Piottuch*).

E Mus. Howard Saunders.

a, *b*, ♀. Castle Eden, Durham, May 7th and 9th, 1866 (*J. H. Gurney, jun.*). *c*, *d*, ♂. Monte de Granada, April. *e, pullus*. Granada, June 1871. *f*, ♂. Tamak, Crimea, May 1862 (*Th. Schmidt*). *g*. Germany, May 1867.

E Mus. C. A. Wright.

a. Malta, October 11th, 1862 (*C. A. W.*).



1. CORVUS UMBRINUS. 2. CORVUS CORONE 3. CORVUS CORAX.
 4, 6, CORVUS TINGITANUS 5, 7, CORVUS AFFINIS.



1. CARRION CROW.
CORVUS CORONE

2 HOODED CROW.
CORVUS CORNIX

CORVUS CORONE.

(CARRION-CROW.)

- Corvus cornix*, Brisson, Orn. ii. p. 12 (1760).
Corvus corone, Linn. Syst. Nat. i. p. 155 (1766).
La Corbine ou Corneille noire, Montb. Hist. Nat. Ois. iii. p. 45 (1775).
Corvus subcorone, C. L. Brehm, Vög. Deutschl. p. 167 (1831).
Corvus hiemalis, C. L. Brehm, tom. cit. p. 167 (1831).
Corvus assimilis, C. L. Brehm, Vogelfang, p. 57 (1855).
Corvus corone major, A. E. Brehm, Verz. Samml. C. L. Brehm, p. 3 (1866).
Corvus corone minor, A. E. Brehm, ut suprâ (1866).
Corvus corone longirostris, A. E. Brehm, ut suprâ (1866).
Corvus corone brevisrostris, A. E. Brehm, ut suprâ (1866).
Corvus corone subcorone, A. E. Brehm, ut suprâ (1866).
Corvus corone intercedens, A. E. Brehm, ut suprâ (1866).
Corvus corone assimilis, A. E. Brehm, ut suprâ (1866).
Corvus corone hiemalis, A. E. Brehm, ut suprâ (1866).
Corvus corone montanus, A. E. Brehm, ut suprâ (1866).
Corvus pseudo-corone, A. O. Hume, Nests and Eggs of Ind. Birds, p. 410 (1874).

Crow, *Carrion-Crow*, English; *Corneille noire*, French; *Gralha*, Portuguese; *Corbatilla*, *Corneja negra*, Spanish; *Cornacchia nera*, Italian; *Kraai*, Dutch; *Krähe*, *Krährabe*, *schwarze Krähe*, German; *Sort Krage*, *Holstensk Krage*, *Ravne Krage*, Danish; *Chernaya Vorona*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 483; Werner, Atlas, *Omnivores*, pl. 2; Kjærb. Orn. Dan. pl. xi.; Fritsch, Vög. Eur. taf. 28. fig. 3; Naumann, Vög. Deutschl. taf. 53. fig. 2; Gould, B. of Eur. pl. 221; id. B. of G. Brit. iii. pl. 58; Schlegel, Vog. Nederl. pl. 137; Roux, Orn. Prov. pl. 130.

Ad. ater, corpore suprâ purpureo nitente: alis et caudâ suprâ virescente purpureo nitentibus: corpore subtùs vix violaceo tincto: naribus densè setis tectis: caudâ rotundatâ.

Juv. adulto similis sed sordidior.

Adult Male (Aboyne, Scotland). Entire plumage jet-black, glossed, especially on the upper parts, with purple, the wings and tail having a tinge of greenish purple in the gloss; tail slightly rounded; nostrils covered with thick bristly feathers, directed forwards; beak and legs shining black; iris brown. Total length about 18 inches, culmen 2·3, height of bill at base 0·75, wing 12·8, tail 7·10, tarsus 2·30.

Female. Similar to the male.

Young. Resembles the adult, but duller in colour, lacking the purplish gloss which pervades the plumage of the adult.

Obs. The present species being the last of the Crows of which I shall have to treat, I take the opportunity of making a few remarks respecting its allies; and in so doing I omit the Jackdaws, as I shall treat of them in the article on the common Jackdaw; nor do I include the various species which have not the plumage black, or nearly black, as they are easily distinguishable by the different coloration of plumage. The numbers given are those in Mr. G. R. Gray's well-known 'Hand-list.'

6181. *Corvus corax*, L. This species, the true Raven, having the neck-feathers lanceolate, is tolerably widely distributed in Europe, Asia, and America, but does not occur in Africa.
6182. *C. thibetanus*, Hodgson, is *C. corax*, L.
6183. *C. nobilis*, Gould, and
6184. *C. carnivorus*, Bartr., are also *C. corax*, L.
6185. *C. japonensis*, Bp. (Consp. Gen. Av. i. p. 386, 1850). Resembles our European Raven, but is smaller, has a shorter wing, and the chin and upper throat are only covered with lanceolate feathers, which are short; the feathers on the neck are very soft in texture, like those in the American Crow. It inhabits Eastern Siberia and Japan. Culmen 2·7–3·0 inches, height of bill at base 1·0–1·15, wing 13·0–14·1, tail 8·8–9·5, tarsus 2·3–2·4.
6186. *C. sinensis*, Gould, MS. (Horsf. & Moore, Cat. B. E. I. Co.'s Mus. p. 556, 1856). Of this species I have examined one specimen from Foochow, in the collection of Mr. R. Swinhoe, which agrees closely with his *C. colonorum*, and with examples of *C. japonensis*, except that it is smaller than the latter. Judging from the specimens in the collection of Mr. Swinhoe, lent to me for examination, the three forms (*C. japonensis*, *C. sinensis*, and *C. colonorum*) run into each other, the first being the largest and the last the smallest: thus the specimen of *C. sinensis*, from Foochow, measures—culmen 2·7 inches, height of bill at base 0·9, wing 12·5, tail 9·2, tarsus 2·3; whereas a specimen labelled by Mr. Swinhoe *C. colonorum*, measures—culmen 2·5 inches, height of bill at base 0·9, wing 12·2, tail 8·6, tarsus 2·2. Excepting in size these three forms do not differ from each other.
6187. *C. culminatus*, Sykes (P. Z. S. 1832, p. 96). Resembles *C. corone*, L., but is somewhat larger, and has a larger bill, and not so slender as that of *C. corone*, and the feathers on the sides of the neck are softer. A specimen from Java, in Mr. Swinhoe's collection, one from Lombock, in that of Canon Tristram, and two from the Andamans, in Canon Tristram's, and one in Mr. Swinhoe's collection agree closely with a specimen in my collection from Sikkim; and I cannot, after a careful examination, find any specific distinction. There is a trifling difference in the bill, as all these have the edge of the upper mandible the merest trifle more arched than in the Sikkim specimen. I do not find in the Java specimen that the down is white instead of grey, as noted by Schlegel (*Corv.* p. 9). Mr. Swinhoe's Lombock specimen measures—culmen 2·5, height of bill at base 0·85, wing 12·3, tail 7·5, tarsus 2·3; and those from the Andamans measure—culmen 2·4, height of bill at base 0·88, wing 11·7–13·6, tail 7·5–8·0, tarsus 2·1–2·15.
6188. *C. macrorhynchus*, Temm. (apud Wagler, Syst. Av., *Corvi*, no. 3). Between this and *C. culminatus* I am unable to distinguish any specific difference.
6189. *C. major*, Vieill. This species is founded on Levaillant's plate (*Ois. d'Afr.* pl. 51), which certainly represents *C. corax*, but I greatly doubt if it was taken from an African-killed specimen.
6190. *C. sinuatus*, Wagl. (*Isis*, 1829, p. 748). This Raven is probably the common American Raven, which, as above stated, is identical with our European bird. It may, however, be well to transcribe Wagler's original description, as follows:—"Rostro maximo, maxillæ tomis sinuatis, patulis, extrorsum flexis: narium parte postica solum pilis obtecta: cauda *conica* ac tota reliqua pilosi atris purpurino reniten-

- tibus, colli antici plumis exceptis brunnescentibus, lanceolatis, integris: regione infra oculos nudiuscula, plumulis singulis piliformibus obsita: plumis colli postici diffractis rigidiusculis. Longitudo 25", alæ 16" 2", tarsi 2½", rectricis intermediæ 9½", extimæ fere 7", rostri a fronte 3¼". Habitat in *Mexico*."
6191. *C. andamanensis*, Tytler (Ibis, 1866, p. 420), is, judging from specimens I have examined, identical with *C. culminatus*, Sykes.
6192. *C. corone*, L., is the common Crow of Europe. Full particulars as to its range are given below.
6193. *C. cornix*, L., is clearly recognizable by the entire back and underparts, except the throat, being ashy or french grey. Full details as to its range are given in the present work.
6194. *C. intermedius*, Adams (P. Z. S. 1859, p. 171). Judging from three specimens of this bird I have now before me, I cannot see that it is separable from *C. culminatus*; but a larger series would be necessary to determine this satisfactorily. These three birds vary in measurements as follows—culmen 2·4–2·55, height of bill at base 0·82–0·85, wing 12·5–13·0, tail 7·5–9·0, tarsus 2·1–2·25.
6195. *C. australis*, Gm. (Syst. Nat. i. p. 365) (*L. coronoides*, Vig. & Horsf.), closely resembles our European *C. corone*, but is said to be on the average a trifle larger, and differs in always having the iris pure white instead of brown. It inhabits Tasmania and Australia. A specimen in Canon Tristram's collection has the feathers on the throat much elongated and slightly lanceolate. A specimen in the British Museum measures—culmen 2·4, wing 13·3, tail 7·0, tarsus 2·65.
6196. *C. orru*, S. Müller (apud Bp. Consp. i. p. 385), resembles *C. corone*, but has a somewhat larger bill, and the feathering of the neck and throat resembles more that of *C. culminatus* and *C. japonensis*. I have before me one specimen, lent to me by Canon Tristram, which measures—culmen 2·5, height of bill at base 0·82, wing 12·7, tail 7·4, tarsus 2·22.
6197. *C. affinis*, Rüpp., is a very distinct small Raven, easily recognizable by its extremely long secondaries and peculiarly erect bristles covering the nostrils. Full details respecting this species have already been given. It inhabits North-east Africa and Palestine.
6198. *C. americanus*, Aud. This, the American representative of our common Crow, differs from it in having the plumage of the head and neck soft and blended, the tips of the feathers not being pointed and slightly lanceolate as in *C. corone*. It inhabits North America generally. Professor Baird considers the Florida Crow a distinct form, and calls it *C. americanus*, var. *floridanus*. He says that it differs in having the bill and feet larger, the tail less rounded; third, fourth, and fifth quills nearly equal; third rather longer than the fifth; colours less violet above; wing 12·0, tail 7·7, tarsus 2·6.
6199. *C. umbrinus*, Hedenb., is recognizable by the brown tinge of the head and neck, in which it differs from other species of Raven. Details respecting this species will be found in the present work. It inhabits North-east Africa and Western Asia.
6200. *C. ruficollis* (Less. Traité d'Orn. i. p. 329, 1831; *C. leptonyx*, Peale). I confess I am at a loss to make out what this bird can be. Were it not for the fact that it is said to have the head and entire underparts snuff-coloured, I should be inclined to believe that it is identical with *Corvus tingitanus*, especially as this latter species has been brought from Teneriffe by Mr. Godman; but, irrespective of that difference, the shafts of the quills in *C. ruficollis* are stated to be barred and spotted with white on their inferior surfaces. In the plate of this species (United States (Wilkes) Expl. Exp. Atl. Orn. pl. v.) the brown coloration of the head and underparts is clearly shown. This plate was drawn from a female in the Museum at Washington, obtained at Madeira, which Professor Cassin describes (*op. cit.* Orn. p. 117) as follows:—"Head and entire underparts glossy brown or snuff-coloured; upper parts, except the head, shining purplish black, most lustrous on the back and coverts of the wing; feathers of the tail, on their upper surface, with a bluish lustre on their outer, and greenish lustre on their inner webs; inferior surfaces of the wings and tail brownish black, particularly observable on that of the latter; shafts of the quills, on their inferior surfaces, brownish black, barred and spotted with white; tips of the feathers on the flanks and under tail-coverts brownish black; bill and tarsi black. Total length 20 inches,

extent 44, wing 15·6, tail 8·1, tarsus 2·45, middle toe with claw 1·9, claw 0·55, hind toe 1·6, hind claw 0·75, bill 2·4." Lesson's description was taken, Professor Cassin states, from a specimen obtained at the Cape of Good Hope; and it is therefore possible that his *C. ruficollis* may be identical with *C. capensis*, which has the head and neck tinged with brown, in which case *C. leptonyx*, Peale (Zool. Expl. Exp. Vincennes, Birds, p. 105, 1848) will be the name for the present species, if distinct, as Peale's specimen was shot near Funchal, Madeira, where, he says, it was not uncommon. Lesson (*l. c.*) does not state whence the specimen he describes was obtained; and it may be as well to transcribe his original description, which is as follows:—"Bec assez élevé, tête et cou roussâtre, tarses allongés et queue longue."

6201. *Corvus frugilegus*, L. Our common Rook is, when in the adult plumage, distinguishable by the base of the bill being devoid of feathers. It is more glossed with purple and steel-blue than the Crow, and is also a smaller bird. Details as to its range have already been given. This species and *C. pastinator* are the only ones which have the base of the bill denuded of feathers in the adult plumage.
6202. *C. capensis*, Licht. (Verz. Doubl. p. 20), is the South-African representative of our Rook, from which it is said to differ in being larger, having a larger beak, the feathers on the throat bifurcate. It inhabits South Africa. Its eggs differ greatly from those of our Rook, being light pink, blotched with brownish pink.
6203. *C. validissimus*, Schl. (Note sur le genre *Corvus*, p. 12, pl. i. fig. 21, Bijd. tot de Dierk. 1858). This species is stated by Schlegel to be larger than the Rook, with a much larger bill. It inhabits the island of Halmahera.
6204. *C. validus*, Bp. (Consp. Gen. Av. i. p. 385). Schlegel says that this species is smaller than the Rook; and he figures the beak as smaller. I have not had a specimen for examination. It inhabits Sumatra, Borneo, and Timor.
6205. *C. enca*, Horsf. (Trans. Linn. Soc. xiii. p. 164). This species, for the loan of a specimen of which I am indebted to Canon Tristram, somewhat resembles a young Rook, but is smaller and rather duller in colour. Culmen 2·3 inches, height of culmen at base 0·7, wing 10·4, tail 6·0, tarsus 2·0. It inhabits Java.
6206. *C. tenuirostris*, Moore. Of this species, which is said to occur at Bombay, I have not had an opportunity of examining a specimen. It is said to approach very close to, if it is not identical with, *C. validus*.
6207. *C. philippinus*, Bp. (Comp. Rend. 1853, p. 830; *C. brevipennis*, Schl.). Schlegel says that this species is distinguishable by its very short wings from any of its allies. It is also dull in colour. It inhabits the Philippines. Schlegel gives the measurements as follows—Total length 17 inches, wing $10\frac{1}{4}$, tail 6·0, culmen $2\frac{1}{2}$, height of bill $\frac{3}{4}$, tarsus $1\frac{1}{2}$.
6208. *C. pastinator*, Gould (P. Z. S. 1845, p. 1), is a true Rook, but does not have the base of the bill so much denuded of feathers as our Rook, from which it also differs in having the head and neck glossed with purple and not with green. In measurements it varies imperceptibly from *C. frugilegus*. It inhabits China and Japan.
6209. *C. minor*, Heugl. (Syst. Uebers. p. 35), is a small form of *C. capensis*. Schlegel gives the measurements as follows—Wing $10\frac{1}{2}$ inches, tail $5\frac{3}{4}$, beak $1\frac{1}{2}$, height of bill $\frac{7}{12}$, tarsus $2\frac{1}{4}$. It is found in Arabia Petræa and Nubia.
6210. *C. agricola*, Tristr., is *C. frugilegus*, L.
6211. *C. colonorum*, Swinhoe (Ibis, 1864, p. 427). Of this bird I have examined the specimens collected by Mr. Swinhoe. It resembles *C. sinensis*, but is smaller, measuring—culmen 2·5 inches, height of bill at base 0·9–0·95, wing 12·2–12·45, tail 8·5–8·6, tarsus 2·2–2·3. It inhabits China.
6212. Mr. G. R. Gray puts down the Crow from the Marianne Islands with a query as being an undescribed species. Not having examined a specimen, I am unable to give an opinion as to whether this view is correct or not.

6213. *C. ossifragus*, Wils. (Am. Orn. v. p. 27, 1812), is smaller in size than *C. americanus*, to which it approaches nearest; the bill is broader at the base and tapers more; and the gloss on the belly is green instead of violet, and the back is also glossed with green. Wing 10·5 inches, tail 6·5, culmen 1·55, tarsus 1·65, being shorter than the middle toe and claw (fide *Baird*). It inhabits the Atlantic coast from New Jersey to Florida.
6214. *C. caurinus*, Baird (B. of N. Am. p. 569, 1858), is smaller than *C. americanus*, but has the plumage glossed as in that species, though deeper. Culmen 1·95, wing 10·5, tail 6·4, tarsus 1·7. It inhabits the north-western coast of North America.
6215. *C. jamaicensis*, Gm. (Syst. Nat. i. p. 367). I do not possess a specimen of this bird, which Professor Baird describes as follows:—"Nostrils just covered by the short but dense tuft of nasal bristles; entirely dark sooty plumbeous inclining to black; on the head, wings, and tail there is a very faint violaceous gloss. Wing 9·5 inches, tail 6·5, culmen 2·0, depth of bill 1·7, tarsus 2·05." It inhabits Jamaica.
6216. *C. solitarius*, P. v. Würt. (Naum. ii. 2. p. 55). I do not possess this species, which Schlegel describes as resembling *C. americanus* but much less. He gives the measurements as—wing $9\frac{1}{4}$ inches, tail $5\frac{1}{2}$, culmen $1\frac{3}{4}$, height of beak $\frac{2}{3}$, tarsus $1\frac{5}{8}$. It inhabits Haiti.
6217. *C. nasicus*, Temm. (Pl. Col. 413). Professor Baird describes this species as "entirely violaceous black; the feathers smoke-grey beneath the surface; nostrils scarcely concealed by the short nasal bristles. Wing 11·0 inches, tail 7·75, culmen 2·45, depth of bill 0·8, tarsus 1·95." It inhabits Cuba.
6218. *C. minutus*, Gundl. (J. f. O. 1856, p. 97). I have never seen a specimen of this bird; but Professor Baird says that it appears to be nearly related to *C. ossifragus*. It inhabits Cuba.
6219. *C. mexicanus*, Gm. (Syst. Nat. i. p. 375). This Crow is very distinct from all others of this group, being not only very small, but the plumage is as richly glossed with purple, violet, and bronze, and as highly lustrous as that of a Grackle. According to Colonel Grayson (B. of W. and N.W. Mexico, Boston Soc. Nat. Hist. ii. p. 283) it appears to be confined to the north-western parts of Mexico, bordering the sea-coast. He did not see it in Tehuantepec; but it was quite common at San Blas and Santiago river. A specimen obtained at Mazatlan by J. Xantus, and now in Mr. O. Salvin's collection, measures—culmen 1·8 inch, height of bill at base 0·58, wing 9·9, tail 6·5, tarsus 1·65. I am not quite sure if the present species is really the *C. mexicanus* of Gmelin; but it certainly is the species referred to by Schlegel (Note sur le genre *Corvus*, p. 11, pl. i. fig. 25) under that name.
6220. *C. leucognaphalus*, Daud. (Tr. d'Orn. ii. p. 231). I do not possess a specimen of this bird, which is stated by Professor Baird to be "violaceous black, the feathers round the neck, on the breast, and sides pure white below the surface. Wing 12·5 inches, tail 9·0, culmen 2·45, depth of bill 0·95, tarsus 2·15." It inhabits Porto Rico.
6221. *C. erythrophthalmus*, P. v. Würt. (Naum. 1852, ii. p. 54). This species is described as being unlike *C. americanus*, larger than *C. corone*, and having a fiery red eye. It is a fruit-eating species, and is gregarious, large flocks being seen. It inhabits Haiti.
6222. *C. cryptoleucus*, Couch (Pr. Ac. Nat. Sc. vii. p. 66, April 1854). This species differs from the common Raven merely in having the base of the feathers round the neck, on the back, and breast pure white. Whether this should be considered sufficient to give it specific rank is, I think, somewhat doubtful, as I observe that it is not very uncommon to find that the bases of the feathers on the neck, at least, are white. I have examined a specimen of *C. affinis* in which this white is very much developed all round the neck.
6223. "*C. violaceus*, Forsten, MS." Bp. (Consp. Gen. Av. i. p. 384). It is stated by Schlegel to resemble *C. enca*, but is much smaller. It inhabits Ceram.

The above comprises all the Black Crows and Ravens that I know of, except one lately described by Colonel Irby, which is undoubtedly a distinct species, viz. :—

6181A. *C. tingitanus*, Irby (Ibis, 1864, p. 264). A small form of Raven which inhabits North-west Africa and has been also obtained at Teneriffe. Full particulars respecting this species will be found in the present Work.

The following Table will show the variation in measurements of the various species of Ravens and Crows found in the Western Palæarctic Region :—

		Height of bill.	Culmen.	Wing.	Tail.	Tarsus.
		inch.	inches.	inches.	inches.	inches.
<i>C. corax</i>	Skåne, Sweden.	1·15	3·2	16·0	9·5	2·5
„	Færoes.	1·1	3·2	15·5	9·0	2·5
„	Denmark.	1·1	3·7	16·2	10·1	2·65
„	Greenland.	1·15	3·4	17·2	10·2	2·6
„	Archangel, juv.		3·0	13·6	8·5	2·6
„	Spain, ♂, ♀.	1·00–1·1	3·00–3·1	16·2–16·7	9·7–9·8	2·50–2·65
„	Sardinia, ♂, ♀.	1·05–1·15	3·25–3·3	16·7	9·5–10·0	2·60–2·7
„	Jerusalem, ♂.	1·15	3·5	17·0	9·7	2·7
„	Cashmere.	0·95	3·1	16·9	9·6	2·7
„	Ladak, ♂, ♀.	0·90–1·15	3·10–3·4	17·0	10·4–10·6	2·30–2·6
„	Nepal.	1·1	3·7	18·5	11·5	2·9
„	Texas.	1·05	3·0	16·6	10·0	2·75
„	Mexico.	1·1	3·3	17·5	10·8	2·9
<i>C. tingitanus</i>	Tangier, ♂, ♀.	0·95–1·0	2·50–2·7	13·8–14·9	7·75–8·6	2·50–2·6
„	Santa Cruz, ♂.	1·0	2·8	14·5	9·3	2·5
<i>C. umbrinus</i>	Palestine.	0·9	2·70–2·9	14·3–15·5	8·00–8·6	2·60–2·9
„	Egypt.	0·9	2·85	15·3	8·7	2·8
<i>C. affinis</i>	Palestine.	0·85	2·5	14·5	6·4	2·45
<i>C. corone</i>	Aboyne, Scotland.	0·75	2·3	12·8	7·4	2·3
„	Bushey, Herts.	0·72	2·25	12·9	7·0	2·28
„	Granada, Spain, ♂.	0·7	2·0	12·0	7·4	2·28
„	Nowchow, China, ♀.	0·75	2·2	12·35	7·0	2·28
„	Hakodadi, Japan.	0·72	2·2	12·5	8·4	2·3
<i>C. cornix</i>	Europe.	0·72–0·75	2·2–2·3	12·5–13·0	7·50–8·2	2·28–2·35
„	Egypt.	0·70–0·72	2·0–2·2	12·1–12·2	7·50–7·7	2·2–2·3

THE common Crow is found over the entire Palæarctic Region, from the extreme west to Japan and China; but its range is peculiar, as in some parts it is entirely replaced by *C. cornix*, which in others it again in turn replaces.

In Great Britain it is tolerably common in the southern counties of England, being rarer as one approaches Scotland, where it is, to a large extent, replaced by the Hooded Crow, though both species are found in that country, and, as below stated, not unfrequently interbreed. Mr. Robert Gray says (B. of W. of Scotl. p. 172), “throughout the mainland of Scotland generally the Carrion-Crow and Hooded Crow are found in about the same numbers. In autumn I have seen very large flocks of both in the north of Banffshire assembled together in the open fields, and examining the heaps of manure that had been laid down previous to the land being ploughed. In September 1866 I observed upwards of 100 of each in a field near the

sea at Findlater Castle, overlooking the Moray Firth; they were comparatively tame, and allowed me to approach within 20 yards. Having in former years seen similar flocks alighting on the coast of Dunbar, in Haddingtonshire, I conjectured that they were migratory flocks and had just arrived from Norway and Sweden. Judging, however, from the comparatively limited numbers that are found breeding in the eastern counties, I suspect that on the breaking up of these flocks numbers return to the counties from which they had migrated." Mr. Dewar informed Mr. More that he had seen it in the Outer Hebrides during the breeding-season; but Dunn states that it neither occurs in the Orkneys nor in Shetland. In Ireland it is found comparatively rarely, being much less common than in England.

It does not occur in Greenland; and it appears very doubtful if it has ever been met with in Iceland; but on the Færoes it is said to occur, though rarely. It has not been recorded from any part of Norway; and though said to have been met with some years ago in Sweden, I am informed by Mr. Meves that all the older records of its occurrence in that country are open to grave doubts; but Rector Bruzelius wrote to him that on the 8th August, 1873, one was shot on the coast close to Ystad, and is now in the Gymnasium Museum there. Mr. Meves doubts if it has ever been found breeding in Sweden, and thinks that the egg referred to by Nathusius (J. f. O. 1874, pp. 12 & 25, no. 4) did not come from that country. I never saw it in Finland during the time I lived there; and Alexander von Nordmann states (J. f. O. 1864, p. 365) that he only once saw an individual of this species consorting with Hooded Crows, on the 4th June, 1856, near Kexholm.

In Russia it appears to be far rarer than the Hooded Crow, but is met with as far north as Archangel. Sabanæeff says that it is rare in the interior of Russia; he observed it twice in the province of Jaroslaf. He also met with it once in the Pavdinska Dacha, in the Ural; but it has been observed in the Perm Government in various parts. Teplouhoff shot two in the Perm district. According to Eversmann it occurs rarely in the Government of Kazan, and it has been met with in that of Orenburg. As before stated, it occurs in Jaroslaf; and Falk met with it in the province of Isetsk.

In North Germany it is much rarer in the eastern than in the western parts, the Elbe being about the dividing line between it and *Corvus cornix*, this latter being common to the eastward, whereas *C. corone* is the species found breeding to the westward. Mr. Benzon informs me that "it occurs sporadically in all the Danish provinces, but is on the whole a rare bird, though common enough in the Duchies of Schleswig and Holstein, in which former district it is found together with our common Hooded Crow, with which it occasionally breeds, and produces hybrids; but in Denmark," he adds, "these latter are exceedingly rare, and I possess but one specimen, a male shot in February this year (1875) in South Seeland." This bird Mr. Benzon describes as having the head, neck, and throat jet-black; the wings, back, and tail black, with metallic gloss, and on the back of the neck and shoulders intermixed with grey; abdomen grey; under tail-coverts black, with dark grey margins; tail rounded, the outer feathers shorter than the closed wings; bill equal in length to the middle toe (56 millims.); total length 50 centimetres; bill and legs black; iris dark brown. Mr. Carl Sachse informed me that it is common and resident near Altenkirchen, in Rhenish Prussia, but is more numerous in the spring and autumn than at other seasons, as large numbers pass and repass to and from their breeding-haunts. It breeds

near Altenkirchen in March. In Belgium, Luxemburg, and Holland it is common and resident, being found both on the shores and inland. Mr. Labouchere assures me that these shore-frequenting Crows never place their nests on trees, but build on the ground, which would appear to be a curious circumstance should it prove to be the rule and not exceptional. It arises, he says, from the fact that trees are scarce in these localities.

Throughout France it is a common resident, and appears to be, to a large extent, a winter resident in the southern provinces, though it is stated by Baron J. W. von Müller to breed in some parts of Provence. In Portugal it is stated by Professor Barboza du Bocage to be uncommon; but in Spain, Mr. Saunders says (*Ibis*, 1871, p. 221), it is resident throughout the year, being tolerably abundant. Dr. Brehm, however, did not personally observe it when collecting in Spain. Passing eastward, again, I find it recorded by Bailly as being common in Savoy during the greater portion of the year, though some leave during the winter. It does not, however, breed in Lombardy; and Savi speaks of it as being very rare in Tuscany. Doderlein considers it to be rare in the Modenese, and records a solitary example as having recently been obtained near Naples. It appears to be very doubtful as to whether it occurs in Sicily, as none of the Sicilian naturalists have obtained it, and its occurrence rests solely on the authority of Malherbe. Both Von der Mühle and Lindermayer speak of it as a permanent resident in Greece; on the coast vast flocks retire to roost on the rocky islands, and so soon as the day breaks they return to the mainland for the day.

It occurs in Southern Germany, being, according to Dr. A. Fritsch (*J. f. O.* 1871, p. 203), common in the mountains of Bohemia, but is not found in the lowlands, nor could he obtain a specimen from near Prague. Mr. Stejneger speaks of it (*J. f. O.* 1871, p. 123) as being very abundant in the southern parts of Tyrol. Mr. Seidensacher informed me that it winters in Styria, but that he never found it breeding there; and the Ritter von Tschusi-Schmidhofen says that it occurs in Southern Austria. Dr. Otto Finsch speaks of it as being very common in the lowlands of Bulgaria; and I have seen it in Wallachia and Servia; but Messrs. Elwes and Buckley say that they never observed it in Turkey.

In Southern Russia it is stated by Von Nordmann to be not uncommon, and in the provinces skirting the eastern side of the Black Sea more numerous than *C. cornix*. It also occurs in the Caucasus; but Canon Tristram never observed it in Palestine; nor does it appear to occur in North-east Africa, being there replaced by *C. cornix*.

In North-west Africa, however, it is said by Loche to be common in the wooded portions of Algeria, though later ornithologists do not confirm this statement, and it is possible that his remarks refer to *C. tingitanus*, which is common there. Mr. C. F. Tyrwhitt-Drake states that he met with it in Tangier and Eastern Morocco, where, he says (*Ibis*, 1867, p. 428), it is "very common." Dr. H. Dohrn includes it in his list of birds occurring in the Cape-Verd Islands (*J. f. O.* 1871, p. 5); but it does not seem to have been met with in Madeira or the Canaries.

To the eastward the range of the common Crow extends as far as Japan; but it does not occur in the southern portion of Asia. Mr. Blanford did not meet with it in Persia, and says that it appears to be unknown there. It is, however, recorded from India by Dr. Jerdon, who inserts it in his 'Birds of India' (ii. p. 295) on the authority of Dr. Adams, who says that it is common in Cashmere. Mr. W. E. Brooks found it breeding in Cashmere; but it appears to be

rare, as Mr. A. O. Hume states (*l. c.*) that, besides the one specimen brought back from Cashmere by Mr. Brooks, he has only obtained two examples. Severtzoff records it from Turkestan, where it breeds but is on the whole a rare bird.

Its range in Siberia appears rather peculiar; for Middendorff remarks that whereas the Hooded Crow is common west of the Lena, it is replaced by the present species east of that river; and on the west side *Corvus corone* does not seem to have been met with by him. Pallas (*Zoogr. R.-A. i. p. 831*) says that it is rare in Southern and Temperate Russia, but occurs in Eastern Siberia to Kamtchatka. In Eastern Siberia both the Japanese Crow (*C. japonensis*) and the present species are found. Of this latter species Dr. Radde observed large flocks passing the Tarei-nor on migration on the 15th April, and in the Bureja Mountains the time of migration is about the 18th April. In the Transbaikal region he found it not uncommon on the main roads in company with *Corvus japonensis*. Mr. Swinhoe has obtained *C. corone* in China; and I have examined a specimen from Hakodadi, in Japan, which agreed closely with our British bird. Here, as in China, there are, however, allied forms differing sufficiently to entitle them to specific rank. In America *C. corone* is replaced by *C. americanus* and other allied species.

Of all birds that are held by the farmer and the game-preservee in bad repute, none, perhaps, deserves its bad name more than the Carrion-Crow. A bold and unsparing robber, and cunning and wary as he is impudent and voracious, he is everywhere looked on with disfavour. In the more cultivated portions of our islands the Carrion-Crow has been so successfully persecuted that it is but, comparatively speaking, rarely to be met with, though in those portions of the United Kingdom where it has some chance of escaping destruction it is still common enough. In the more unfrequented parts of Scotland, where the moors are extensive, and where the shepherds have their flocks scattered over a tolerably large tract, the Crow plays sad havoc amongst the game, and not unfrequently destroys the young lambs. It is an arrant egg-stealer, and will carefully examine the nests of almost all the smaller birds, as well as the Grouse, Partridges, &c., and devour the eggs; nor are wild Ducks and water-birds free from its marauding proclivities in case it discovers their nests, and Mr. Weir records an instance of a Carrion-Crow, being suddenly frightened when flying over his head, dropping a wild Duck's egg which it had been carrying whole in its bill. When in the neighbourhood of a farmyard it will steal the eggs which the hens may lay in the hedges on the outskirts of the homestead; and any duckling or chicken that may wander away from the mother has but little chance should a Carrion-Crow happen to be near. Young hares and rabbits are frequently taken by the Crows; and it is said that several will collect and attack a ewe when, in the pains of labour, she has retired to some out-of-the-way place; and, watching the time when the poor beast is least able to repel the attack, they will kill her as well as the lamb; or even when the lamb has been produced, and the ewe has tenderly cleaned it, they will watch their opportunity and attack the lamb, frequently killing it. If any large fish be cast up on the shore, or where there is a piece of carrion, the Crow is almost sure to be met with; but not only will it feed on flesh, &c., but (for scarcely any thing comes amiss to its ravenous maw) it does not disdain to pick amongst refuse heaps, and follows the herds of swine when driven to pasture to search for refuse grains of corn, and is said to be especially fond of hunting about for undigested portions of potatoes in localities where that vegetable forms a staple article of food. It frequents the

slaughter-houses, and is exceedingly daring and impudent in stealing any pieces of meat that are thrown out. Entrails are its especial delight; and I have often watched several tugging and tearing at a lot of half-rotten entrails that have been cast out as useless. It will sometimes dispute with the smaller species of Hawks for their prey, and even take their quarry from them. Pastor Snell states that several together have been known to drive a Goshawk off from its prey. During the winter-season, when deep snow covers the ground, the Crows often undergo great privations, and are then compelled to feed on berries. Pastor Snell states that they then eat the berries of the dog-rose (*Rosa canina*), of the thorn (*Cratægus oxyacantha*), and of the rowan (*Sorbus aucuparia*), and when driven by hunger will come to the poultry-yards and dispute with the poultry and pigeons for the food thrown out to them.

Unlike the Rook, the Crow is rather a solitary bird, except where there is a good supply of food, when several may be seen in company. Its flight is direct and usually not very swift, being performed by regular flaps of the very fully outstretched wings; but when urging forward, it can fly at a considerable speed. It walks with ease, like the Raven; and its cry or croak is something like the note of that bird, but clearer, and neither so loud nor so harsh. It breeds early in the year, about the same time as the Raven, and places its nest in a tree or sometimes in the rocks, usually in a place somewhat difficult of access. The nest is bulky, constructed externally of sticks and twigs generally in a half-rotten state; and the internal portion is first composed of slender twigs carefully interlaced, the larger interstices being filled up with fresh mould; and then the inner lining is constructed of wool and hair, or sometimes a little moss is added; at least I have found this latter in one or two nests I have examined. The eggs, from four to six in number, are oval, somewhat elongated in shape, in ground-colour pale bluish green or dull blue-green with an olive tinge, and are more or less spotted and blotched with purplish grey underlying shell-markings and light or dark brown surface-blotches, some being very closely marked, whereas others are but slightly spotted. In size they are similar to those of the common Hooded Crow.

In the article on the Hooded Crow I referred to the fact that in localities where both species occur they not unfrequently interbreed; and I then stated that all the young hybrid birds which I had seen bore a resemblance to both parents, having the characteristics of a true hybrid. This, however, is not always the case, as is clearly demonstrated by Mr. J. Lumsden, jun., to whom I am indebted for the following notes:—"On the 18th of April this year (1874), our gamekeeper told me that he had on the previous day found a Crow's nest in a high Scotch fir on the edge of a moor, and had seen both old birds flying about, one being, he was quite sure, a grey Crow, and the other a black one. Having got this information I started off with him at once to see the nest. As we got within two gunshots of the tree the old female (Hooded Crow) flew off and rose croaking above our heads. She was at once joined by the male (Carrion-Crow); and as the two birds flew round us I could distinctly see that the keeper was right—that the one bird was grey, and the other black. After this I visited the nest every few days, and had frequent opportunities of identifying the birds. At first the female was very wild and left the nest long before we were within shot of her, but always soared above us in circles, getting higher and higher each time, her cries bringing the male—who invariably came in the same direction, over the shoulder of the hill at the foot of which the tree with the nest stood. After she had

been sitting for some time, however, the hen became much tamer and would not leave the nest till the tree was struck with a stick. At this time also we noticed that the male bird was shy, and could only see him in the distance. When the young came out she laid down eggs and rabbit's entrails near the nest; and when watching at some distance we observed that both the old birds fed the young." Mr. Lumsden sent both parent birds with the four young ones to me for examination, having succeeded in securing the whole family; and when I have done with them they will, in accordance with his desire, be deposited in the British Museum. The male bird is an ordinary Carrion-Crow; and the female, which at the first glance appeared to be a Hooded Crow, is, I find on closer examination, a hybrid, though approaching nearer to the Hooded than to the Carrion-Crow in coloration of plumage. Two of the young birds closely resemble the mother, whereas the other two are to all appearance ordinary Carrion-Crows, exhibiting none of the characters of both species which I find in other hybrids.

Some most interesting notes respecting the interbreeding of *C. corone* and *C. cornix* are published by the Ritter von Tschusi-Schmidhofen in the 'Journ. für Orn.' 1869, p. 240. In this instance the male bird was a Hooded Crow, and the female was a Carrion-Crow. All four young birds were taken; and he remarks that one was quite black, whereas the other three resembled *C. cornix*, but had the grey portions of the plumage intermixed with black. He adds that in the Arnsdorfer district, in Southern Austria, where these young birds were bred, it is almost impossible to obtain a pure-plumaged *Corvus cornix*, as all are intermediate between that species and *C. corone*, some being quite black, excepting that there are a few grey patches or spots in the plumage. This would, I think, tend to show that *Corvus cornix* is being gradually outnumbered by *C. corone*, and is by degrees becoming extinct in that particular district.

The nest and eggs of the Carrion-Crow closely resemble those of the Hooded Crow; and in a series of eggs of both species I cannot trace any difference, except that the eggs of each vary somewhat *inter se*, as do the eggs of all their allies.

The specimen figured, on the same Plate with *Corvus cornix*, is an adult bird in my collection, from Aboyne, in Scotland. On an extra, uncoloured Plate, are also figured the heads of *Corvus corax*, *C. umbrinus*, *C. tingitanus*, *C. affinis*, and *C. corone*, and small figures of *C. tingitanus* (which has the wings as in *C. corax*) and *C. affinis*, so as to show the deep secondaries and long wing of the latter compared with the other Ravens.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b, ♂, ♀. Aboyne, Scotland (*J. Walters*). *c, pull.* Belgium (*Dubois*).

E Mus. Howard Saunders.

a, ♂, b, ♀. Zegri, Granada, March. *c.* Sparham, Norfolk, May 1873.

E Mus. J. Lumsden, jun.

a, ♂. Dumbartonshire, June 4th, 1874 (*J. L.*).

E Mus. R. Swinhoe.

a, ♀. Nowchow, February 1868 (*R. S.*). *b, ♀.* Hakodadi, Japan, October 22nd, 1866 (*Whitely*).

CORVUS CORNIX.

(HOODED CROW.)

Corvus cornix, Linn. Syst. Nat. i. p. 156 (1766).*Corone cornix* (L.), Kaup, Nat. Syst. p. 99 (1829).*Corvus cornix ægyptiaca*, A. E. Brehm, Journ. für Orn. 1853, Extraheft, p. 97.*Corvus subcornix*, C. L. Brehm, Vogelfang, p. 57 (1855).*Corvus tenuirostris*, id. ut suprâ (1855).*Corvus cinereus*, id. ut suprâ (1855).

Royston Crow, *Hooded Crow*, *Hoodie*, English; *Frannag*, Gaelic; *Corbeau mantelé*, *Corneille mantelée*, French; *Nebelkrähe*, German; *Corronca*, *Cornacchia*, *Mulacchia*, Italian; *Graa Krage*, Danish; *Kraake*, Norwegian; *Kråka*, *Grå Kråka*, Swedish.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 76; Werner, Atlas, *Omnivores*, pl. 3; Kjærb. Orn. Dan. taf. xi.; Frisch, Vög. Deutschl. pl. 65; Fritsch, Vög. Eur. pl. 28. fig. 1; Sundevall, Sv. Fogl. pl. xx. fig. 2; Gould, B. of Eur. pl. 22; id. Birds of G. B. iii. pl. lix.; Naumann, Vög. Deutschl. taf. 54. fig. 1; Schlegel, Vog. Nederl.

♂ *ad.* coracino-niger cæruleo et violaceo refulgens: collo postico et lateraliter, dorso et abdomine griseis: supracaudalibus nonnullis medialiter nigris vel nigris griseo marginatis: rostro et pedibus nigris: iride fuscâ.

♀ *ad.* mari similis sed paullo minor.

Adult Male (Seeland, Denmark, 17th May). Head, throat (excepting the sides), down to and including the upper part of the breast, wings, and tail glossy black, with blue and violet reflections; back and sides of the neck, back and underparts, except as before stated, ashy grey; some of the upper tail-coverts with the centre of the feather violet-black, others almost entirely black, the upper ones, however, being ashy grey; feathers at the end of the tibia black; legs and beak black; iris dark brown. Total length 19 inches, culmen 2·2, wing 12·6, tail 7·8, tarsus 2·4.

Female (Copenhagen, 12th February). Similar in plumage to the male, but with rather less black on the fore part of the neck, and smaller in size, measuring—culmen 2·1, wing 12·2, tail 7·6, tarsus 2·3.

THE Hooded Crow is found throughout Europe, much commoner in the eastern than in the western portions of the continent, Northern Africa, and Northern and Central Asia, eastward to Kultuk, in Eastern Siberia. In Great Britain it is commoner in the north than in the southern counties. Mr. A. G. More (*Ibis*, 1865, p. 133) writes respecting its distribution during the breeding-season as follows:—"Mr. Laver, of Colchester, has informed Dr. C. R. Bree

that the 'Dun Crow' occurs in great numbers near the Blackwater river in Essex, and some remain and breed there every year. Mr. Laver has frequently seen and taken the nest on Osey Island, in the parish of Steeple, on Romsay Island, and at Paglesham. His cousin, Mr. Robert Laver, has shot the old bird from the nest, which is generally that of the Carrion-Crow." Dr. Bree has since written to say that the trees in which the Hooded Crow used to breed have been cut down in one of the localities whence he kindly endeavoured to obtain specimens.

Messrs. Gurney and Fisher mention a pair having once nested near King's Lynn in 1806. There is reason to believe that the Hooded Crow breeds occasionally in North Wales, where the birds have been seen so late as May. The Hooded Crow has been known to breed at Scarborough on two or three occasions. A bird which bred at Hackness is still preserved in the Scarborough Museum.

Mr. Selby marks the Hooded Crow as breeding occasionally in Northumberland; and Mr. J. P. Crellin reports it as breeding annually in the Isle of Man. The bird breeds throughout Scotland, becoming more abundant northwards.

In the neighbourhood of Glasgow Mr. R. Gray describes the Hooded Crow as constantly pairing with the Carrion-Crow, and says this is the rule, rather than the exception; and in Rennie's 'Field Naturalist' (1833, p. 279) Mr. Blyth records that "the same observation has been made near Inverness. This circumstance is greatly in favour of the opinion that the two birds are races of the same species." In Scotland, according to Macgillivray, "it is very abundant in most parts of the northern and middle divisions of Scotland and its islands, but becomes rarer as we advance southward;" and Mr. Robert Gray (B. of W. of Scotl. p. 173) writes that it is found in the inner group of islands, and also in the Outer Hebrides, including the remoter rocks and St. Kilda, and is there permanently resident, existing in many places in such numbers as to prove a great nuisance both to the farmer and game-preserve. Dunn says that it is a constant resident in Shetland and Orkney, where it builds in rocky cliffs, and frequently on the rocky tops of hills, which are by no means difficult of access. In Ireland, according to Thompson (B. of I. i. p. 310), "it is common and resident in all quarters of the island. In the north and east it has come under my observation at every period of the year, and is fully as numerous in summer as at any other time. At this season, too, I have remarked the bird as common in the west and south; and my correspondents there agree in noticing it as a resident species."

It does not appear to have ever occurred in Greenland; but, according to Professor Newton, it occasionally pays a visit to Iceland, though it does not inhabit that country. Faber saw some in the north in July and August 1819. It is common and resident in the Færoes, and is also exceedingly numerous in Scandinavia, being found there from the southern provinces up into the high north. Mr. Collett records it as common throughout Norway, up beyond the Russian frontier, on the fells, ranging into the birch region, and being in the northern provinces more numerous on the islands than inland.

Sundevall (Sv. Fogl. p. 119) says that there is scarcely a part of Sweden where it is not common. It is found at the North Cape, on Magerö, at Hammerfest, and in Lapland, as far as the conifer growth extends. Except in the high north it is a resident, but in Lapland is a migrant. In most localities in Norrland and in some parts of Southern Sweden, as for instance in Småland, it leaves the interior and frequents the coast in the winter. It winters even in

Skellefte, and possibly further up the coast. In Finland I found it common in every part of the country; and it is equally numerous throughout Northern Russia, and, so far as I can ascertain, also in the Baltic Provinces and Poland. It is found in Northern Germany; and, according to Borggreve, the ranges of the present species and *Corvus corone* are to some extent divided by the Elbe; on the east side the former is found breeding, and on the west side the latter. In the localities where *C. corone* is met with breeding (as for instance in the Rhine territory and Westphalia), *C. cornix* is a regular winter visitant. In Oberlausitz (fide Tobias), Anhalt (*Baldamus*), the left side of the Elbe, north of Magdeburg (*Borggreve*), and the right side, south of Schwerin (*v. Preen*), both species are found breeding. According to Gloger, specimens intermediate between the two are rare on the boundary of their ranges; but Von Preen and Tobias state that hybrids and all intermediate stages are common. Count C. Wodzicki found it common in the woods near villages in Polish Galicia; but it does not go up the mountains to any great altitude. Mr. Carl Vangerow (*J. f. O.* 1855, p. 185) speaks of it as being common in Brandenburg, frequenting the woods in summer, and the towns and villages in the winter. It is said by Mr. R. Blasius not, as a rule, to breed in Brunswick, but only to pass the winter there; and Dr. E. Rey informs me that "it breeds but rarely near Halle, in Saxony, but is common in the Dessau territory, where, again, it is rarer during the winter than in the former locality." Pastor Jäckel (*J. f. O.* 1854, p. 488) records it as numerous throughout the winter in Bavaria, arriving there early in October, and he saw one there as late as the 4th of May. It is common in Denmark, and in the parts of Germany bordering on the North Sea, as also in Holland. In Belgium it is found from October to March; but Baron de Selys-Longchamps remarks that it is very partial to certain districts, whereas others, apparently similar, are scarcely visited by it. In Luxemburg and, according to Degland and Gerbe, throughout Northern France it is abundant during the winter; but in Languedoc, Provence, and Dauphiné it is of somewhat rare occurrence. It is questionable whether it has occurred in Portugal; and Mr. Howard Saunders informs me that "in Southern Spain it seems to be rare, as I have only seen two specimens, and in Catalonia and the Eastern Pyrenees only a few individuals occasionally make their appearance amongst the flocks of the black species. The Catalan peasants regard it as a very old Crow, and call it *Gorb calvo*." Mr. A. von Homeyer records it, however (*J. f. O.* 1862, p. 252) as found in Majorca in scattered pairs, and he obtained its nest there at the end of April.

Passing eastward, again, I find it, according to Bailly, rare in Savoy, even during the time of migration; and none remain to nest in that part of the Alps. It is also rare in Switzerland; but M. Olf-Galliard (*J. f. O.* 1860, p. 234) records one as having been killed in the Canton Freiburg. According to Savi and Salvadori this species is abundant and resident throughout Italy; and Bettoni figures it amongst the birds which breed in Lombardy. Doderlein mentions its abundance in Modena, and adds that it is common and resident in Sicily, more especially in the interior of the island. It does not appear to have been met with in Malta, as it is not included in Mr. C. A. Wright's list of the birds of that island. It is, however, found in Greece; and Lord Lilford (*Ibis*, 1860, p. 135) records it as "an occasional winter visitor in Epirus," where he "observed it near Prevesa in March 1857. Common on the coast of Albania proper in December; abundant in Montenegro in August. Apparently quite unknown in Corfu;" and

Count von der Mühle states (Orn. Griechenl. p. 53) that it is a resident in Greece, and has been observed at Lamia, Patras, and near Athens; but Lindermayer denies this, and says (Vög. Griechenl. p. 70) that he only found it in Attica during the winter, and that it arrives in November and leaves in March; but further on he says that he believes that it breeds in Northern Greece. Erhardt says that it is resident on the Cyclades; and Dr. Krüper states (J. f. O. 1863, p. 404) that it breeds on the rocky shores of Naxos, where he obtained its eggs, and found three young birds in a nest placed in a cleft about five feet from the ground. It also breeds, he states, in Santorin, Myconos, and Paros.

In Southern Germany it is common in Bohemia; and according to Fritsch (J. f. O. 1869, p. 203) it is the predominating species in Central Bohemia, as *Corvus corone* is either very rare or is not found at all. It is found in Austria; and I saw it often when in Hungary, and took its nest in Wallachia, not far from the Hungarian frontier. Messrs. Elwes and Buckley record it (Ibis, 1870, p. 189) as common in Turkey; and Professor von Nordmann states that it is common in South Russia everywhere, especially in Imeritia and Ghouriel, where the immense flocks do great damage to the maize-fields. Mr. Goebel (J. f. O. 1870, p. 190) records it as common in the Uman district, Southern Russia, throughout the year, its numbers being, however, increased during the winter by arrivals from the north. Mr. Jacovleff records it as extremely numerous at the mouth of the Volga; and in the streets of Astrachan they are so tame that they will take food out of the hand, and are extremely useful as scavengers. It is not unfrequently to be seen fishing, and in the winter attends the fishermen and picks up the small fish which they throw away. Most of them leave Astrachan during the breeding-season. Sabanäeff records it as rare in the Ural; and Dr. G. Radde (J. f. O. 1854, p. 62) found it extremely abundant in Southern Bessarabia, and rarer in the Crimea than in Germany; but it is found in small flocks in the Tartar villages.

Canon Tristram met with it in Palestine, and writes (Ibis, 1866, p. 64) as follows:—"We met with the Hooded Crow (*Corvus cornix*) at Jenin (Engannim), a day's journey south of Nazareth; and neither in winter nor summer did we find it further north. . . . It is curious that this bird, merely a winter visitant to all except the more northerly portions of the British Isles, should be sedentary not only in Southern Syria, but also in Egypt, and that in the north of Palestine it should be, if present at all, at any rate very scarce. It is given by Russell as inhabiting the neighbourhood of Aleppo. There were a few pairs at Jenin, which roosted among the palm trees, where we obtained them as they were returning home in the evening. In the district about Nablous they were scarce, but more numerous at Jerusalem, living there in society with Ravens and Rooks, but not nearly so abundant as the other Corvidæ. We never saw them in the southern wilderness, or in the neighbourhood of the Dead Sea; but on crossing to the other side of Jordan, the *C. cornix* was widely distributed over the highlands and open plains of Moab, and in the southern and eastern portions of Gilead, not loving the thick forests, but resorting chiefly to open plains, where a few terebinth trees occasionally varied the landscape." Hemprich and Ehrenberg obtained it in Syria; and it is common and resident in North-east Africa. Captain Shelley (B. of Eg. p. 159) says that it "is the Common Crow of Egypt, but in Nubia it is less plentiful. It begins breeding towards the end of February, when its nest may be procured in almost every clump of sount." Mr. E. C. Taylor also records it (Ibis, 1869, p. 66) as "very

abundant wherever there are trees, consequently not at Suez, where there are none. Breeds in February and March. When I was trying to stalk a *Buteo ferox*, or any other large raptorial bird, these Crows seemed to take a pleasure in attacking and driving it away just before I got within shot. Indeed they persecute and bully all the large birds in the country, except *Corvus umbrinus*, of which they are afraid." Von Heuglin (Orn. N.O.-Afr. p. 504) says that it is common at all seasons of the year, but it does not range far to the south, only to about 23° N. lat. Dr. Leith Adams records it as rare in Nubia; and Von Hartmann (J. f. O. 1863, p. 238) did not observe it beyond Assuan. The specimens from Egypt differ somewhat from others, obtained in Northern Europe, in being rather smaller in size, and in having the grey portions of the plumage slightly shaded with brown; but this latter difference is scarcely perceptible. The average size of my northern specimens is—culmen 2.05, wing 12.7, tail 8.15, tarsus 2.35; whereas the two examples from Egypt in Captain Shelley's collection measure—culmen 2.2 and 2.0, wing 12.1 and 12.2, tail 7.7, tarsus 2.4 and 2.2 respectively.

In Western Africa it is rare, and is recorded by Loche as only of accidental occurrence in Algeria amongst flocks of *C. corone*; and he states that it does not breed there.

It does not appear to have occurred on Madeira, where, however, the Common Crow was met with by Vernon Harcourt.

In Asia it extends as far eastward as the Lena, eastward of which Von Middendorff only met with *C. corone*. Messrs. Dickson and Ross (P. Z. S. 1839, p. 33) obtained it in January at Erzeroom, and state that it arrives there in that month and leaves in March; Mr. Blanford obtained it in Persia; Messrs. Horsfield and Moore (Cat. B. E. I. Co. Mus. ii. p. 553) record it from Mesopotamia and Afghanistan; and Dr. Gustav Radde (Reise im Süd. von O. Sib. p. 210) writes that he never met with *Corvus cornix* in Southern Siberia, but on the eastern slope of the Ural large flocks, both of that species and *C. corone*, were observed; Von Middendorff (Sib. Reise, p. 160) observed one at Jenisejsk amongst a lot of common Crows, and was assured that in Turuchansk both species are equally common, and that at Goroschinskoje, in the arctic circle, both, but especially *C. corone*, arrived late in March to breed. On the Lena and eastward of that river he only met with *Corvus corone*. Dr. Dybowski records it (J. f. O. 1872, p. 454) from Kultuk, in Eastern Siberia, where he saw a single one in a flock of Carrion-Crows.

In its habits the Hooded Crow does not differ from its close relative the Carrion-Crow, and is quite as impudent and thievish as that bird. It has an exceedingly bad reputation, and not without reason; for I can say but little, if any thing, in its favour, except that, being exceedingly omnivorous, it acts as an excellent scavenger, and soon disposes of any garbage that can be eaten, especially the entrails or offal thrown out from slaughter-houses. Amongst game- and sea-birds it makes great havoc, and destroys great numbers of their eggs, besides picking up the young birds whenever it gets a chance; nor is the poultry-yard free from intrusion, as it displays the utmost wariness in its raids, and generally manages to pick up a few chickens with tolerable impunity, in spite of all the precautions taken by the farmer. No bird is quite safe against the attacks of this unscrupulous and daring marauder; and even the Golden and Sea Eagles frequently lose their eggs. Dr. Dewar informed Mr. Robert Gray (B. of W. of Scotl. p. 173) that in 1870 "three eggs at least were carried off by Hooded Crows, which were seen waiting an opportunity for making a descent on the nest. In one case the Eagle had no sooner quitted her

eyrie than the Crows pounced on the exposed eggs, and would doubtless have succeeded in breaking them had not the male Eagle made his appearance and beaten them off. Captain Cameron, of Glenbrittle, has also informed me that he has seen a pair of Grey Crows rifle a Sea-Eagle's nest and break and devour the eggs as determinedly as if they were those of some innocent Grouse." Enormous numbers of sea-fowl's eggs are destroyed by Hooded Crows, who watch and pounce down on them directly the old bird leaves them. When egg-collecting on the shores of the Baltic I was frequently attended by Crows, who took advantage of our intrusion to secure a share of the spoil, but were quite cunning enough to keep well out of gunshot range. They devour larger eggs, such as those of Ducks, Guillemots, or Gulls, at the nest or close to where they have been deposited, but will carry off smaller eggs to their own nests; and Mr. Meves remarks (J. f. O. 1869, p. 391) on the large number of shells of the eggs of the Redshank, Reeve, Dunlin, Lapwing, and Ring-Plover which he found on the ground under the nests of this species. Mr. R. Collett, writing respecting its habits in Norway, says, "perhaps the most pernicious bird occurring on the coast. It does far greater damage, by its depredations among the eggs and young of sea-fowl, than all the birds of prey together. It is chiefly the coast districts south of Lofoten which suffer from its ravenous instincts. In West Finmark it is not so numerous, though I found it everywhere, even on the outermost holms and islets at the North Cape. But further south, along the whole coast there is scarcely a rock inhabited by sea-birds which it does not ravage during the summer months. It is particularly partial to the eggs of all species of *Anates*, *Somateria*, and *Hæmatopus*, which breed some distance apart; the gregarious *Lari* and *Sternæ* are generally sufficiently numerous to repel its attacks. So soon as the young of these species are hatched they are safe to be snapped up whenever an opportunity presents itself of doing so with impunity. In the adjacent valleys it evinces the same predatory proclivities, preying upon small birds and the eggs and young of black game and Ptarmigan." Mr. Collett, in order to show the omnivorous nature of the present species, gives the contents of the stomachs of the young of various ages. A brood, about five days old, had their stomachs filled almost exclusively with coleoptera, amongst which were countless numbers of *Bembidia* and *Elateres* (chiefly *Cryptophnus rivularis*), and the larvæ of *Noctua*. A half-fledged brood, about fifteen days old, had been fed on quantities of seed-corn (barley), a number of coleoptera of the species above named, a few *Araneidæ*; and the pelvis of an *Arvicola* was also in the stomach of one bird. In the stomachs of a nearly fledged brood were fish and fragments of the shells of *Patella*; and an adult bird, shot in August, had in its stomach fragments of *Carcinus mænas* and entire cherries. In Finland and Russia, where I had the most ample opportunities of observing this species, it is exceedingly numerous and tame, especially during the winter-season, when, owing to the ground being covered with deep snow, and food being scarce in the open country, it is forced to seek a precarious subsistence on the high roads and in the towns and villages. In all the large towns numbers are seen in company with Pigeons and Jackdaws; and when in Moscow I used to put food outside my window, and usually had quite an assemblage waiting round the window when feeding-time drew nigh, the Crows being always the most daring and also the most self-asserting amongst the assembled crowd; and one would often sit on the window-sill and remain, although I might be close to the window, until I opened it to put out the food. Very frequently Crows will assemble together in large flocks, apparently without

cause, and the Scandinavian peasantry believe that they hold a sort of council, or "Ting," and sit in judgment on offending members of their community. I have seen several such assemblages in Finland; but the Crows certainly had no such serious business on hand. Mr. H. C. Müller, in his notes on the avifauna of the Færoes, refers to these meetings, and gives as a reason the appearance of a strange bird of prey, which appears probable, as it is well known that if a Hawk, Owl, or even a cat is seen by a Crow, it will raise an alarm, and soon collect numbers of its friends in order to mob and repel the invader.

Macgillivray writes (Brit. B. i. p. 532) that "perhaps the most remarkable habit of the Hooded Crow is one which most persons who have observed it consider indicative of the approach of rain, but which I have not found to have any connexion with that phenomenon. In quiet, and more especially in dull close weather, one of them, perched on a stone or crag, continues to croak for a long time, being responded to at intervals by another that has taken a station at some distance. Its voice is not so loud or clear as that of the Carrion-Crow, but resolves itself into a rather harsh sound, resembling the syllable Crää pronounced by a genuine Aberdonian."

The Hooded Crow breeds much later than the Raven, and does not usually lay before about the middle of April or from then to the middle of May, according to the season. Its nest is constructed of sticks lined with grass and wool, and is a tolerably bulky structure. It is placed sometimes amongst the rocks, and at others in a tree, generally at a considerable altitude, but sometimes only a few yards from the ground. I usually found them in tolerably large trees, about fifteen or twenty feet above the ground; but Mr. Wiese writes (J. f. O. 1859, p. 40) that in the neighbourhood of Greifswald, where high trees are scarce, the Crow often builds so low down that one can easily look into its nest. Mr. H. Goebel (J. f. O. 1870, p. 190) says that in Uman, Southern Russia, a couple of Herons were driven away from their nests by Crows, and that he subsequently found one of the deserted nests tenanted by a Hooded Crow and the other by a Black Kite (*Milvus migrans*). In Scotland, as also in the Færoes, the Hooded Crow is said to breed in the rocks, never in a tree; and Mr. H. C. Müller says that he has known the nest to be placed on a dwelling-house.

The eggs, usually five in number, are, judging from a series in my collection, practically undistinguishable from those of *Corvus corone*, and equally variable, some being almost spotless, whereas others are so closely spotted with brownish olive as to look almost uniform brownish in colour. Specimens from the north of Europe are larger in size than others from the south, those from Finland measuring from $1\frac{27}{40}$ by $1\frac{8}{10}$ inch to $1\frac{3}{4}$ by $1\frac{11}{40}$, whereas eggs which I took at Ilovetz, in Wallachia, only measure $1\frac{23}{40}$ by $1\frac{4}{10}$ to $1\frac{3}{4}$ by $\frac{2}{10}$ and $1\frac{22}{40}$ by $1\frac{3}{10}$ inch respectively.

The present species is by many authors considered to be merely a variety of the Carrion-Crow; and there is no doubt that in localities where the two species are found they not unfrequently interbreed; but the young birds resulting from these alliances are never, so far as I can ascertain, precisely similar to either parent, but, like all hybrids, are intermediate in appearance, thus, in my opinion, demonstrating that, although closely allied, and not, indeed, differing in habits, note, or mode of nidification, the present species and *Corvus corone* are fairly distinct; and this is borne out by the difference in their respective geographical ranges. In my article on *Corvus corone* I go fully into this question, so will say nothing further on the subject here.

Professor Newton tells me that this is one of the few birds of which a complete monograph has been separately published. Its title is "Verhandeling over de Bonte Kraai (*Corvus cornix*) uit het oogpunt van Natuurlijke Historie en Ontleedkunde, door N. Meursinge;" and it appeared in 1851 at Groningen, having obtained the gold medal offered as a prize by the scientific society of that town.

The specimen figured (on the same Plate with *Corvus corone*) is an adult male in spring plumage, from Denmark, and is the one described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂ *ad.* Seeland, May 17th (*A. Benzon*). *b*, ♀. Copenhagen, February 12th, 1871 (*A. B.*). *c*, *d*. Pagham, Sussex. *e* (hybrid between *C. cornix* and *C. corone*). Pagham (*R. B. Sharpe*).

E Mus. G. E. Shelley.

a. Egypt, April (*G. E. S.*). *b*, ♀. Egypt, March 8th (*G. E. S.*).

E Mus. J. H. Gurney, jun.

a, ♀. Hampstead, January 26th, 1866. *b*. Northrepps, Norfolk, January 15th, 1866. *c*, ♀. Trimmingham, Norfolk, May 21st, 1872 (*Hewitt*). *d*. Nice.

E Mus. Captain Clark Kennedy.

a, ♂. Gebel Sheik-Hereedi, Egypt, February 28th, 1870. *b*, ♀. Tooch, near Cairo, Egypt, March 10th, 1870 (*A. C. K.*).



J. G. Keulemans del

Mintern Bros imp

ROOK
CORVUS FRUGILEGUS.

CORVUS FRUGILEGUS.

(ROOK.)

- Corvus cornix frugilega*, Briss. Orn. ii. p. 16 (1760).
Corvus frugilegus, Linn. Syst. Nat. i. p. 156 (1766).
 ?*Corvus clericus*, Sparrm. Mus. Carls. i. no. 2. pl. 2 (1786).
Colæus frugilegus (L.), Kaup, Natürl. Syst. p. 114 (1829).
Corvus agrorum, C. L. Brehm, Vög. Deutschl. p. 170 (1831).
Corvus granorum, C. L. Brehm, tom. cit. p. 171 (1831).
Corvus advena, C. L. Brehm, tom. cit. p. 171 (1831).
Trypanocorax, Kaup, fide Bp. Consp. Gen. Av. i. p. 384 (1850).
Corvus agricola, Trist. Proc. Zool. Soc. 1864, p. 444.
Frugilegus frugilegus (L.), G. R. Gray, Hand-list, ii. p. 12 (1870).

Creumhach-Rocus, Gaelic; *Corbeau-Freux*, French; *Gralha*, Portuguese; *Corneja calva*, *Chaya*, Spanish; *Corvo*, *Corvo nero*, Italian; *Corvu*, *Ciaulun*, Maltese; *Saatkrähe*, German; *Roek*, Dutch; *Kornkrage*, *Blaa-raage*, Danish; *Hjaltlands kraaka*, Færoese; *Blaakraake*, Norwegian; *Råka*, Swedish; *Pieni-Korppi*, Finnish; *Grach*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 483, 484; Werner, Atlas, *Omnivores*, pl. 5; Kjærbo. Orn. Dan. taf. xi.; Frisch, Vög. Deutschl. taf. 64; Fritsch, Vög. Eur. taf. 28. figs. 7, 8; Naumann, Vög. Deutschl. taf. 55. figs. 1, 2; Sundevall, Sv. Fogl. pl. xx. fig. 3; Gould, B. of Eur. pl. 224; id. B. of G. B. ii. pl. 60; Schlegel, Vog. Nederl. pl. 139; Roux, Orn. Prov. pl. 132.

Ad. nitidè chalybeo-niger, purpurascens resplendens: capite et collo chalybeis, et dorso purpurascens violaceo resplendens: corpore subtùs sordidiore: a basi rostri usque ad oculum et in gulâ cute calvâ rugosâ instructus: rostro et pedibus nigris: iride fuscâ.

Juv. adulto similis sed sordidior, rostro ad basin plumis induto nec nudo.

Adult Male (Pagham, Sussex, 1st May). Entire plumage glossy black, richly glossed with steel-blue or violet-blue and purple; base of the beak, all round the eye and chin denuded of feathers, and covered with greyish warty skin; head and neck glossed with steely bluish purple, which on the back and upper parts generally becomes almost violet-purple; primaries slightly glossed with bottle-green, like the reflections on a Cock's tail, and also, to some extent, with purple; tail and underparts not so brightly coloured as the rest of the plumage; bill and feet black; iris blackish brown. Total length about 18½–19 inches, culmen 2·35, wing 12·75, tail 6·6, tarsus 2·15.

Adult Female. Similar to the male.

Young. Resembles the adult bird, but is rather duller in colour, and has the base of the bill feathered as in *C. corone*; but these feathers appear somewhat scant and loose.

THE Rook inhabits Europe generally, and ranges in Asia as far east as India, being replaced in China and Japan by a closely allied species, *Corvus pastinator*, Gould.

In Great Britain it is an extremely numerous species, and there is scarcely a village near which a rookery is not to be found, it being only in the most uncultivated and barren portions of our island a scarce bird; and as regards its range I may add that there does not appear to be any tract in England and Ireland where it is not met with, if it can find there a congenial home; and in Scotland it ranges as far north as Shetland, though, owing probably to the wilder portions of that country being but little under cultivation, it is not so numerous there as in England. Mr. Robert Gray writes (B. of W. of Scotl. p. 179) as follows:—"Within a date comparatively recent, this familiar bird has penetrated to, and become permanently established in, places where previously it was only known as an uncertain summer visitant. Mr. Harvie Brown has sent me word that it is not more than three or four years since the first rookery was set up in West Sutherlandshire; and I have been informed by Mr. Binning, of Dingwall, that in the west of Ross-shire similar colonies were formed at Ullapool and other places in 1864. In the Island of Skye there is a large rookery at Dunvegan wood, which is the most westerly breeding-station in Scotland for the species. Dr. Dewar, who visited Dunvegan in April 1870, informs me that Rooks have only gone there of late years, and that the trees on which the nests are placed are very small. There can be no doubt that as the woods increase the distribution of the Rook in Western Scotland will also become extended, though it is certain that this bird is very destructive to the growth of trees, from its habit of breaking off twigs at the nesting-season. From this circumstance, proprietors in the western highlands do not look upon the Rooks with much favour, and would rather see them banished from outlying districts in which they have already appeared. Rookeries are now numerous even in the wilder parts of Argyleshire." It does not appear ever to have reached Greenland; but, according to Professor Newton (Baring Gould's *Iceland*, p. 410), some Black Crows have been observed in the south-west of Iceland, which, as Jonas Hallgrimson says particularly that they were bald at the base of the bill, must have been Rooks. It is found in the Færoes, where, Captain Feilden says, it "appears generally as a straggler, though sometimes in flocks. Müller writes that in March 1855 he saw a large flock of them. One was killed near Thorshavn on the 6th February 1868; and I was shown the skin of one in Suderoe which had been killed there the previous winter; and its owner considered it a rare and valuable bird." It occurs in Scandinavia; and, according to Mr. Robert Collett, it breeds annually, usually in small numbers, but periodically in large colonies in Southern Norway, and flocks remain over winter in the coast-districts, as also in the interior. In 1842 and 1843 large flocks were found in all parts of Norway below the fells; and, according to Professor Rasch, it bred as far up as Namdalen. It is, however, as a rule, a migrant to Norway, arriving in February, March, or April, and leaving in October and November. Nilsson says that it is a migrant in Sweden, arriving late in February or early in March, and leaving in October or November. In Central and Northern Sweden it is rare, but is commoner in the south, and breeds on Öland and Gottland. It occurs as far north as in Ångermanland. Löwenhjelm says that one remained two winters at Quickjock, in Lapland; and Wolley once (at least) saw it at Muonioniska in company with Hooded Crows.

Writing on its occurrence in Finland, Professor Malmgren informs me that Mr. Casimir

Brander shot a Rook in June 1867 as high as Pudasjärvi parish, in $65\frac{1}{2}^{\circ}$ N. lat. In the winter of 1870-71 this species was numerous in Central and Southern Finland, and as far north even as Kajana and Uleåborg; but under usual circumstances it only occurs in the south of Finland, where it is tolerably rare. Von Wright says that large and small flocks are seen in Southern Finland during the spring migration, but less frequently in the autumn. He does not know if they breed in Finland. Mr. Sabanäeff writes that it is a common species in Central Russia, and is found as far north as Archangel, where, my collector informs me, it breeds, though not in large numbers. In Central Russia, as elsewhere, it nests in large colonies. In the Ural, Sabanäeff says, it is not met with further north than 59° N. lat. on the western slope; and on the eastern slope it does not pass the 57° N. lat. It frequently winters in the Ural, and is most numerous in the birch-woods of the Ekaterinburg and Shadrinsk districts. Mr. Jacovleff speaks of it as being very numerous at Astrachan, and says that some migrate further south during the winter; but as they are absent a very short time, they cannot go far.

It is met with in the Baltic Provinces and Poland, but is stated by Meyer to be rare in Livonia, and by Borggreve is said to be a partial migrant throughout North Germany in all districts, excepting in the mountains, but is most numerous in the west. I saw large numbers in Rhenish Prussia; and when at Altenkirchen last spring, I visited a very large rookery in the Nassau territory. In Denmark it is a summer resident, arriving in February or March, and migrating southward again in large flocks in October or November.

In Belgium it nests in large numbers; but in Luxemburg it is said to be principally a winter visitant. Mr. H. M. Labouchere informs me, "it is a much less common species in Holland than it is in England, and, in comparison with that country, only few rookeries are found here; this is chiefly due, however, to the fact of their nests being disturbed and pulled down in most districts whenever they attempt to form a colony. The only part of Holland where I have seen many Rooks is in the province of Guelderland, where they are suffered to build unmolested in the parks and woods of the Dutch nobility." Baron von Droste Hülshoff records it from the Island of Borkum, and says that in some seasons large flocks pass, whereas in others it is very rare; and in 1866 he only saw two flocks, which passed on the 4th October. In France it is common, and breeds in the northern provinces, but is only a winter visitant to the southern districts. Professor Barboza du Bocage includes it in his list of the birds of Portugal as a common species; and it is found in Spain during the autumn and winter. Dr. C. Bolle says (J. f. O. 1855, p. 299) that it "arrives in Spain in November in numerous flocks, and remains till March. In Galicia it is common and resident."

Throughout Southern Europe generally it is a winter visitant. According to Bailly it generally appears in Savoy in October on its way to the plains, and but few remain there during the winter. In Italy it is very numerous during the winter season; and Salvadori thinks that some may remain to breed in the northern provinces. It also appears in Sicily in the winter, but retires in the spring, none ever remaining to breed in any part of the island: nor, according to Cara, does it ever breed in Sardinia, where, Mr. A. B. Brooks writes (Ibis, 1873, p. 248), it is "common in winter. None remain during the summer."

Mr. C. A. Wright, who records it as being found at Malta, writes (Ibis, 1864, p. 55) that it

is "a bird of passage in October and November, when it generally appears in small flocks. In the winters of 1861-62 and 1862-63," he says, "it was very common, and remained on the island several months, associating with Jackdaws and Starlings. This year I observed it till the beginning of April, when it disappeared, probably having taken its departure northward to breed." Lord Lilford says that immense numbers arrive in Corfu and Epirus about the end of October, and disappear early in February; and the late Captain R. M. Sperling, who shot several in Greece, remarks that all were young of the year, from which he infers that only the young birds migrate southward. Both Lindermayer and Von der Mühle agree that it is only a winter visitant to Greece, arriving about the middle of November and leaving in April, none ever remaining to breed even in the northern provinces.

In Southern Germany it is tolerably common, and, according to Dr. A. Fritsch, extremely numerous in some parts of Bohemia, where it breeds; but in Styria, according to Mr. Seiden-sacher, it only remains during winter, arriving in November and leaving in March. Messrs. Elwes and Buckley found it common in Bulgaria; and it is numerous in Southern Russia, being, Dr. Radde states, more so in Bessarabia than the Hooded Crow; and Professor von Nordmann writes that it is found in thousands along the large rivers, being also abundant in the Crimea, only leaving for a short time during very rigorous winters, returning to its old nesting-places in February. Ménétries speaks of it as being numerous in the Caucasus; but I do not find it recorded from Asia Minor. Canon Tristram, however, met with it in Palestine, and writes (*Ibis*, 1866, p. 66) as follows:—"We were riding across the plain from Nablous on the road to Jerusalem, when, for the first time, we noticed the Rooks fearlessly following the Arab ploughmen at their work. They seemed to smell powder as promptly as their fellows in England; but we obtained two, which, although December was far advanced, had no denudation of the basal portion of the mandibles. We occasionally met with small flocks in the cultivated districts of Central Palestine, but did not come across any rookeries, unless the gathering at the Mosque of Omar in Jerusalem may be so termed. Jerusalem and Nablous seem the headquarters of the race; indeed in a country so bare of wood the Rook must be as hard put to for a home as in Central France after the Revolution had stripped the *châteaux* of their ancestral timber. At Jerusalem we found the species very abundant in winter, congregating in the sacred enclosure of the mosque every evening, along with Jackdaws, a few Hooded Crows, and the two species of Ravens, as familiarly as it does with the first of these in England. The different species appeared to go out to feed together, and returned in consort to roost every evening. I am not certain that I observed them on the occasion of my latest visit to Jerusalem in April. Certainly if they remained it was in much diminished numbers; and probably they had at that period sought more congenial places for nidification. But it is possible that some remained; for all the species were so intermingled that without close inspection the Rook might easily be overlooked." Canon Tristram further states that it does not occur in Egypt; but this is an oversight, as it appears to be by no means a rare winter visitant to North-east Africa. Captain Shelley writes (*B. of Egypt*, p. 159), "large flocks of the common Rook may be met with in the Delta up to the end of March; but it does not remain to breed in the country. It is rarely seen south of Cairo, although upon one occasion I observed a few at Memphis; this may be owing to the fact that snails and slugs, delicacies on which this bird delights to feed, are entirely absent from

Upper Egypt." In North-west Africa it is rare; and Loche states that it only accidentally occurs in Algeria.

To the eastward the Rook is met with as far as India. Mr. Blanford writes that he "saw no Rooks in Persia, nor has any one observed them in Southern Persia. De Filippi shot some at Kasvin, to which Major St. John adds the following note:—"I have never noticed the Rook south of Isfahán, and there, as at Tehrán, only in winter. A considerable colony breed in some lofty trees in a garden in the town of Kasvin." Dr. Jerdon, who records it as occurring in India, writes (B. of India, ii. p. 302) that "it is found in the Punjab in the cold weather, and also in Cashmere. Dr. Saunders, of the Bengal Army, first informed me of this; and it has been subsequently confirmed by several observers. It is also a winter visitant to Afghanistan. As in England, it feeds chiefly on ploughed lands." Severtzoff says (Turk. Jevotnie, p. 63) that it breeds throughout Turkestan, at an altitude of from 3000 to 4000 feet, frequenting the steppes and wooded districts. Excepting in South-eastern Turkestan, where some remain throughout the year in the Zarevshan valley, near the Syr Darja, and at Kisil-cum, it migrates southward during the winter. I do not find it recorded from Siberia; and in Japan and China it is replaced by a very closely allied form, *C. pastinator*, Gould, which differs in having the head and neck glossed with purple, and not with green; and Mr. Swinhoe informs me it never has the chin denuded of feathers, but merely the upper part of the bill.

In its habits the Rook is essentially gregarious, both during the breeding-season and also during the winter, and, unlike the Carrion-Crow and the Hooded Crow, it invariably breeds in larger or smaller societies, forming in some parts very extensive rookeries. It feeds principally in cultivated ground, frequently following the ploughman and picking up the worms and grubs which are exposed to view as he turns up the furrow; and it is consequently a much commoner species wherever cultivation is extended, being, on the other hand, rare in wild, rocky, and uncultivated districts—though, following the footsteps of the farmer, it is gradually extending its range as these districts by degrees get brought under the plough. Feeding chiefly on insects of various kinds, it is on the whole a useful bird, though it must be allowed that it sometimes devours the eggs and young of other birds; and Macgillivray relates that he has caught Rooks in traps baited with eggs, set for Carrion-Crows and Magpies. Much depends on the nature of the country whether the present species can be looked on as useful or otherwise; for in districts entirely under cultivation there can be little doubt that, owing to the large number of destructive insects of various sorts devoured by the Rook, it is of the greatest utility, whereas in those localities where but comparatively little soil is under cultivation, and the game is strictly preserved, a rookery may well be looked on as a doubtful kind of blessing; for when grubs and other insects are not at hand the Rook is quite ready to supplement its meal with any thing in reason that may be within reach. Mr. Cecil Smith writes to me, from what he has seen of the Rook, "its appetite and digestion are perfectly astonishing; nothing seems to come amiss to it: besides its lawful and useful food of grubs, worms, &c., I have seen it kill and eat a young rabbit; and young ducks or duck's eggs have no chance; flesh, either fresh or stale, raw or cooked, walnuts in any quantity. Near the sea I have seen Rooks picking up and eating sand-eels and other small fish after the seine has been drawn, and squabbling with the Gulls for mussels on the mussel-beds; these it breaks in the same way as the Gulls, taking them up to a height and

dropping them on a hard stony place. I have seen it treat an obstinate walnut in the same way. Rooks seem occasionally to cast up pellets of the indigestible portion of what they have eaten, after the manner of Hawks; so I suppose their digestion is not quite equal to every thing; one of these pellets which I saw a Rook cast up, and which I examined, consisted of stones, hard parts of beetles, and husks of corn. So necessary are stones to help digestion, that old Rooks give them to their young before they leave the nest, and I have frequently found them in the stomachs of young Rooks shot in the rook-shooting time, and before they had left their native tree." On the whole, I think that what injury is done by this species is far outweighed by its extreme utility in destroying such vast numbers of insect pests, which, were they not kept in check, would soon devastate the finest crops.

The Rook breeds somewhat early, at times even commencing to repair its nest as early as February or March; and Macgillivray writes that he observed a pair refitting an old nest as early as the 16th February. It invariably, so far as I know, nests in company with others of its species, and prefers the neighbourhood of some human habitation; thus in some places where the Rooks have been protected, they have formed vast rookeries, their nests being frequently built close together, several being on the same tree. In England there are rookeries to be found almost everywhere; but on the Continent they are not so numerous. I have, however, seen several large colonies in various parts of the Continent, and may in particular name one, a very large one, in the Nassau territory, not far from Altenkirchen, which I visited this spring. The nest of the Rook is constructed of sticks, lined with fibrous roots, wool, straws, and such like substances, according to circumstances, and is usually a somewhat bulky structure.

The eggs, from four to five in number, are subject to considerable variation, some being pale greenish, spotted or marked with peculiar hieroglyphic-like dashes of a dark brown colour, or else dotted all over with dull dark brown and purplish brown, whereas others have the ground-colour dull pale olive-green, and are closely blotched and marked with dull brown. A series in my collection measure from $1\frac{1}{4}$ by $1\frac{1}{4}$ inch to $1\frac{2}{4}$ by $1\frac{9}{4}$ inch respectively.

When the young are nearly ready to leave the rookery they are very good for the table; and shooting young Rooks is a sport that is very generally followed by those in whose grounds are large rookeries; and at that season of the year large numbers of young Rooks are exposed for sale in our game-dealers' and poulterers' shops.

Varieties of the Rook are not very uncommon. I have seen one white and others either cream-coloured or partly white. Mr. James Lumsden, jun., also informs me that a curious specimen was shot at Blyth, in Perthshire, on the 7th July, 1873. It is, he says, of a light brown colour, darker over the wings than on the back, and the bill and feet are similarly coloured to the plumage on the body. It is evidently a young bird, as the base of the bill is feathered.

It is not often that the Rook is kept in confinement; but when tamed it can, Macgillivray says, "be taught to mimic different kinds of animals. There was an old woman in Bathgate who kept one for some years, which I have again and again heard imitating so remarkably well the barking of several dogs in the village that had it been placed out of view it would have been impossible to discover the deception."

The note of the Rook is a harsh caw, which is modulated according to circumstances; and

though rather unpleasing than otherwise when one bird alone is heard, yet the varied and somewhat confused cries uttered by a large flock are not disagreeable, and I have found when living in a house close to a rookery that one becomes not only used to the clamour, but gets rather to like the sound when not too loud.

The young Rook has the base of the bill feathered, like the Carrion-Crow; but the feathers soon become worn away: I have observed, however, that in specimens where the bill is malformed, so as to prevent the bird from digging in the ground, the feathers remain intact. I am indebted to Mr. Alexander Brooke for the loan of a specimen with a peculiar misshapen bill, which has the base of the beak nearly as densely feathered as in *Corvus corone*; and, from the plumage, it seems to be an old bird.

The specimen figured is an adult British-killed bird, in my own collection, and is the bird above described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Pagham, Sussex, May 1st, 1872 (*R. B. Sharpe*). *b*, juv. Copenhagen, October 18th, 1870 (*A. Benzon*).

E Mus. H. B. Tristram.

a. Durham. *b*. Durham, March 6th, 1866. *c*. Durham, May 26th, 1865. *d*, ♂. Nablous, Palestine, December 21st, 1863. *e, f*, ♂. Jerusalem, February 1864 (*H. B. T.*).

E Mus. Howard Saunders.

a, ♂. Sparham, Norfolk, January 29th. *b*, ♂. South Germany, April. *c*, ♀. Halle, a. S.

E Mus. Alexander Brooke.

a, ♂. Brackley, Northampton, March 1873 (*George Bannerman*).

CORVUS AFFINIS.

(FANTAIL RAVEN.)

Corvus affinis, Rüpp. Neue Wirbelth. p. 20, taf. 10. fig. 2 (1835-40).*Corvus brachyurus*, A. E. Brehm, Journ. für Orn. 1854, p. 75.*Corvus brachyrhynchos*, C. L. Brehm, Vogelfang, p. 414 (1855).*Corvus brevicaudatus*, J. W. von Müller, Journ. für Orn. 1855, p. 456.*Corax affinis* (Rüpp.), A. E. Brehm, Erg. einer Reise nach Habesch, p. 216 (1863).*Corone affinis* (Rüpp.), G. R. Gray, Hand-list, ii. p. 12 (1870).*Figuræ notabiles.*Rüpp. *l. c.*; Schlegel, Bijd. tot de Dierk. 1858, pl. 1 B. fig. 26.

Ad. chalybeo-niger, cærulescenti-violaceo nitente, capite et collo sordidioribus, gulâ brunnescente lavato: setis nasalibus sursùm et antrorsùm spectantibus, plumis jugularibus apice bifidis: caudâ rotundatâ: pedibus et rostro nigris, iride fuscâ.

Adult Male (Safieh). Entire plumage glossy black, slightly duller on the head and neck, and shaded with brown on the throat; the rest of the plumage, especially on the upper parts, glossed with steely violet, or steel-blue; feathers on the throat lanceolate, but with the tips bifurcate, the hairy bristles covering the nostrils very stiff and fully developed, directed upwards and forwards in a fan-shape on the sides of the bill; wings very long, extending beyond the tail, the secondaries also very long; beak and legs black, iris brown. Total length about 18 to 20 inches, culmen 2·5, width of lower mandible at the base nearly 2 inches, wing 14·5, tail 6·4, tarsus 2·45.

Obs. The above specimen is rather peculiar, inasmuch as the feathers on the lower neck are pure white at the base, this colour showing slightly through here and there on the sides of the neck. I have not observed this peculiarity in any other specimen.

THE range of this well-marked Raven is somewhat restricted, as it occurs only in Palestine and North-east Africa. Canon Tristram, who met with it in the former locality, writes (*Ibis*, 1866, p. 71) as follows:—"One evening in January we were encamped at the foot of the ancient fortress of Masada, the modern Sebbeh, with a waterless, lifeless wilderness of salt-hills stretching in labyrinthic confusion for two miles to the sea. It was a scene of stern grandeur and magnificent desolation, perhaps unequalled in the world. Yet even here were birds. We had made a Lanner surrender the remains of a Pochard he was conveying to the mountains from the lake, when we observed three Ravens making towards us from the sea; they were the only signs of life under that canopy of wondrous brilliancy and depth. They too seemed startled and surprised when they descried our camp on that untrodden shore, and, curiosity mastering caution, wheeled and wheeled again over and over our heads. But long before they came near we detected an unknown species. Two of them were unmistakably *C. umbrinus*; the third was strangely different. Its flight was very different; it rather sailed than flew, and the motion of

its wings was scarcely perceptible. But more marked than all was the contrast of its outline. Its depth of wing, not only long but very broad, till its secondaries appeared to reach almost to the end of its tail, and its short broad tail extending to twice the width of the other, made it appear to cover double the surface its companions did, and we at once named it the Fantail Raven. But its note was the richest, most powerful, and most musical that ever Raven uttered. No croak, but a long-sustained cheery cry which decidedly belied its relationship. Mr. Shepherd was ready to forego the ascent of Sebbeh for the chance of the prize; and though certainly we would not for all the Ravens of the East have missed the wondrous ruins of Masada and the superb panorama from its summit, it was with a feeling of envy that on our return we found the coveted treasure had at length rewarded his patience; and we handled the miniature Raven, hoping we had made an ornithological discovery. Every thing about him bespeaks the Raven, and not the Crow—the short conical massive bill, the long wings, and the uniform rich violet reflexion of his plumage surpassing those of every other species.

“It was long before we met with him again. During our sojourn near Jebel Usdum we constantly saw both the Common and the Brown-necked Ravens, which perched continually on the salt-cliffs, though what, save a love of desolation, could have brought them there it was hard to guess; but no other species could we discover. More than one fell a victim to the rifle-practice of my companions; for they afforded a tempting mark as they sat on the glittering salt-peaks. At length we crossed to the east side, not, however, to meet, as we had hoped, a kindly welcome from the Ghawarineh inhabitants of the rich oasis of Safieh, below Kerak, but to find the smoking embers of a plundered village, strewn with the corpses of the combatants in a recent battle. Thus prematurely our hopes of the richest ornithological harvest in the country were foiled. A few varieties we secured during the afternoon; but, encumbered with human prisoners, for our men had captured more than a dozen, and knowing that the enemy was lurking in the woods, of which the whole district is full, the keenest ornithologist might be excused if he reserved his second barrel for a bullet, and declined to wander far from camp. We had nothing for it but to pitch our tents for the night with what heart we might, and to beat a retreat in the morning. But we could spare two or three hours, and with the dawn we began to look after the birds, which abound in the Safieh to an extent unequalled even in the oases of Jericho. ‘Wheresoever the carcass is, there will the Eagles be gathered together,’ and the Ravens also; for the sun was not above the horizon when a steady stream of carrion-eaters, who had scented the battle from afar, began to set in from the south. All the Vultures, Kites, and Ravens of North Arabia seemed to be rushing to the banquet. Against them we perpetrated a regular *battue* on their way to their uncleanly feast. We brought down more specimens than we could carry away of the three species of Raven—the Common, the Brown-necked, and four good specimens of our long-sought Fantail, *C. affinis*. The Vultures and Kites sailed too high, out of reach of our shot. Had we not been compelled to leave, we might doubtless have stood among the trees, and, with the human bait before us, have continued our warfare throughout the day. After this we never saw our new friend again; for the south end of the Dead Sea appears his northern limit; nor did we ever meet with *C. umbrinus* north of Jerusalem, not even in the upper part of the Jordan valley. Neither does it ever descend to the coast, where *C. corax* alone is found.”

Mr. C. W. Wyatt states (Ibis, 1870, p. 16) that he believes he saw it on the plains of El Gaa, in the peninsula of Sinai, and recognized it by Canon Tristram's figure in 'The Ibis.' Captain Shelley speaks of it as being resident in Egypt and Nubia, but somewhat uncommon; and Captain Clark-Kennedy obtained it there. He also adds (Ibis, 1871, p. 142) that the Rev. A. C. Smith, in his 'Attractions of the Nile,' ii. p. 276, mentions seeing a pair of small jet-black Crows at El Kab, which doubtless belonged to this species; and Dr. Th. von Heuglin writes (Orn. N.O.-Afr. p. 505) as follows:—"I once saw it at Thebes, afterwards in Southern Nubia, in the oasis of El Kab, at Kordofan, throughout the whole of Abyssinia up to an altitude of 10,000 to 12,000 feet; on the Danakil and Somali coasts in large flocks in October. In general it is much more gregarious in its habits than *C. umbrinus* or *C. scapularis*; in the plains, in the mountains, and on the coast it is not unfrequently seen, as also near human habitations. In the highlands it appears to breed in colonies in the cliffs, and I saw large flocks circling round like Jackdaws. In the flat country it is rarer, usually occurring in pairs; and it sometimes inhabits the most sterile deserts, frequenting the caravan halting-places and the wells." Messrs. Finsch and Hartlaub say (Vög. Ost-Afr. p. 373) that it is more especially a mountain bird, and in Abyssinia, where it is common, it is met with at an altitude of 11,000 feet and above that height in the mountains. Mr. Blanford, who met with it in Abyssinia, writes (Geol. & Zool. of Abyss. p. 393), "in the air it may be immediately recognized by its short tail and long secondary quills; and its croak is much deeper than that of most Crows. It abounds everywhere on the highlands and in the subtropical zone, and it descends almost to the sea-level at times. When I first visited Komayli, at the base of the hills, in January, the only Crow to be seen was *C. scapulatus*; but in February, after some rain had fallen, *C. affinis* abounded. In the former instance I first met with this species at about 3000 feet, near Mayen. In May it had retreated once more to its former range, and the White-breasted Crow alone was to be seen in the tropical region. In ascending to the Bogos country it first appeared on the Lebka at about 12,000 feet above the sea, at Ain." Mr. W. Jesse, when on the Abyssinian Expedition, observed it from Koomaylee to Addigerat from March to May, and adds that it was common there. Rüppell found it numerous at Massana and Schendi, in Nubia; and Speke records it from the Somali country.

Beyond what is given above, but little is known respecting the habits of this Raven, except the observations recorded by Dr. A. E. Brehm, who writes (Erg. Reis. Habesch, pp. 323-325) as follows:—"In the mountains this Raven is never absent; and so peculiar a bird is always observed; or even if one does not see it, one is sure ere long to hear its clear note; and then one sees a pair or a whole flock sailing round, floating with outstretched, motionless wings, like a Buzzard, for a considerable distance, and very distinguishable from any of its allies. Even when sitting it is unmistakable; for its wings extend 3 or $3\frac{1}{2}$ inches beyond the short tail. Its usual note is a Raven-like *kuck*, or a somewhat chattering *kua, kua*. At the camping-places it appears as regularly as it does in the mountain-villages, and arrives even whilst the camels are being unloaded—probably allured by the plaintive cry of those animals; and the pair (for it never goes singly) settle down on some lofty tree or point of a rock and watch the proceedings below. So soon as all becomes quiet in the camp it comes down and walks boldly about amongst the baggage and groups of people. At the mountain-villages it appears in the morning

and evening, usually in large companies. At sunrise these Ravens literally cover the large rocks around Mensa, each pair being seated together, thus showing their attachment to their mates. After remaining about half an hour croaking and calling loudly, they would adjourn to the village dung-hills; and ere long all would disappear, except a pair or two, who doubtless lived close to the village. In the evening they collected again, first on the rocks, and then on the tops of the larger trees, where, like the common Crow, they would chatter and make a noise for half an hour, and after sunset would fly away, doubtless to their roosting-places, which have for long been used by them for that purpose. I have seldom seen such affection shown by any Raven as is the case with these towards their mates. Even any one unaccustomed to observe birds can see at a glance in a large flock which pairs belong together; for each pair sits somewhat apart, and appear only to care for each other. First one and then the other will spread its wings over its mate, uttering a soft *guck, guck, guck*, which the other, probably the female, answers by a single *guck*."

I can find no details as to the nidification of this species; and Dr. Brehm was not in the localities where it breeds during the breeding-season, and can therefore give no notes on its nidification. It is said to breed in the rocks; and doubtless its nest and eggs assimilate to those of the common Raven. Mr. H. M. Upcher, to whom I am indebted for the loan of the specimen described, informs me that he knows nothing respecting its breeding-habits, and, indeed, only met with it on two occasions, once at Safieh after a sleepless night spent close to a smoking village. "At daylight," he writes, "as we were clearing away from such an unpleasant neighbourhood as quickly as possible, numbers of them came streaming in in company with other Ravens and Vultures to feed on the slaughtered victims of the previous day. They were easily distinguishable from the other Ravens by the circular appearance they presented when flying, the wings and tail seeming to form a complete segment of a circle. Our departure was so hurried that our time for observation was very short; and I only saw one again for a few minutes on the west side of the Dead Sea."

I do not propose to issue a coloured plate of this Raven; but in treating of *Corvus corone* a large plate will be given showing the distinguishing characters of the various species of Crows and Ravens, and the head of the specimen described will be figured, showing the peculiar nasal bristles so characteristic of *C. affinis*.

Not possessing a specimen of this Raven in my collection, I have taken my description from the bird lent to me by Mr. H. M. Upcher, of Sherringham Hall, Norfolk.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. M. Upcher.

a. Safieh, Palestine (*H. M. U.*).

E Mus. Brit. Reg.

a, b, ♂. Ghor el Safieh, Palestine (*H. B. Tristram*).

E Mus. H. B. Tristram.

a. Palestine (*H. B. T.*).

CORVUS TINGITANUS.

(IRBY'S RAVEN.)

Corvus corax, Webb & Berthelot, Orn. Canar. p. 9 (1841, nec Linn.).*Corvus*, sp.?, Taczanowski, Journ. für Orn. 1870, p. 48.*Corvus tingitanus*, Irby, Ibis, 1874, p. 264.*Corvus corax*, auctt. orn. Afr. Sept. (nec Linn.).

Ad. Corvo coraci similis, sed multo minor, rostro brevior, robusto, alis brevioribus, juguli plumis elongatis latioribus, alis supra brunneo tinctis.

Adult Female (Tangier, 26th April). Resembles *C. corax*, but is much smaller, has the lanceolate feathers, which extend only over the upper part of the neck, broader, and to a slight extent bifurcate; the bill is short and stout, and the wing short; entire plumage glossy black, with steely reflections; upper surface of the wings tinged with brown. Total length about 16·5 inches, culmen 2·5, height of culmen at base 1·0, wing 13·8, tail 7·75, tarsus 2·5.

AFTER a careful comparison of the specimens of this small North-west African Raven, brought home by Colonel Irby, with a large series of *Corvus corax* from various parts of the world, I cannot do otherwise than recognize it as a distinct species, though closely allied to the common Raven of Europe. Colonel Irby compares it to *Corvus affinis*; but I do not find it so nearly allied to that as to *C. corax*, of which in fact it is a small form. *C. affinis* has extremely long wings and a short tail, the elongated feathers on the throat are very distinctly bifurcate, and the bristles are directed vertically upwards, which characters are wanting in the present species. As yet it is rather difficult to define the range of this Raven; but it seems to be confined to North-west Africa, Madeira, and the Canaries, and to be common in Algeria and Morocco, where it is resident, and probably never crosses the Mediterranean. Colonel Irby (*t. c.* p. 265) writes as follows:—"This Raven is excessively abundant around Tangier, and in the low flat country which I have visited in Morocco, but does not appear so much to frequent high mountainous districts. Outside Tangier flocks of them may be seen feeding on the refuse which is carried from the town and thrown down on the sea-shore. Exceedingly tame to the natives, being viewed with superstitious awe by the Moors, they are wide awake to the European, especially if he carries a gun; and I found great difficulty in shooting them, except at the nest, which, constructed of sticks neatly lined with grass and small roots, is built in clefts of rocks, on trees, and low bushes. One nest which I saw was fixed in the crook or angle formed by a dead flowering stalk of the aloe, which had fallen across another stalk in full flower. The eggs, usually laid about the 20th April, vary in number from five to seven, and, like those of others of the Crow tribe, differ much in the markings."

This Raven likewise inhabits Algeria, as Mr. Taczanowski met with a Raven in that country which, as is clearly shown by his description and measurements, cannot have been any other than

the present species. He writes (J. f. O. 1870, p. 48) as follows:—"In Loche's catalogue both *C. corax* and *C. corone* are included; but I saw neither of these two birds, though in the heights between Ghelma and Constantine, round Batna and Elkantara, at Biskra, and almost everewhere in the hill-country, I found a species which in size is intermediate between these, has a Raven's bill, but rather shorter, and has a very rounded tail; the feathers on the neck are bifurcate, and the bristly feathers covering the nostrils are as in *C. corax*, thus distinguishing it from *C. affinis*, Rüpp. Though resembling our Raven somewhat in habits, yet it differs in many material points, being much more gregarious, and may be seen in large flocks in the fields near the towns and on the roads. Every pair, however, like Ravens, keep together in the flock, and fly off in company. Though they had not commenced breeding yet, I was shown several nests near Batna, on a hillock close to the valley, placed in small fir trees not higher than about 10 metres, and I counted twenty nests within a short distance. I did not observe them at their nests late in March, and was assured that they do not have eggs before May. They are not so wary and cautious as our Raven, and at Batna there are always numbers at the slaughter-houses. Once when hidden, watching for a *Gypaetos*, my attention was attracted by an unusual movement amongst the Ravens on a neighbouring height, where they were flying to and fro, every now and again stooping towards one place on the ground. Expecting to find carrion and a Vulture, or perhaps a Bearded Vulture, I went with my guide thither, and found on arrival that the Ravens were catching grasshoppers, which they seized on the wing or picked up from the ground in their claws and devoured them whilst flying. Amongst them were a few Choughs, which were taking part in the chase of the grasshoppers." Canon Tristram met with it in Algeria; he says (Ibis, 1859, p. 291) it is "plentiful in the Dayats, where it resides in communities, returning home to roost at sunset in a long file after the manner of Rooks. It seems strange that the Raven, so solitary here, and which chases away its own progeny from its neighbourhood (unless it be grievously belied), should be so gregarious both in the mountains and deserts of Africa. Though not breeding in communities, the nests are frequently within a few yards of each other. It wages an incessant and noisy warfare with the Eagles and Kites, who share the Terebinths of the Dayats with it, and are seldom the aggressors in these skirmishes. The Raven begins in the Desert to repair his nest in December." Mr. J. H. Gurney, jun., also says (Ibis, 1871, p. 294) that he found it breeding in society at Tilremt.

It inhabits the Canaries, where, Mr. Godman says, it is common; and it is occasionally met with in Madeira. Dr. C. Bolle writes (J. f. O. 1857, p. 275) that it is commoner in Canaria than at Teneriffe, but single pairs inhabit the elevated cañadas on the Peak of Teneriffe, and the Pinal near Chasna. This species, I may add, is the bird referred to by the various authors on the ornithology of Madeira and the Canaries under the name of *Corvus corax*.

Respecting the habits of this Raven I do not possess any details beyond what are given by Canon Tristram, Colonel Irby, and Mr. Taczanowski. Colonel Irby says that its note or croak is quite different from that of *C. corax*, and that this difference, though difficult to describe, is easily noticed when heard, the note not being so hoarse. He further remarks on its gregarious habits, and states that as many as a hundred are sometimes seen on the wing at once. As regards this latter, however, I may remark that flocks of the common Raven are also sometimes seen. I well recollect once observing a large flock of *Corvus corax* in Finland, numbering, I

should say, very nearly a hundred individuals. They were seated on the fences adjoining the post-road and on the road itself; and though I got out of my carriage and carefully examined the locality, I could find no carrion or any thing to account for the unusual assemblage.

The eggs of this Raven are very distinct from those of *C. corax*, being very much smaller than any common Raven's eggs I have ever seen—in fact, scarcely as large as the general average of those of *C. corone* and *C. cornix*. I am indebted to Colonel Irby for a clutch of five taken by him at Tangier, which resemble those of the Carrion-Crow, but are much more blue and brighter in colour, and measure from $1\frac{27}{40}$ by $1\frac{9}{40}$ to $1\frac{28}{40}$ by $1\frac{10}{40}$ inch in size.

I do not purpose giving a coloured Plate of this species, as it is so difficult to show the difference between it and closely allied species in that manner; but when giving a short review of the *Corvidæ* a Plate with the heads of this and other species, showing the comparative differences in size, will be issued.

The specimen described is one presented to me by Colonel H. L. Irby, who shot it at Tangier.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♀. Tangier, April 26th, 1874 (*H. L. Irby*).

E Mus. Lord Lilford.

a, *b*, ♂, *c*, ♀. Tangier, April 1874 (*H. L. Irby*).

E Mus. Salvin and Godman.

a, ♂. Santa Cruz, Teneriffe, April 18th, 1871 (*F. D. Godman*).



1. RAVEN.
CORVUS CORAX.
2. BROWN-NECKED RAVEN.
CORVUS UMBRINUS

CORVUS CORAX.

(COMMON RAVEN.)

- Corvus corax*, Linn. Syst. Nat. i. p. 155 (1766).
Corvus maximus, Scop. Ann. i. Hist. Nat. p. 34. no. 35 (1769).
Corvus carnivorus, Bartram, Travels in E. Florida, p. 290 (1793).
Le grand Corbeau, Levaill. Ois. d'Afr. ii. p. 8, pl. 51 (1799).
Corvus leucophæus, Vieillot, Nouv. Dict. viii. p. 27 (1817).
Corvus major, Vieill. Nouv. Dict. viii. p. 27 (1817, ex Levaill.).
Corvus leucomelas, Wagl. Syst. Av. no. 4 (1827).
Corvus cacolotl, Wagler, Isis, 1831, p. 527.
Corvus sylvestris, C. L. Brehm, Vög. Deutschl. p. 163 (1831).
Corvus littoralis, C. L. Brehm, tom. cit. p. 164 (1831).
Corvus peregrinus, C. L. Brehm, tom. cit. p. 164 (1831).
Corvus montanus, C. L. Brehm, tom. cit. p. 165 (1831).
Corvus nobilis, Gould, P. Z. S. 1837, p. 79.
Corvus vociferus, Cabot, Boston Journ. Nat. Sciences, 1844, iv. p. 464.
Corvus lugubris, Agassiz, Proc. Bost. Nat.-Hist. Soc. ii. p. 188 (1846).
Corvus tibetanus, Hodgs. Ann. & Mag. Nat. Hist. 2nd ser. iii. p. 203 (1849).
Corax maximus (Scop.), A. E. Brehm, Allg. deutsch. naturh. Zeit. 1857, p. 445.
 " *Corvus ferröensis*, Brünn.," Schlegel, Notice sur le genre *Corvus*, Bijd. t. de Dierk. 1858, p. 6.
Corvus lawrencei, A. O. Hume, Lahore to Yarkand, p. 235 (1873).
Corvus corax, var. *carnivorus*, Baird.

Fitheach, *Biadhtach*, Gaelic; *Corbeau*, French; *Rabe*, *Kolkrabe*, German; *Cuervo*, Spanish; *Corvo*, Portuguese; *Corvo imperiale*, Italian; *Raaf*, Dutch; *Ravn*, Danish; *Hrafn*, *Krummi*, Icelandic; *Ravnur*, Færoese; *Ravn*, *Korp*, Norwegian; *Korp*, Swedish; *Korppi*, Finnish; *Voron*, *Kernesh*, Russian; *Mestch*, Bashkir; *Kuzgun*, Ziranin.

Figuræ notabiles.

Werner, Atlas, *Omnivores*, pl. 1; Kjærbo. Orn. Dan. taf. xi.; Frisch, Vög. Deutschl. taf. 63; Fritsch, Vög. Eur. taf. 28. fig. 6; Naumann, Vög. Deutschl. taf. 53. fig. 1; Sundevall, Sv. Fogl. taf. xx. fig. 1; Gould, B. of Eur. pl. 220; id. B. of G. Brit. iii. pl. 57; Schlegel, Vog. Nederl. pl. 136; Roux, Orn. Prov. pl. 129; Audubon, Birds of N. Am. pl. 224.

Ad. niger: capite, collo et corpore suprâ chalybeo et purpureo nitentibus: gulæ et gutturis plumis elongatis, lanceolatis et purpureo nitentibus: naribus pennis setaceis rigidissimis densissime tectis: caudâ cuneato-rotundatâ: pedibus et rostro nigris: iride griseo-fuscâ.

Juv. adulto similis sed sordidior, nec colli plumis lanceolatis.

Adult Male (Falster, Denmark, 22nd January). Entire plumage black, richly glossed with steel-blue and purple, these colours being most apparent on the upper parts of the body, the head, neck, and the upper surface of the wings; feathers on the throat lanceolate, much elongated, and richly glossed with purple; tail rounded, and almost wedge-shaped, the central rectrices being much longer than the lateral ones; bill and legs shining black; iris brown. Total length about 26 inches, culmen 3·7, height of the bill at base 1·1, wing 16·2, tail 10·1, tarsus 2·65; fourth primary longest, the third being only a trifle shorter, the second 1 inch less than the third, and the first 3 inches less than the second.

Female. A trifle less in size than the male, and not quite so bright in plumage.

Young (Archangel, 25th May). Duller in colour than the adult bird; and the feathers on the throat are loose in texture, and not lanceolate.

THE Raven is a widely distributed species, being found throughout both the Palæarctic and Nearctic Regions, rather more numerous, however, in the northern than in the southern portions of Europe, Asia, and America.

In Great Britain it is more numerous in the northern portions of the islands, being but rare in the south; and its numbers are gradually diminishing. Mr. More gives but some few details respecting its breeding-haunts in England, and says that it is nearly extirpated in many of the midland and eastern counties. That it is not extinct in the southern counties is evident from the following extract from a letter received from Mr. J. Gatcombe, of Plymouth:—“Ravens breed annually on the coasts of Devon and Cornwall, and would rapidly increase were it not for the good price offered by the dealers in live birds for every young one that can be obtained during the nesting-season. One dealer living at Plymouth received no less than twenty-five young birds during the past spring (most of them from Cornwall), and nearly as many last year. All these birds I myself saw, also three or four others belonging to a friend of mine in Plymouth. Several pairs breed annually on the coast near Plymouth, also in the vicinity of Dartmoor; and on the 23rd of July last I observed no less than ten Ravens in a flock at ‘Wembury,’ on the coast a few miles from Plymouth. The price asked by a dealer for a fine healthy young bird is from fifteen to twenty shillings; and most of them are sent to London. I am sorry to say that the gamekeepers, too, kill many Ravens in this neighbourhood; and the bird-stuffers get their share.”

In the midland as well as the eastern counties it has become very rare; and Mr. Stevenson states (B. of Norf. i. p. 257) that he has been unable to ascertain the existence of more than a pair or two of Ravens in any part of Norfolk as actual residents in a wild state; and Mr. Cordeaux says that it has long ceased to exist in North Lincolnshire and Holderness. In Scotland, according to Mr. Robert Gray, it is, in spite of all persecution, still common on some parts of the mainland and on both groups of islands, extending to the Haskeir rocks and St. Kilda. Up to 1870, he says, “it continues breeding at the Mull of Galloway, Ailsa Craig, the Island of Arran, Jura, Mull, Islay, Skye, and, it may be added, all the other islands of the Inner Hebrides, where there are suitable cliffs for its protection.” Dr. Saxby says that it is common and resident in Shetland. In Ireland it is stated by Thompson to be generally distributed. In Greenland it is found throughout the country up to very far north, and breeds there. On the last German Arctic expedition it was met with at all places which were visited, always being seen in pairs.

Dr. Pansch says that the first were seen in August 1869, on Shannon, and late in September it was seen on Walrus Island and at Cape Wynn. Late in January 1870 it was again seen on the island; and in April he saw several passing northward. In Iceland it is very numerous, and resident. The pied variety which has been met with in the Færoes occurs in Iceland also.

In the Færoes it is, Captain Feilden says, abundant, but not so numerous as he expected, as the general possession of guns by the inhabitants, and the "Næbbetold," or tax payable in the bills of birds of prey, seems to have reduced their numbers. Throughout Scandinavia it is a common bird, and is found up in the extreme north. Mr. Collett informs me that in Norway it is most frequently met with in the coast-districts, where it breeds, from the Hvalöer up to the Russian frontier, and is very numerous above the arctic circle, where it is everywhere sedentary. In the interior it is, as a rule, rare, and is only seen in the lowlands during the seasons of passage and in winter. It is rapidly decreasing in numbers. Mr. Meves informs me that "it is found throughout Sweden and Lapland, and appears to be more numerous on the coasts than inland. It builds either on lofty trees or in inaccessible cliffs, and lays from four to six eggs very early in the season; in Southern Sweden it lays as early as the end of February or the beginning of March, in Blekinge early in March, and at Muonioniska, in Lapland, from the 15th to the 24th April." I found it common both in Sweden and in Finland; for in the former country I have at different times observed it everywhere from Skåne up to Torneå, and on the Finnish side from Torneå down to St. Petersburg; but as I chiefly travelled along the line of coast, I cannot say much respecting its being common or otherwise in the interior. I saw it, however, when travelling from Kuopio to Uleåborg in the interior of Finland. In Russia it occurs in the high north, being numerous at Archangel, where it not unfrequently nests in the houses; and it was found by Hoffmann at the mouth of the Petchora. Mr. Meves writes to me, "I met with it from St. Petersburg to Archangel, and also in the Perm Government down to the South-east Ural, everywhere common. Here in Sweden it is a very shy bird, whereas in Russia, like all corvine birds, it is extremely bold and fearless. In the Stockholm Museum we possess a Raven which was shot near the town in October 1839; and on its lower mandible was found a small copper plate, on which the date 1770 was engraved; this plate was firmly fixed on by means of two holes bored through it." Mr. Sabanæeff informs me that it is very common throughout Central Russia, and is frequently found nesting in the church-towers. In the Ural he likewise found it common; but in the Bashkir birch-woods, on the eastern slope, it is rare. On the coasts of the Baltic it is not uncommon. Mr. Goebel speaks of it as being by no means rare in Curland, and says that he once saw thirteen together. I have frequently seen it in the Baltic Provinces and on the Pomeranian coast; and Borggreve writes that it is nowhere common in North Germany, except in some parts of the Baltic coast in Pomerania, but where found it is resident. Kjærbölling says that, although it can by no means be called rare in Denmark, it is far from being common, and in some localities it is only occasionally met with. It appears to shun the flat country and to frequent the rugged mountainous districts, especially places where the woods are tolerably thick, and is therefore not very common in Holland, where it is a winter visitant. It used, however, Baron von Droste Hülshoff says, to breed on the island of Borkum; but the nest having been several times destroyed, they forsook the island and are now only observed there during winter. In Belgium it is resident in the forest-covered hills by the Meuse

and the Ourthe, as also in the Ardennes; and a few pairs inhabit the woods of the low countries; but in the flat plains of Flanders, and near Antwerp, it is rare. Degland and Gerbe (*Orn. Eur.* i. p. 197) speak of it as being resident in most parts of France, especially in the mountainous portions and in the large forests. It is common in Portugal; and Dr. E. Rey speaks of it (*J. f. O.* 1872, p. 145) as being numerous at Algarve, where it is often seen in large flocks. In Spain it is, Mr. Saunders writes (*Ibis*, 1871, p. 221), "abundant, and resident throughout the country, breeding in rocks or on trees indiscriminately. In Majorca this species, elsewhere so wary, is as tame as our Rooks are with ploughmen, and may be seen stalking about in pairs after the peasants who are working in the olive-plantations." Mr. A. von Homeyer met with it in the Balearic islands, says that it remains there to breed, and frequents rocky localities. In Italy it is resident, and tolerably common in the Alps, the Apennines, and the hilly districts, but rare in the plains, especially in the Modenese district; nor does it appear to breed in Lombardy. In Sicily Doderlein says that it is very abundant, and a pair which have their nest in Monte Pellegrino may frequently be seen wheeling over Palermo. Writing on the ornithology of Sardinia, Mr. A. B. Brooke says (*Ibis*, 1873, p. 248) it is "very common. On the 2nd of May I was witness to what must have been an unusual migration of these birds. When on the road halfway between Iglesias and St. Antioco, I saw and counted more than one hundred Ravens in one large straggling flock, tossing and tumbling about in the air, performing all kinds of curious antics, uttering incessantly their harsh croak. They were proceeding, as long as I could see them, rapidly and steadily in a north-easterly direction, not flying very high. One nest I found contained six young birds—an unusually large number."

In Southern Germany it is, comparatively speaking, rare, and is rapidly decreasing in numbers. Dr. A. Fritsch states that though a few years ago it used to frequent the Krummaw and Winterberg districts in Bohemia, it is said now only to occur on the side of the Böhmerwald nearest to Upper Austria, on the Muhl river, and Leichten. In Styria, near Cilli, Mr. Seiden-sacher informed me, it is rare, but breeds there in small numbers; and its nest has been found at Greis, Suetina, &c. Dr. Otto Finsch speaks (*J. f. O.* 1859, p. 384) of it as being extremely common in the Balkan range. I frequently observed it in Wallachia, Servia, and Bulgaria; and Messrs. Elwes and Buckley state that it is more or less common in Turkey. In Greece it is common, and resident, and is stated by both Von der Mühle and Linder Mayer to be much commoner there than it is in Germany. Erhardt refers to it as a resident in the Cyclades; and Dr. Krüper found it breeding in the steep precipices in the mountains on Naxos. Lord Lilford also states of it (*Ibis*, 1860, p. 135):—"Very common in Corfu and Epirus. A pair breed every year in the citadel-rock of Corfu, and are annually robbed of their young by the soldiers. I observed small flocks of Ravens in September, haunting the Bay of Corfu, and particularly the island of Vido. I saw a Raven near Scutari, the capital of Albania proper, with white wings."

In Asia Minor it occurs, but not so commonly as in Greece; but Dr. Krüper says that a few pairs breed near Smyrna. It is, however, rare in Southern Russia, where, according to Professor von Nordmann, a few are found in the hills of the Crimea and on the wooded edges of the steppes. He himself only observed it three or four times during a sojourn of five years in that country. Canon Tristram found it common in Palestine, and remarks that, except during the

breeding-season, it is by no means solitary, but is as sociable and gregarious as the Rook or Jackdaw. Mr. C. W. Wyatt believes that he saw it on the peninsula of Sinai; but it does not occur in Africa, being replaced in North-east Africa by *Corvus umbrinus* and *Corvus affinis*, and in North-west Africa by *Corvus tingitanus*, which latter species also inhabits the Canaries and Madeira.

To the eastward it is met with as far as Eastern Siberia. De Filippi records it from Teheran, and Messrs. Blanford and St. John found it common in the highlands of Persia; but the former did not observe it in Baluchistan. Mr. A. O. Hume states (*Stray Feathers*, i. p. 205) that it is a cold-weather visitant to Sindh, more especially to Upper Sindh, and abounds at Jacobabad. In Lower Sindh it is less common; but he saw it not only at Hyderabad but also here and there along the Mekran coast to Gwader.

According to Jerdon (*B. of India*, ii. p. 294) it is said to occur in the Punjab about Ferozepore, and also in Upper Sindh during the cold weather only, migrating to Afghanistan and the neighbouring hills to breed, which it is said to do in the North-west Himalayas, and in the neighbourhood of Kashmir. Under the name of *C. tibetanus* he further records it from Ladakh, Kumaon, and other sites in the more eastern part of the Himalayas; but he never saw it in Sikkim. Dr. Henderson met with it throughout Yarkand; and Severtzoff records it from Turkestan, where, he says, it is common and resident, and breeds in the mountains at an altitude of from about 3000 to 8000 feet, and occasionally is found as high as from 12,000 to 18,000 feet above the sea-level.

In Siberia it was met with by Von Middendorff everywhere in the Taimyr country, but he never observed it in the steppes of Southern Siberia, though he met with it again at the Ishatskaya station, not far from Atshinsk; and it occurs from Irkutsk up to the south-east coast of the Sea of Ochotsk, and even in Mantchuria, but is not common. Radde says that they do not all winter in South-east Siberia, but most arrive in large flocks at the Tarei-nor early in March. Near Kulussutajefsk and in the Bureja Mountains he found a few pairs during the winter. It is, he says, found almost everywhere; and he speaks of it as occurring in the Upper Irkut valley, on the Oka, and at Lake Baikal. Dr. von Schrenck states that it is met with throughout the Amoor country, being most numerous on the coast and on the island of Saghalien. It does not appear to occur in China or Japan, being there replaced by *Corvus japonensis*, Bp. (*C. macrorhynchus*, Schlegel), which differs in having only the upper part of the throat covered with lanceolate feathers, the rest of the feathers on the throat and neck being soft and full-webbed, and it has moreover a shorter wing.

As regards the American Raven, I cannot, after a most careful examination of a series of specimens, discover any distinctive character whereby it can be distinguished, even as a subspecies. Professor Spencer F. Baird, in his recently published work on North-American birds, writes as follows:—"Though easily distinguishable from the European bird, the American Raven is so nearly related to it as to be beyond doubt referable to it as a variety. The differences presented in a very large series of both forms are, however, very constant and tangible. In the American bird the bill is always longer and less deep, and the plumage is more highly burnished, while the wings, especially the secondaries, are of a perceptibly more reddish violet than the other portions." But I cannot find that these differences hold good; for in the series I have examined

I find some European and Asiatic specimens with the plumage fully as highly burnished, and not differing in the least in shade of colour from American examples; and as regards the alleged difference in the size of the bill, my table of measurements will show how little this character can be relied on. Writing on its range, Professor Baird says:—"We find this bird more or less common throughout nearly the whole continent. It is much more abundant in some regions than in others, and, as a general rule, is much more common and also more generally distributed in the western portion, where also its habits are remarkably different from the manners of its eastern representative.

"It seems to be more or less common throughout the Arctic regions. Mr. Kennicott met with Ravens at Lake Winnipeg. Mr. MacFarlane found them abundant at Lockhart River, at Fort Anderson, and on the Lower Anderson River. Mr. Ross obtained them at Fort Simpson, Mr. Reid at Big Island, Mr. Clarke at Fort Rae, Mr. Lockhart at Fort Resolution, and Mr. Dall at Nulato, in Alaska.

"In the Eastern States the Raven is a comparatively rare bird, except in a few special localities. These are usually mountain-ranges, high precipitous banks of rivers and lakes and of the ocean, and among wild and lonely islands. It occurs on the Labrador coast, at Grand Menan, in the Bay of Fundy, the Adirondacks, Lake George, the Hudson River, &c. Mr. Lawrence speaks of it as quite common on the coast of New Jersey. It is found among the mountains of Buncombe and other counties in North Carolina; and Mr. Audubon mentions its occurrence at Table Mountain, in the district of Pendleton, South Carolina. Dr. Coues found Ravens not rare at Labrador, where the almost inaccessible cliffs afford them safe and convenient retreats. They were so excessively wary that it was impossible to shoot them. They were seen to descend in pairs to the sea-shore to feed on dead fish, crabs, and other animal substances thrown up by the sea.

"Mr. Ridgway informs me of the presence of this bird in the heavy forests of the bottomlands in Southern Illinois. It is there quite rare, however, as he has met with but a few pairs, which were resident, and nesting in the tall timber of the Big-Creek bottoms, in Richland County.

"In New England these birds are very rare, and their occurrence is only accidental. One has been shot on the Connecticut, and another on the Merrimack, in Massachusetts.

"On the Pacific coast the Raven is common from Sitka to San Diego. Throughout Washington territory it is said to be plentiful, more scattered in the summer, and in the winter congregating about settlements and the sea-shore. At Vancouver, during the winter, it was observed amicably associating with the Crows, and on the coast with the Fish-Crows; but during the spring, when the latter had nests, they boldly attacked the Ravens, and drove them away.

"In California and in all the adjacent regions, Dr. Cooper states, the Raven is found everywhere in pairs, more numerous than in the Atlantic States, and abundant even in the most barren desert districts. It follows trains and herds of cattle, and keeps on the look-out for any thing befalling them. It is omnivorous, eating snakes, lizards, eggs, carrion, and even grain, though the last very rarely. It is accused of destroying young chickens and lambs.

"In Arizona Dr. Coues speaks of it as resident, and very abundant about the cattle-

enclosures, where it congregates in immense numbers during the autumn and winter. During the severe winter of 1864-65 great numbers perished of cold and hunger at Fort Whipple.

“Mr. Dresser observed the Raven common at San Antonio, frequenting the slaughter-houses. In November, in the Baudera Hills, several came to his camp to feast on the offal of deer. Dr. Woodhouse also found them very abundant in Texas, the Indian territory, and New Mexico, and especially so on the buffalo-plains. In the Mexican-Boundary Survey Dr. Kennerly observed these birds everywhere in Northern Mexico, flocks of them following the train from point to point. They were not at all shy, but often came into camp in search of food.

“Dr. Heermann states that while in California he always found the nests of the Raven placed high on bold precipitous cliffs, secure against danger; in the vast desert plains of New Mexico he saw these birds building on low trees, and even on cactus plants less than three feet from the ground, showing how much circumstances and localities affect the habits of birds regarding incubation.

“A Raven, probably this species, is abundant on the plateau of Mexico. The Cerro Colorado, near Tehuacan, is the rendezvous of a large number of these birds, where, according to Sumichrast, at the time of the flowering of the maguey, they gather in great abundance, to feed on the blossoms of this plant, which are their favourite food.”

As a rule the Raven is a shy, cautious bird, as crafty and clever amongst birds as the fox is amongst quadrupeds; but much depends on the localities where it occurs as to whether it is shy or otherwise. In the high north, where amongst the fishermen it is welcomed as a guest and permitted to feast at leisure on the garbage, being an excellent scavenger, and consequently but seldom molested, it is comparatively tame, and will permit itself to be approached; but in Central and Southern Europe where its predatory habits render it any thing but welcome to the farmer, shepherd, and sportsman, and where it can be of little or no use as a scavenger, it soon learns to know that its presence is not considered desirable, and keeps well away out of gunshot, being most difficult of approach. Amongst the early Scandinavians the Raven was looked on as possessing wisdom to a peculiar extent; and in the Sagas it is related that Odin possessed two Ravens, which traversed great distances, and returning to their master whispered into his ears the information they had gained during their journey. Bold as well as wary, it does not hesitate to attack the Eagle when it approaches the locality where its nest is placed, and though it will give way to that bird when they meet over a carcass, yet it will drive away other birds from it. An arrant thief and a lover of carrion, it seems to know by instinct when a flock of sheep is tainted with disease, and will watch for days until one dies, when it immediately drops on to the carcass, first attacks the eyes and then turns its attention to the subcaudal region, soon dragging out the intestines. So far as my experience goes, I believe that the Raven trusts to its great power of sight alone in searching after carrion, and does not hunt by scent, as some naturalists have believed to be the case. When searching for food on the ground, it walks with steady measured pace, solemnly striding along as if engaged in serious business. Though its chief and most favourite food is carrion, it is omnivorous, and feeds on almost any thing that comes in its way. Young and sickly birds are frequently attacked by it; and hares and rabbits are often killed by it during severe snow-storms, or when in a weakly state. Usually two hunt in company; and there are numerous anecdotes on record of the craftiness with which they

cooperate in hunting down their quarry. The shepherds accuse it, and not without reason, of destroying young lambs—and the housewives of killing young poultry, and of breaking and sucking eggs which may have been laid amongst the grass at some little distance from the homestead. It is said to commit no little devastation amongst the barley, oats, and wheat when other more suitable food is not at hand, and feeds on grubs, worms, and insects of various kinds. In the villages in Northern Scandinavia I frequently saw Ravens gravely examining the component parts of large rubbish-heaps that are thrown out near the cottages.

The note of the Raven is a hoarse croak, resembling the word *krruck*; but, during the breeding-season especially, it often utters a gulping and not disagreeable note, which may be almost called a song. Professor Sundevall, indeed, says (Sv. Fogl. p. 118) that people who have kept tame Ravens have informed him that when in an especially good humour during fine weather they utter a series of low song-like notes, like the so-called song of the Crow and Magpie, intermixed with a clear and pleasant note every now and again. Whilst these notes are uttered the neck is stretched forward and moved with a wave-like motion. Probably this was the "song" referred to by Von Kittlitz (*cf.* Finsch, *Abh. naturw. Ver. Bremen*, iii. p. 41) in his notes on the Raven he met with in Sitka. Mr. B. R. Ross also states that the Raven has a very liquid and musical call-note; and Professor Baird says that one of its notes is like that of the Canada Goose. From the notes furnished to the latter gentleman by Dr. Elliott Coues, I transcribe the following:—"The Raven is not, on the whole, so noisy a bird as the Crow, though he croaks vigorously on occasion, and his caw may claim to be impressive if not agreeable. But the queer sounds that the bird can utter, if he be so minded, are indescribable; even his ordinary cawing is susceptible of considerable modulation. A favourite amusement of his, when, his hunger appeased for the time, he feels particularly comfortable, is to settle snugly on the top of a pine tree, and talk to himself. The performance generally begins with a loud caw, self-asserting, followed by a complacent chuckle; and then comes a series of comical syllables so low as to be scarcely audible from the ground below, as if he were musing aloud and tickled with his own fancies. Then he will raise his voice again, and file away at some old saw for a while, finishing with the inimitable 'cork-drawing' for which his tribe is famous."

An early breeder, the Raven commences nidification in February, and either repairs its old nest or constructs a fresh one. Usually it breeds in some almost inaccessible fissure in the rocks; but it frequently builds also on trees. In any favourite locality where they find themselves beyond molestation, a pair of Ravens will occupy the same nest year after year. I well recollect one place on the shores of the Saima Lake in Southern Finland, where, in the cleft of a steep rock overhanging the water, a pair of Ravens had for years built their nest. I tried every mode I could think of to get at the nest, but without success. The nest is rather bulky, is constructed of sticks, lined with roots and rabbit's down, or any suitable soft material. When, undisturbed, they use the nest for several years in succession, they carefully refurnish it before commencing nidification each spring.

The eggs, from four to six and sometimes even as many as eight in number, resemble those of the Carrion-Crow, but are larger in size. In my collection I have a considerable series from various parts of Scandinavia and Northern Europe, which vary not a little, some being rich pale blue with a greenish tinge, having faint blackish underlying shell-markings, and dark

blackish surface-spots scattered over the shell; whereas others are dull olive-greenish, closely marked with dull blackish brown surface-blotches, which in one or two form a peculiar hieroglyphic kind of markings. In size they vary from $1\frac{2}{40}$ by $1\frac{1}{40}$ to $1\frac{3}{40}$ by $1\frac{1}{40}$ inch. As a rule those from Spain are rather brighter-coloured than others from Northern Europe; but I possess one from Greenland which is quite as bright as any I have seen from Southern Europe.

In some parts of Northern Europe, especially in Iceland and the Færoes, partial albinos are met with; and this variety has been described as a distinct species under the names of *C. leucophæus* and *C. færøensis*. I possess one specimen from the Færoes which is about half white and half black, and another from Greenland which has the major portion of the primaries and of the tail white.

The Raven is easily tamed and becomes very familiar. It can be taught to utter words, and will mimic the barking of a dog or other sounds. In old coaching-days it used to be customary to keep a tame Raven at the post-houses; and when any one drove up, the Raven would generally call for the hostler, having doubtless learnt to do so from hearing travellers call "hostler" directly they drove into the yard, should that individual not be there to receive them. One frequently sees tame Ravens in brewery-yards; and ever since I can recollect, a pair have been in the yard of a brewery in Oxford Street, close to Tottenham-Court Road, where they may usually be seen perched on a barrel or stalking gravely about the yard.

The specimen figured, on the same Plate with *Corvus umbrinus*, is from Denmark, and is the bird described. I propose also, when treating of the genus *Corvus* in my article on *Corvus corone*, to give a sketch of the head of the common Raven, and shall also give a detailed table of measurements of specimens from various localities.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, partial albino. Greenland (*Möschler*). *b*, partial albino. Færoes (*A. Benzon*). *c*, ♂. Falster, Denmark, January 22nd, 1871 (*A. Benzon*). *d*, juv. Archangel, May 23rd, 1873 (*Piottuch*). *e*. Bandera, Texas, November 1863 (*H. E. D.*).

E Mus. Salvin and Godman.

a. Fort Benton, U. S. (*J. A. Mullan*). *b*, ♀. Dueñas, Guatemala, August 10th, 1859 (*O. Salvin*).

E Mus. Brit. Reg.

a, ♂, *b*, ♀. Skåne, Sweden. *c*. Jerusalem (*Tristram*). *d*, *e*. Nepal (*Hodgson*). *f*. Ladak (*Dr. Henderson*). *g*. Fort Simpson, U. S., April 21st, 1860 (*B. Ross*). *h*. Fort Simpson, April 24th, 1862 (*J. K. Lord*). *i*, *k*. West side of Rocky Mountains (*J. K. Lord*). *l*. Mexico (type of *C. nobilis*).

E Mus. Lord Lilford.

a, ♂, *b*, ♀. Isola di Vacca, Sardinia, May 1874 (*L.*).

E Mus. H. B. Tristram.

a, ♂. Jerusalem, February 16th, 1864 (*H. B. T.*). *b*. Cashmere, August 1870 (*A. O. Hume*). *c*, ♂. Le, Ladak (*Dr. Henderson*).

E Mus. Col. Biddulph.

a, ♀. Le, Ladak (*B.*).

E Mus. Howard Saunders.

a. Thuringia (*Möschler*). *b*, ♀. Granada, January 1871. *c*, ♂. Zegri, Granada, May 1873.

E Mus. Jas. Lumsden, jun.

a, *b*, *pull*. Scotland.

CORVUS UMBRINUS.

(BROWN-NECKED RAVEN.)

“*Corvus umbrinus*, Hedenborg, in MS.,” Sundevall, K. Vet. Ak. Handl. 1838, p. 199.

Corvus infumatus, Wagn. Münch. gel. Anz. (1838), fide Finsch & Hartlaub, Vög. Ost-Afr. p. 373 (1870).

Corvus corax, E. C. Taylor, Ibis, 1859, p. 49 (nec Linn.).

Corax umbrinus (Hedenb.), A. E. Brehm, Erg. Reis. Habesch, pp. 216 et 319 (1863).

Corvus corax, Leith Adams, Ibis, 1864, p. 22 (nec Linn.).

Corone umbrinus (Hedenb.), G. R. Gray, Hand-list, ii. p. 12. no. 6199 (1870).

Ghurab el nohi, Arabic.

Figura nulla.

Chalybeo-niger: capite, collo abdomineque ex parte nitidè umbrinis: rostro nigro, pedibus nigro-fuscis: iride fuscâ.

Adult Male (Egypt). Head and neck glossy dark umber-brown; feathers on the neck white at the base; upper and underparts generally jet-black, with a steely violet gloss, the underparts intermixed here and there with a few dark umber-brown feathers; wings and tail glossy black, with a violet-blue gloss; bill black; legs black, with a brownish tinge; iris dark brown. Total length about 23 inches, culmen 2·9, wing 15·5, tail 8·6, tarsus 2·9, middle toe 2·2.

Female. Similar to the male.

THIS well-marked species of Raven inhabits Palestine and North-east Africa, ranging eastward as far as Baluchistan.

Canon Tristram states (P. Z. S. 1864, p. 445) that it is the common Raven of Jerusalem and the Jordan valley, but not on the coast, and breeds solitarily in the cliffs; and he further writes (Ibis, 1866, p. 70) as follows:—“On revisiting Jerusalem in March and April we found that the greater part of the large Ravens had left, though many of *C. umbrinus* remained, but by no means so sociable as in winter. Numbers of them paid a visit every morning to the Jewish slaughter-houses, or rather slaughter-places, outside the Damascus gate. They were building, not in communities, but in various scattered localities in the neighbourhood. We never obtained a nest of *C. corax*; though, close to the city-walls in the valley of Hinnom, in a ledge easily accessible, Mr. Egerton-Warburton took a nest with five eggs of *C. umbrinus*. In the neighbourhood of the Dead Sea the common Raven was never absent; but *C. umbrinus* was also abundant, scattered in pairs or in small companies on every part of the shores. In the Wady Kelt, near Jericho, we found several nests, containing generally five or six eggs, situated on the most inaccessible ledges. We never found it, like the Hooded Crow, breeding in trees, while

in Africa *C. corax* selects indiscriminately trees and ledges, even where trees are few. The egg is decidedly larger than that of the Carrion-Crow, but smaller than the Raven's. All our specimens are rather lighter in colour than the ordinary run of Raven's eggs. Near the mouth of the Jordan I secured a specimen of the Brown-necked Raven just as it reached the shore, which had evidently traversed the lake from the south; and during our slow progress down the west shore of the Dead Sea it was of daily occurrence." Mr. C. W. Wyatt met with it on the Sinaitic peninsula, where, he says, it is common, and universally distributed. In Egypt it is the Raven of the country, and is common and generally distributed. Captain Shelley writes (B. of Egypt, p. 158) as follows:—"This Raven is very plentiful throughout Egypt and Nubia. It prefers desert and rocky districts to the more cultivated parts, and may frequently be seen near the Pyramids, on which it yearly builds. Like the common Raven it nests both on rocks and trees, in the latter instance usually selecting the crown of some lofty date-palm. It is essentially a desert-bird, and therefore not to be met with in the Delta." Both Mr. E. C. Taylor and Mr. L. Stafford Allen also record it from Egypt; and the former says that it is one of the few birds he saw at Suez, and he met with a flock of at least a dozen of these Ravens near the Pyramids of Dashoor. Messrs. Finsch and Hartlaub (Vög. Ost-Afr. p. 374) write respecting its range as follows:—"South of 13° N. lat. it is by no means a rare species. It occurs in Egypt, Nubia, Sennaar, Kordofan, and the coast-regions of the Red Sea, where, according to Von Heuglin, it is met with in the Somali country." Von Heuglin writes also (Orn. N.O.-Afr. p. 506) that he has seen specimens from the coast of Abyssinia, and in a collection from Tigreh; but Mr. Blanford did not meet with it in Abyssinia. It does not occur at all in North-west Africa.

To the eastward it occurs as far as Baluchistan, where Mr. Blanford met with it, and writes as follows:—"This is the only Crow of Baluchistan, and is rather a Crow than a Raven in its habits (according to the manners of Eastern rather than of European members of the genus), being a common scavenger about habitations. Most of the specimens were shot about my camp. It is perfectly familiar and fearless. I thought I once saw the same Crow on the Persian plateau, a little east of Shiráz; but I was not certain, and it was certainly very rare."

This Raven appears to be essentially a desert-bird, and is wanting in the mountainous districts of the countries which it inhabits, being, however, tolerably numerous in the true desert. Von Heuglin remarks (*l. c.*) that it is also seen in the villages, date-gardens, and durra-fields, and is usually met with at the caravan halting-places, where it may frequently be seen perched on a camel or buffalo searching after insects. He describes its note as somewhat resembling that of the Raven, and compares it to a deep short note which may be produced by clucking or croaking with the tongue. When the dates are ripe in Nubia flocks of this Raven collect, he says, in the date-groves and feed greedily on this fruit; and it not unfrequently feeds on maize.

The Brown-necked Raven breeds either in the rocks or else in trees. As above stated, Canon Tristram never found its nest in a tree; but Dr. A. E. Brehm found it breeding in January and February, the nests being placed in large mimosas; and Mr. E. C. Taylor, who found it near Assouan, writes (*Ibis*, 1867, p. 66) as follows:—"This bird makes its nest sometimes in rocks, sometimes in the centre of the crown of a date-palm (*Phoenix dactylifera*), in which position I found a nest early in March, near Assouan, containing four eggs. I took

another nest of this species, with five eggs, from one of the pyramids of Ghizeh in April. The eggs are larger than those of *C. cornix*, and more brightly coloured."

I possess eggs of this Raven, collected in Palestine by Canon Tristram, and in the valley of Hinnom, Palestine, by Mr. Cochrane in April, which are undistinguishable from some very brightly coloured common Raven's eggs in my collection, and measure $1\frac{3}{40}$ by $1\frac{8}{40}$ inch, and $1\frac{3}{40}$ by $1\frac{3}{40}$ inch.

The specimen figured, on the same Plate with our large Northern Raven, is one collected by Captain Shelley in Egypt, and is in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Egypt (*G. E. Shelley*). *b*, ♂. Gwader, Baluchistan, January 4th, 1872 (*W. T. Blanford*).

E Mus. G. E. Shelley.

a, ♀. Egypt, March 9th, 1868 (*G. E. S.*).

E Mus. H. B. Tristram.

a, ♂. Ghor el Safieh, Palestine, January 29th, 1864. *b*. Jerusalem, February 15th, 1864. *c*, ♂. Jerusalem, December 26th, 1863 (*H. B. T.*).

E Mus. H. M. Upcher.

a, *b*, ♂, *c*, ♀. Jerusalem (*H. M. U.*).

E Mus. E. C. Taylor.

a, ♀. Jerusalem. *b*, ♂. Egypt (*E. C. T.*).

Order II. MACROCHIRES.

Family CYPSELIDÆ.

Genus CYPSELUS.

Hirundo apud Brisson, Orn. ii. p. 512 (1760).

Micropus apud Wolf, Taschenb. deutsch. Vogelk. i. p. 280 (1810).

Cypselus, Illiger, Prodomus Syst. Mamm. et Av. p. 230 (1811).

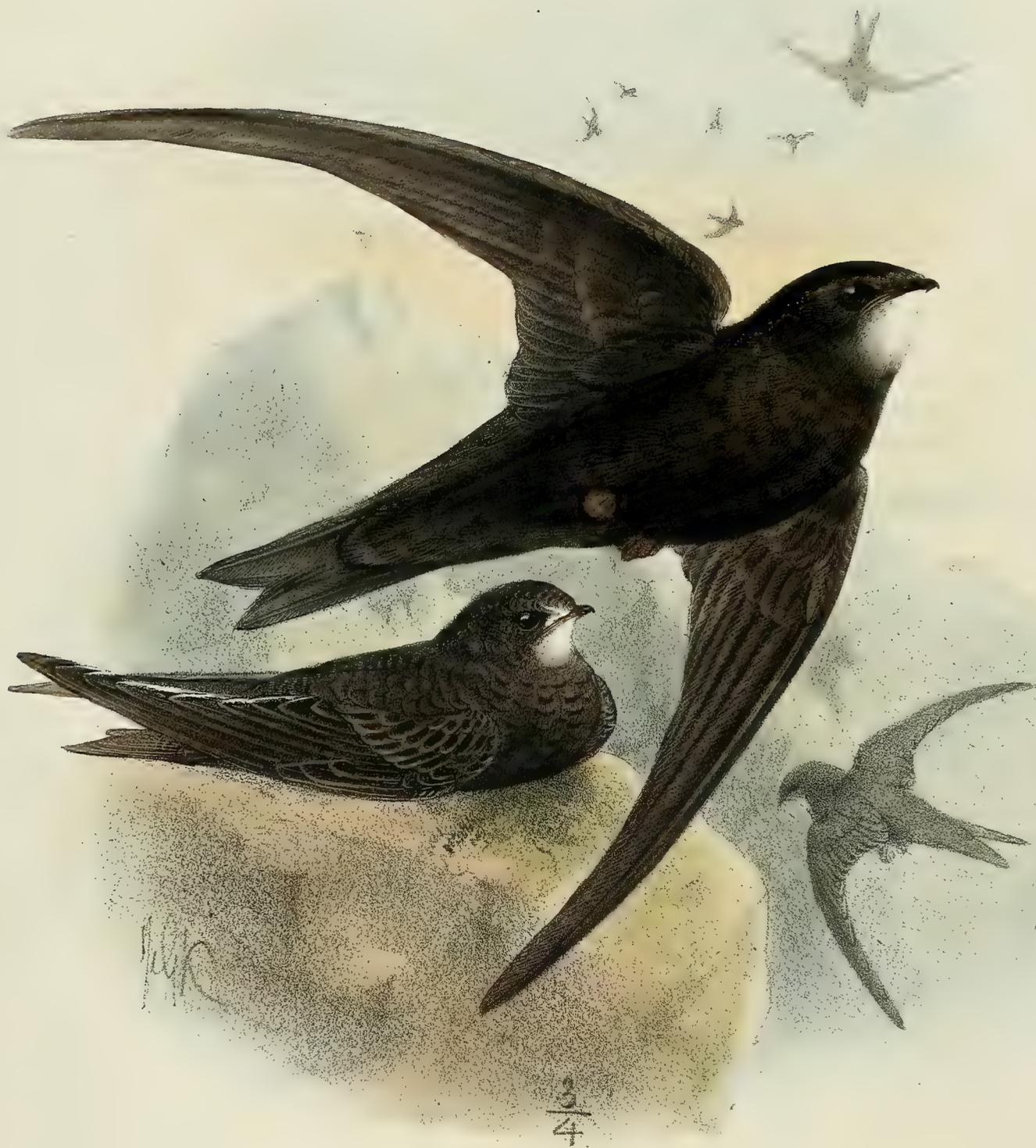
Brachypus apud Meyer, Vög. Liv- u. Esthl. p. 143 (1815).

Apus apud Cuvier, Règne Anim. i. p. 373 (1817).

By most of the earlier authors the Swifts and Swallows have either been united in the same family or placed close together; but recent investigation has proved that they are widely different, and certainly belong to different divisions or orders. Keyserling and Blasius place *Cypselus* between the Owls and Goatsuckers, Degland and Gerbe between the Swallows and Goatsuckers, Macgillivray between the Owls and Swallows, G. R. Gray between the Caprimulgidæ and the Hirundinidæ; and Sundevall places the Caprimulginae and Cypselinae between the Cocyges and the Volucres Syndactylæ, in which latter he includes the Bee-eaters and Kingfishers; but after careful consideration I have deemed it advisable to arrange the Swifts and Goatsuckers between the Crows and Woodpeckers.

The Swifts inhabit the Palæarctic, Ethiopian, Oriental, and Australian Regions, five species being found in the Western Palæarctic Region. Having the feet adapted for clinging, they are unable to walk; but their wings are very powerful, so that their flight is extremely swift and protracted. They cling to the sides of walls and rocks, having strong claws, and support themselves, to some extent, with their strong tails. They feed entirely on insects, which they capture on the wing, and are migrants, leaving their northern haunts when the cold weather sets in and insects become scarce. Their cry is a harsh, loud screech; and they have no song. They make a rude platform of a nest of straws, roots, feathers, wool, &c, agglutinated together, and deposit two or three pure-white elongated eggs.

In *Cypselus apus* (the type of the genus) the bill is extremely short, depressed, broad at the base, narrowed towards the tip, which is obtuse; gape-line from behind the angle of the eye, arched; nostrils oblong, with an elevated margin; wings very long, narrow, pointed, the first quill short, pointed, the second and third nearly equal, the latter longest; tail long, deeply forked, the rectrices often much exceeded in length by the wings; feet short, strong; the tarsus feathered in front, bare behind, inner toe smallest and directed forwards, the third longest; claws large, strong, curved, acute.



Mintern Bros .imp

COMMON SWIFT.
CYPSELUS APUS

CYPSELUS APUS.

(COMMON SWIFT.)

- Hirundo apos*, Briss. Orn. ii. p. 512 (1760).
Hirundo apus, Linn. Syst. Nat. i. p. 344 (1766).
Le Martinet noir, Montbeill. Hist. Nat. Ois. vii. p. 302 (1783).
Micropus murarius, Wolf, Taschenb. Deutsch. Vogelk. i. p. 281 (1810).
Cypselus apus, Illig. Prodr. Syst. Mamm. et Av. p. 230 (1811).
Brachypus murarius (Wolf), Meyer, Vög. Livl. & Esthl. p. 143 (1815).
Cypselus niger, Leach, Syst. Cat. M. & B. Brit. Mus. p. 19 (1816).
Cypselus vulgaris, Steph. in Shaw's Gen. Zool. x. p. 72 (1817).
Apus, Cuv. (*Hirundo apus*, L.), Règne Anim. i. p. 373 (1817).
Cypselus murarius (Wolf), Meyer, Taschenb. Deutsch. Vogelk. iii. p. 255 (1822).
Apus murarius (Wolf), Lesson, Traité Orn. p. 267 (1831).
Micropus apus, Boie, Isis, 1844, p. 165.
Cypselus turrium, Brehm, Naumannia, 1855, v. p. 270.
Cypselus aterrimus, Heugl. J. f. Orn. 1861, p. 422.
Cypselus dubius, O. Antinori, Cat. Ucc. Afr. Centr. p. 25 (1864).
Cypselus barbatus, Temm., Sclater, P. Z. S. 1865, p. 599 (sub *C. apus*).
Cypselus apus vulgaris, A. E. Brehm, Verz. Samml. C. L. Brehm, p. 3 (1866).
Cypselus apus murarius, A. E. Brehm, ut suprâ (1866).
Cypselus apus turrium, A. E. Brehm, ut suprâ (1866).
Cypselus apus niger, A. E. Brehm, ut suprâ (1866).

Swift, *Screech*, *Develing*, English; *Gobhlan dubh*, Gaelic; *Martinet de muraille*, French; *Andorinhão*, Portuguese; *Avion*, *Falsia*, Spanish; *Rundun*, Maltese; *Rondone maggiore volgare*, Italian; *Thurmsegler*, *Mauerhäkler*, German; *de Gierzwaluw*, Dutch; *Muurseiler*, *Muursvale*, Danish; *Taarnsvale*, Norwegian; *Tornsvala*, Swedish; *Luniapääskey*, *Tervapääskey*, Finnish; *Stresh baschennoi*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 542. fig. 1; Werner, Atlas, *Chélidons*, pl. 6; Kjærb. Orn. Dan. taf. xiii.; Frisch, Vög. Deutschl. taf. 17; Fritsch, Vög. Eur. taf. 13. fig. 3; Naumann, Vög. Deutschl. taf. 147. fig. 2; Sundevall, Sv. Fogl. pl. xxi. fig. 1; Gould, B. of Eur. pl. 53. fig. 1; id. B. of G. B. ii. pl. iii.; Schlegel, Vog. Nederl. pl. 60; Roux, Orn. Prov. pl. 145; Bettoni, Ucc. Lomb. tav. 44.

♂ *ad.* nigricanti-fuliginosus, alis suprâ et fronte vix pallidioribus: mento et gulâ albicantibus: rostro et pedibus nigricantibus: iride fuscâ.

♀ haud a mare distinguenda.

Juv. adulto similis sed plumis ubique albido marginatis et mento albicantiore.

Adult Male (Cookham, 8th June). Entire body, excepting the chin and upper part of the throat, almost uniform sooty blackish brown, the upper surface of the wings and the forehead a trifle paler; on the upper and under surface of the body there is a clearly distinguishable metallic gloss; tail tolerably deeply forked, the outermost rectrix being 1.15 inch longer than the central ones; chin and upper part of the throat dirty whitish; bill and feet blackish; iris dark brown. Total length about $7\frac{1}{2}$ inches, bill from gape 0.65, wing 6.5, tail 3.15, tarsus 0.55.

Female. Similar to the male.

Young Female (Stockholm, 27th August). Resembles the adult; but the feathers on almost all parts of the body, and especially on the forehead, underparts, and upper and under surfaces of the wings, are edged with whitish; throat much purer white than in the adult bird.

Obs. I have carefully examined specimens of so-called *Cypselus barbatus* from South Africa with European examples, and fail to find any specific difference. It is true that South-African specimens have black central stripes to the white feathers on the throat; but I find this to be the case, to a slight extent, in several British-killed birds; and one from Copenhagen has these black stripes as fully developed as many of the South-African examples I have examined.

THE present species of Swift inhabits Europe generally during the summer season, Africa, and Asia, as far east as Dauria. On the islands off the west of Europe it is replaced by *Cypselus unicolor* and the Pallid Swift.

In Great Britain it is a common summer resident, but only remains with us for a comparatively short time, as it arrives somewhat late and leaves early. It frequents the old church-towers and ruined buildings, and in suitable localities is extremely common. Mr. Stevenson, in his work on the birds of Norfolk, says (i. p. 345) that it "appears in that county about the first week in May, and leaves us again, for the most part, by the end of August, though stragglers are occasionally seen up to the 20th and 25th September. The Rev. E. W. Dowell has, however, recorded in his MS. notes a single Swift as seen by himself at Blakeney, with several *Hirundines*, in October 1858, a very unusually late appearance of this species. Throughout their brief sojourn with us they are very generally distributed, frequenting alike the steeples of our city and country churches, the eaves of houses, or the ruined edifices of bygone days. They also breed regularly in the dark crevices of the chalk cliffs at Hunstanton, facing the sea, where their nests are free from all chance of molestation; but the old birds are, I am sorry to say, frequently shot at from the beach as they take their evening flight over the sands, or chase one another along the face of the cliffs, whose hollows reverberate with their harsh screams." It is found throughout the mainland of England and Scotland, and is, generally speaking, common throughout Ireland, but is rare on the islands off the Scotch coast. Mr. Robert Gray (B. of W. of Scotl. p. 210) says that "during its three months' residence in Scotland the Swift is very commonly distributed in the western mainland, but is rare on the inner islands, and totally wanting in the Outer Hebrides. Mr. Graham informs me that a pair of these birds have bred

for some years in a hole in the ruined tower of Iona Cathedral; but I am unable to give any other instance of their nesting on the inner islands. This species seems partial to old towers and ruined castles, which are numerous scattered over the western counties; and I have observed that in many instances where these remains of ancient strongholds are far removed from towns or villages, the Swifts are quite as numerous as they appear to be when located in populous districts. In the months of July and August 1868 I observed this bird to be unusually abundant in Wigtownshire. During the prevalent heat of that season many hundreds, if not thousands, might have been seen hawking for prey above the village of Glenluce, attracting the notice of even unobservant people by their extraordinary numbers. I have seen Swifts adroitly catching feathers and straws when on wing, and carrying them to their holes under the eaves of a slated house. In some towns they build chiefly in such situations, and often have to contend with Sparrows for possession of the holes. I have witnessed many tough and noisy fights of this kind, and have caught all the combatants by spreading a net over the entrance. It sometimes happens that Swifts, obeying their unconquerable instincts, will, at the close of a stormy season, desert their unfledged young and leave them to perish of hunger. Late broods, especially, are subject to this unnatural desertion. Oftener than once I have seen the little round sooty faces of the young ones peering out of their holes and plaintively crying for food, after which they crept back to die. In these very nests, on the return of another season, the same old birds have been known to rearrange their building-materials—a few straws merely being laid over the bones of the abandoned to receive a new family. The Swift has been seen occasionally in Orkney; it was observed in 1830, and again in 1847." Dr. Saxby (B. of Shetl. p. 147) records it from Shetland, and observed it in Unst as early as the 27th of April.

With regard to its distribution in Ireland, Thompson says (B. of I. i. p. 408) that, "although common in favourite localities, the species must be noticed with reference to Ireland generally as but partially distributed. Along much of the wild western range of the island it is rather scarce, in some extensive districts is never to be met with. It is stated by Mr. J. V. Stewart to be rare in Donegal. During a week of the fine summer weather spent in the north-west of that country in June 1832, not a bird of this species came under my notice. The Swift, unknown in Connemara (*M'Calla*), is very rare about Tralee, where it never breeds (*Neligan*); and in the county of Kerry one pair only was ever seen by Mr. R. Chute. They remained but for a few days, frequenting an old windmill in the village of Blennerville."

It is rare on the Færoes; and Captain Feilden says that Wolley saw one in June 1849; one was captured at Westmainshavn on the 21st June, 1864; and Mr. H. C. Müller received another on the 24th May, 1871, found dead in the school-house of Thorshavn. In Scandinavia, however, it is common throughout the country. In Sweden, Sundevall (Sv. Fogl. p. 156) says that it is found high up within the Polar Circle—at Enare, in 69° N. lat., as also in the more elevated country about Karesuando and Juckasjärvi, in 68° N. lat.; and my friend Mr. Robert Collett says that in Eastern Norway it breeds commonly in all districts south of the Trondhjemsfiord, and on the west coast it occurs everywhere in small numbers, and only during migration. It breeds, though rarely, at Bergen. In the fells it breeds up into the subalpine region, and here and there in the farm-houses in the birch-region, as, for instance, in the Vaagefjeldene. It arrives at Christiania about the middle of May, seldom later than the 24th, and leaves late in

August. In 1863 one was seen as late as the 8th September. In Finland it is common in the summer, and is, Mr. Sabanäeff informs me, common in Central Russia, and is found on the eastern slope of the Ural chain, as far north as Bogosloffsk, but does not occur on the Shadrinsk plains.

Throughout Germany, Denmark, Holland, Belgium, and Europe generally it may be said to be common during about four months in the year, or rather less, as it arrives in May and leaves in August. Gloger says that it is also found in the mountains of North Germany as well as on the plains. I found it common in most parts of Germany I have visited, and observed many at Altenkirchen, near the Rhine, where, Mr. Carl Sachse informs me, it arrives early in May and leaves in August. In 1874 the first were seen on the 2nd May. Occasionally it nests in trees; and before the female commences incubation both male and female roost together in a hole used by them for night quarters. It is found in Holland, as elsewhere, breeding in the church-towers; and Baron von Droste Hülshoff says that it breeds in the lighthouse on the Island of Borkum. As before stated it is common throughout France; and Dr. E. Rey found it equally numerous in Portugal, where the first arrive about the middle of April. The various authors on Spanish ornithology speak of it as being a common summer visitant to Spain; and Colonel Irby informs me that he saw the first at Gibraltar about the 26th March, and the latest date in the autumn when he observed any was the 6th October. Herr von Homeyer found them passing through the Balearic Islands, on their migration northward, from the 15th April to the 7th May, and says that large flocks passed, remaining to rest for a few days only. Some few remain to breed, nesting in the high buildings and in the cliffs. Mr. C. A. Wright says (Ibis, 1864, p. 58) that in Malta it "commences arriving from the south in March and April, and remains with us till August, breeding in the precipitous rocks and caverns on the coast and in the walls of the fortifications. Repasses in September. In spring and summer it is plentifully distributed all over the island, but disappears as autumn advances." In Italy and Sicily it is common during the summer, and some few remain all the winter near Catania—a fact which has not been observed elsewhere. In Greece, according to Linder Mayer, it arrives late in March, and at first frequents damp low localities, but soon takes up its quarters in the interior, where it breeds in the mountains and also in the cliffs on the sea-coast. On the islands it is, he says, a resident. Lord Lilford met with it in Corfu in summer, and says (Ibis, 1860, p. 234) that it is rarer than *Cypselus melba*. In Southern Germany it is found during the summer, according to Dr. A. Fritsch (J. f. O. 1871, p. 187), arriving in Bohemia about the middle of May, and leaving in August; and the Ritter von Tschusi-Schmidhofen informs me that it is nowhere rare in Bohemia, and he saw them sailing above the highest summits of the Riesengebirge, and observed it also in the middle of the Böhmerwald, where it breeds in the hollow beech-trees. It likewise occurs in all the other provinces of South Germany, and breeds either in the towns or in hollow trees; but in some localities it does not occur during the breeding-season. In Turkey it is common; and Von Nordmann speaks of it as being numerous in Southern Russia. Near Odessa, he says, a large colony nest in company with Bee-eaters. Dr. G. Radde (J. f. O. 1854, p. 59) says it is especially abundant on the steppes, and he saw thousands near the fortress at Perekop; and Eversmann (J. f. O. 1853, p. 290) found it common in rocky localities in the Southern Ural. Ménétries found it at Lenkoran; and it is said to be common in Asia Minor. Canon Tristram

met with it in Palestine, and says (Ibis, 1866, p. 79) that "it is the last to return" to that country "in the spring. The first we shot was on the plain of Gennesaret on April 2nd, out of a large flock chiefly composed of the other two species. Yet we had observed a few lingering near Beyrout in November. During the breeding-season it is far more generally distributed than its congeners, but affects less the rocky and desolate ravines. About most of the towns it is found in prodigious swarms. In Jerusalem especially, countless numbers congregate, and sweep and dash close to the ground in the more open spaces within the city like a swarm of flies, building in all parts of the walls and public edifices. It was equally abundant in the north, but it breeds late. We obtained a considerable number of eggs fresh in the beginning of June in the towns at the northern base of Hermon, and while on the summit of that mountain saw many Common Swifts playing overhead almost out of sight, unaccompanied by the larger species." There appears to be much uncertainty as to its occurrence in North-east Africa, as it has been confused with a closely allied form, the Pallid Swift. Captain Shelley (B. of Egypt, p. 172) says that he is unaware of any authentic instance of its having been captured in Egypt; but as it ranges through Africa and Europe, and visits Palestine, it must undoubtedly pass through Egypt. Dr. Otto Finsch decided that the specimens collected in Abyssinia by Mr. Jesse are identical with our common European Swift, and says that he has examined examples from Sennar, Bogosland, and Benguela; but I think it not improbable that he confused the Pallid Swift with the present species. In North-western Africa it is exceedingly common, and occurs as far south as the Cape of Good Hope. Loche speaks of it as being abundant in Algeria from April to August; and Mr. J. H. Gurney, jun., Canon Tristram, and Mr. O. Salvin all speak of it as being numerous. Mr. Taczanowski observed it in the province of Constantine; Mr. Salvin (Ibis, 1859, p. 302) saw it flying over the city of Tunis; and Mr. C. F. Tyrwhitt Drake, in his paper on the birds of Tangier and Eastern Morocco (Ibis, 1867, p. 425), speaks of it as being plentiful in summer. Messrs. Shelley and Buckley (Ibis, 1872, p. 286) found it "very abundant" on the Gold Coast; and Mr. Andersson (B. of Damara Land, p. 47) says that "it is common during the rainy season in Damara and Great Namaqua Land." Mr. Layard (B. of S. Afr. p. 50) says that it is "extremely abundant about Cape Town during our summer, disappearing about the middle of April. I have remarked that here they are not in the habit, as in Europe, of chasing each other round lofty buildings, uttering piercing cries and throwing up their wings. This evolution is performed by *C. caffer*; and I am inclined to attribute it to some love-gambol, as *caffer* breeds here, and *apus* does not; *apus*, however, constantly utters shrill screams when at a great altitude in the air, and my attention has thus often been called to flocks that would otherwise have escaped my notice." Mr. Gurney (Ibis, 1863, p. 321) also records it as found at Natal throughout the year.

To the eastward the present species occurs as far east as Dauria. Severtzoff (Turk. Jevotn. p. 67) says that it is common during the summer throughout Turkestan, breeding in the mountains at an altitude of from 1500 to 6000 feet. Dr. Jerdon (B. of India, i. p. 177) says that, according to Adams, it is common in Kashmir, and visits the Punjab in the rains. It is, he says, also common in Afghanistan; and in his supplementary notes he says, "going up the valley of the Sutlej from Simla, I first met with this bird at Serahan, and thence occasionally all the way to Pang; but it was in the Lipi and Asrang valleys that I found it most abundant. One

I killed near Lipi was sent home to Mr. Blyth, who recorded it, and gave the specimen to Mr. Gould." Mr. Blyth (*Ibis*, 1866, p. 339) states that the India Museum has it from Afghanistan. Herr von Pelzeln, in his article on the ornithology of Thibet and the Himalayas (*Ibis*, 1868, p. 306), states that it is found "south-west from Leh;" and Père David writes that it occurs in Mongolia, where it arrives in April. Dr. G. Radde met with both the present species and *Cypselus pacificus* in South-eastern Siberia. In the Chingan Mountains, he says (*Reis. im Süd. von Ost-Sib.* p. 132), the present species was far the commonest. In the Bureja Mountains he seldom observed it; but in the Oka valley, at about 3000 feet above the sea, it was common; here, however, in the Ulan Chada Mountains, the other species (*C. pacificus*) was the commoner of the two. Dr. Dybowski also speaks of it as being common in Dauria. Mr. Swinhoe describes a Swift (*P. Z. S.* 1870, p. 435) from China under the name of *Cypselus pekinensis*, of which I have not been able to examine a specimen, but which is probably referable to the present species.

The entire structure of this bird shows that it is formed to inhabit the air; and indeed it appears to be only really at home when on the wing, whereas when on the ground it is utterly out of its element, and as totally helpless as a fish out of water, being unable to rise into the air again. It frequents old towers, steeples, ruins, and rugged rocks, breeding in these places, and appears to be quite as much at home in the crowded cities as when far away from human habitations. Their food consists entirely of insects, chiefly of hymenoptera and diptera, which fly at a considerable height above the ground; and it invariably catches them on the wing. According as the weather is, and consequently according to the altitude in which the insects are most numerous, it flies high or low, and during rainy weather, or early in the morning and late in the evening, the Swifts fly tolerably low, but during fine clear weather they may be seen during the daytime at a great altitude. When flying round in pursuit of their prey, more especially in dry sunny weather, they utter a prolonged, loud, harsh scream, which, as field-naturalists who have seen them in the winter say they do not then utter it, must most probably be to them what the song is to other more vocally gifted birds, an expression of pleasure used chiefly, if not solely, during the breeding-season. They feed generally on small insects; and when collecting food for their young, they accumulate a number together in their gape until a sort of ball or mass is formed, when they hurry with it to their nest.

We have no bird in Europe swifter on the wing than the present species and its Alpine ally. Macgillivray, who is always so happy in his descriptions of the habits of birds, thus describes the flight of the common Swift:—"Its flight is performed by quick flaps of its long narrow wings, alternating with long glidings or sailings, during which these organs seem motionless, but extended nearly at a right angle. If you watch an individual, you observe it speeding away with quick motions of the wings, which being raised or depressed over a great range, seem to alternate with each other; but this is not in reality the case, at least I have failed in satisfying myself that it is so. There it shoots along on motionless wings, turns to the right and left, flutters for a moment, ascends, comes down abruptly, curves, and winds in various directions, darts in among its fellows, and is lost to your view. The ease with which it rises, falls, bends to either side, glides in short or long curves, or stops in the midst of its full career, is less astonishing than it ought to be, familiarity in this, as in other instances, producing a disposition

to regard as simple what is the result of elaborate mechanism. . . . They fly so rapidly that you can scarcely suppose them to be searching for prey; yet now and then a sudden turn indicates the capture of a fly. When they separate, they cease from their noise, and for a while speed along in curves, rapidly moving their wings; but now three or four sweep past in succession as if one had in view to overtake or outstrip another, and their shrill cries form a continuous scream. Another band dashes into the line, and they mingle together for a moment, then separate, and fly off solitarily. Their cries, shrill and somewhat harsh as they are, seem cries of joy; for they are loudest and most frequent when they fly close together; and certainly they are not indicative of animosity, for Swifts on such occasions never fight or attempt to injure each other."

The Swift has eggs usually in the month of June, their nests being placed in a convenient cranny in a cliff, or in an old ruined building, or a church-tower. The nest is formed of straws, feathers, cotton, or any thing it can pick up in the air driven about by the wind; and these materials are glued together with a viscid secretion which forms abundantly in the gape of the bird. Macgillivray describes a nest as "very rudely constructed, flattened, about six inches in diameter, and half an inch thick; composed of panicles of *Avia cespitosa*, straws of oats, wheat, and grasses, intermixed with fibrous roots, moss, wool, cotton, hair, and feathers of the domestic Fowl, Partridge, and Rook. These materials are confusedly felted and agglutinated; the gluing matter being of a gelatinous, not of a resinous nature, and in extremely thin shreds, which crackle, but do not readily burn when flame is applied to them. There is, however, a small quantity of the membranous scales of the Scotch fir, together with some resinous matter, in one of the nests." The eggs of the present species, two or three, and sometimes four in number, are pure white, glossless, rather elongated in shape; and specimens in my collection vary in size from $\frac{3}{10}$ by $\frac{2}{10}$ inch to 1 by $\frac{2}{10}$ inch.

The specimens figured and described are an adult male from Cookham, on the Thames, and a young bird from Stockholm, both being in my collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

- a.* Hampstead, June 1st, 1870 (*R. B. Sharpe*). *b*, ♀. Cookham, June 8th, 1866 (*W. Briggs*). *c*, ♂, *d*, ♂. Cookham, May 1869 (*R. B. Sharpe*). *e*, ♀, *f*, ♀. Cookham, June 12, 1869 (*R. B. Sharpe*). *g*, ♂. Cookham, June 12th, 1869 (*Burrows*). *h*, ♀. Piedmont, May 1870. *i*, ♂, *k*, ♀. Piedmont, April 20th, 1870 (*Salvadori*). *l*, *m*. France (*Verreaux*). *n*, ♀. Stockholm, August 27th, 1864. *o*, ♂. Copenhagen, September 15th, 1870 (*Benson*). *p*, ♂. Casa Vieja, Andalucia, May 3rd, 1874 (*H. C. Irby*). *q*. South Africa (*Surtees*).

E Mus. Salvin and Godman.

- a.* Hampstead, 1854 (*O. Salvin*). *b.* Derbyshire, July 1854 (*O. Salvin*). *c*, ♂, *d*. Sarpsborg, Norway, July 1866 (*F. Godman*).

E Mus. E. Hargitt.

- a*, *b.* England (*Harding*). *c*, ♀. Havre, May 20th, 1873 (*Pluche*). *d*, ♂. Havre, May 29th, 1873 (*Pluche*). *e*, ♀. Havre, June 1st, 1873 (*Pluche*). *f*, ♂. Valencia, March 20th, 1873 (*Howard Saunders*).



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WHITE RUMPED SWIFT.
CYPSELUS AFFINIS

CYPSELUS AFFINIS.

(WHITE-RUMPED SWIFT.)

- Cypselus affinis*, J. E. Gray, Ill. Ind. Zool. i. pl. 35. fig. 2 (1832).
Cypselus nipalensis, Hodgs. J. As. Soc. Beng. v. p. 780 (1836).
Cypselus montanus, Jerd. Madr. Journ. 1st ser. xiii. i. p. 144 (1844).
Micropus caffer, Boie, Isis, 1844, p. 165, partim.
Micropus affinis (Gray), Boie, Isis, 1844, p. 165.
Cypselus abessynicus, Streub. Isis, 1848, p. 354.
Cypselus subfurcatus, Blyth, Journ. As. Soc. Beng. xviii. p. 807 (1849).
Cypselus leucopygialis, Cassin, J. Ac. Sc. Phil. 2nd ser. v. p. 58, pl. 13 (1852).
Cypselus abyssinicus, Streub., Hartl. J. f. Orn. 1853, p. 397.
Cypselus galilejensis, Antinori, Naumannia, 1855, v. p. 307.
Cypselus galilæensis, Ant., Selater, Ibis, 1859, p. 391.
Cypselus caffer, Cab. Mus. Hein. iii. p. 85 (1860, nec Licht.).
Cypselus leucorrhous, Müll. (nec Steph.), fide Blyth, Ibis, 1870, p. 161.
Cypselus streubeli, Hartl., fide Giebel, Thes. Orn. i. p. 863 (1872).

*Figuræ notabiles.*Gray, *l. c.*; Antinori, *l. c.*; Cassin, *l. c.*

♂ *ad.* capite suprâ, nuchâ et collo postico murinis, fronte pallidiore, fere griseâ, et collo postico versus dorsum nigricante, dorso nigro nitore non nullo metallico: remigibus nigro-fuscis, primario extimo in pogonio externo vix albido marginato: caudâ vix furcatâ nigro-fuscâ viridi vix metallico nitente: uropygio albo: supracaudalibus sordidè fuscis vix albo marginatis: mento et gulâ albis: corpore subtùs fuliginoso-nigro vix metallico nitente, subcaudalibus sordidè fuscis vix albido marginatis: rostro pedibusque nigris: iride fuscâ.

♀ *ad.* haud a mare distinguenda.

Adult Male (Gennesareth, 1st April). Head, nape, and hind neck mouse-brown, lightest, almost grey, on the forehead, and darkest near the back, where it gradually merges into the black of the back; back black, with a purple gloss: wings dark brown, the first primary with a very narrow white edge to the outer web; the upper parts of the wing slightly glossed with greenish purple; tail slightly forked, dark brown, with a faint bottle-green gloss; rump pure white; upper tail-coverts dull brown, slightly edged with white; chin and throat pure white; rest of the underparts blackish brown, with a purplish gloss; under tail-coverts dull brown, slightly edged with dirty white; bill and feet black; iris dark brown. Total length about 5 inches, culmen 0.28, gape 0.6, wing 5.05, tail 1.64, tarsus 0.32.

Adult Female. Similar to the male.

Obs. As a rule specimens from Palestine appear to be much paler on the head and wings than examples from other localities; and all those from West Africa in Captain Shelley's collection are much blacker

than the Palestine birds, the brown on the head merely extending back to the middle of the crown, the nape and hind neck being black, and the wings and tail much blacker. One specimen from Amoy, labelled by Mr. Swinhoe *C. subfurcatus*, is undistinguishable from some of these West-African specimens, both in colour and measurements; but another, also from China, collected by Mr. Swinhoe, and now in Canon Tristram's collection, is as light-coloured on the head and wings as most of the Palestine birds. The tail is but very slightly forked in all the specimens; but this varies considerably, some having it very slightly forked indeed, whereas others have the central tail-feathers as much as 0.25 less than the outer ones. After a most careful examination and comparison of the series before me, I am unable to find any specific distinction between the Chinese bird, separated by Blyth under the name of *C. subfurcatus*, and typical *C. affinis*; for I find some of the latter with the tail quite as much forked as the former, and agreeing closely in measurements and coloration.

It is not without hesitation that I admit this species in the present work, as it has, comparatively speaking, not much claim to be included within the limits of the Western Palæarctic Region; but, after some consideration, I have deemed it advisable to do so. It inhabits Palestine, Africa, and Southern Asia, ranging eastward to China and Penang.

Canon Tristram met with it in Palestine, in the Jordan valley, and as far north as the marshes of Huleh, and states that it is there resident. Mr. C. W. Wyatt says (*Ibis*, 1870, p. 12) that he saw it in Wady 'Ain, in the Sinaitic peninsula, on the 6th April, but did not obtain a specimen. In North-east Africa it appears to shun the low sand deserts, and is chiefly found in or near the hill-ranges. Dr. Th. von Heuglin writes (*J. f. O.* 1861, p. 422) that it was observed in the beginning of the rainy season near Kerén, and also seen in the summer season on the coast of Massowah, and near Mocha, in Arabia, as also in the plains of Taka. Mr. Blanford met with it when on the Abyssinian expedition at the base of the hills and for a short distance within the pass, and in May he found many breeding under rocks in the Suru pass. Antinori records it from Sennaar, on the Blue Nile.

It appears to avoid the extreme northern portion of North-west Africa, and is not recorded from Algeria or the Atlas range; but it occurs in Western Africa, and I have examined several specimens in Captain Shelley's collection, from Fantee; and Messrs. Shelley and Buckley state (*Ibis*, 1872, p. 286) that it is abundant on the Gold Coast; Dr. Hartlaub records it from St. Thomas; and Dr. Dohrn writes (*P. Z. S.* 1866, p. 325) that it is common on Princes Island, in the neighbourhood of the town; and according to Dr. Sclater and Dr. Finsch it has occurred as far south as the Cape of Good Hope, where, however, it is generally replaced by *Cypselus caffer*, Licht., an allied species, easily distinguished by its deeply forked tail.

To the eastward it is found as far as China. Mr. Blanford met with it in Persia, where, he informs me, it is very rare and locally distributed; and in India it appears to be a very common species; for Dr. Jerdon writes (*B. of India*, i. p. 178), "it is the most abundant and universally spread Swift in India; but at the same time it is often very locally distributed, so as to have caused Colonel Sykes to remark, 'so rare in the Deccan that I have obtained only two specimens.' It is found from the Himalayas to the extreme south, and from Calcutta to Scinde and the Punjab; but you may pass over large tracts of country without seeing one. As mentioned in my catalogue, I on one occasion traversed the whole tableland of Southern India, from the Tapoor Pass, near Salem, to Jalnah, near the northern termination of this great plateau, and only saw

it twice, and then in small numbers. As a general rule, however, wherever there are large towns, large pagodas, tombs, or other old buildings, you are pretty sure to find a colony, larger or smaller, of this Swift. In wooded and hilly countries it is occasionally seen about rocks, where it breeds. I saw a few on a cliff on the Neilgherries, which, comparing by mistake with an allied species, I thought to be a new and smaller kind. It does not usually take a long range from its breeding-places, always returning at night to roost in them. It is a noisy bird, especially just before or about their breeding-time, rushing into and out of their nests, circling round for a short distance, and screaming incessantly with a rather sharp cry." Mr. A. O. Hume (*Stray Feathers*, i. p. 166) met with it "once or twice in parties between Jhelum and Kussmore; but from Kussmore throughout Upper Sindh to Sehwan, I never saw it. At Sehwan, Kotree, and Hyderabad, it was abundant, and from Kurrachee again I met with it, wherever we landed, to Gwader." Dr. Leith Adams (*P. Z. S.* 1859, p. 173) found it "common on the banks of the Dras river, in Ladakh, and on the lakes and streams of that country," and he frequently saw it in Kashmir. Captain Beavan found it common at Barrackpore, but rare in Maunbhoom, and especially abundant at Calcutta in May; and Mr. W. E. Brooks (*Ibis*, 1869, p. 47) speaks of it as being very common both at Nynee Tal and at Almorah.

Mr. Holdsworth, referring to its occurrence in Ceylon, differs in opinion from Mr. Layard, who considered it a migrant, and writes (*P. Z. S.* 1872, p. 419), "I found it nesting in August under the rocks overhanging the entrance to the famous temple at Damboul; and as it breeds in Ceylon during the summer months I have no doubt it is a resident species. It has been met with in other parts of the island, but is local. I have not observed it on the upper hills." It occurs in China, and, according to Mr. Swinhoe, is a permanent resident at Amoy, and found from Hainan to Amoy, and in Formosa. Mr. Blyth (*Ibis*, 1866, p. 339) records it under the name of *C. subfurcatus* from Penang, and says that it doubtless occurs in Siam, Cambogia, Cochin China, and Assam.

This Swift differs more especially from the others of this family found within the limits of the Palæarctic Region in being a non-migratory and very local species, but it is a true Swift in its habits. Canon Tristram gives (*Ibis*, 1865, pp. 76-79) some interesting details respecting its habits and nidification as observed by him in Palestine, as follows:—"Unlike its congeners this Swift is a permanent resident in the district it inhabits. In many genera of birds, it may be observed that those species which have the most extended northerly have also the most extended southerly range, and that those which resort to the highest latitudes for nidification also pass further than others to the southward in winter. Thus the migratory Fieldfare and Redwing, visiting regions north of the limits of the Thrush and Blackbird, on their southward migration likewise leave their more sedentary relatives behind. The Brambling, which passes the Chaffinch in Norway, leaves it also in Europe, and crosses the Mediterranean every winter to the Barbary States. The Egyptian and Collared Turtle Doves remain throughout the year in North Africa and Syria; but the common Turtle (*T. auritus*, Temm.), so abundant in those countries in summer, never leaves a straggler behind in November, and yet in spring advances a thousand miles nearer to the Pole than they do. And thus, while *Cypselus melba* does not return to Palestine until about the 12th February, and the yet more northerly *Cypselus apus* was not observed until the last week in March, *Cypselus galilæensis* is building before the return of the

one, and has hatched its young when the other arrives. It may often be seen, during the month of January, high in the air on the plains of the Jordan, and never descending within gunshot until towards evening. The broad white rump gives it at first sight the appearance of the House-Martin, for which indeed it might be mistaken, were it not for its note, which is peculiar and melodious, consisting of two semitones often and rapidly repeated with a tremulous twitter, and most unlike the harsh scream of the common Swift. Its flight is quite as rapid and darting as that of the other Cypselidæ; and in spring we often noticed large flocks of all three species intermingled far aloft, and feeding together on the wing. While, however, the white-bellied bird would frequently sweep nearer the ground, and the common Swift occasionally follow it, their little congener never during the day descended from its elevation, and often for hours have we waited in vain for the chance of a shot.

“Our first specimens were obtained by Messrs. Shepherd and Upcher on the top of the cliff of the Wady Hamam, by the Plain of Gennesaret, on the 8th of March, when the birds were building in society. Their capture was no easy task, as they never approached the cliffs till toward evening; and then, unless they could be brought down on a little projecting promontory near the edge of the wady, it was in vain to hope to secure the spoils. After two or three shots, they became far too wary to afford another chance.

“Unlike the Sun-birds, they mount to the highest portions of the enclosing mountains of the Ghor; and Mr. Bartlett obtained a single specimen, consorting with *Cypselus melba*, near the highest part of Mount Ajalon, east of the Jordan. But it was not until the 1st of April that, in company with Mr. Cochrane, I secured the nest and eggs. Under an overhanging ledge in the fine ravine to the south-west of the Plain of Gennesaret, at the height of 800 feet from the bottom of the wady, we discovered a cluster of nests, about twelve in number, huddled together in one mass on the roof of an open cavern, upwards of twenty feet from its floor. The nests were large, circular, each about half a sphere, and of the capacity of about a quart—a very great size for so small a bird—and composed of straws, large and small feathers, and fine grass, very strongly agglutinated together, and as firmly attached also to the rock. So stout was the consistency of this felting, that it was with some difficulty the nests could be either separated or torn asunder. The saliva of the bird must be the gluten employed; and the construction exhibits a marked approach to the architecture of the genus *Collocalia*, the Edible Swift. The outsides of the nests were decorated with a liberal supply of the loose downy feathers of the Egyptian Vulture, slightly attached by gluten—a covering which I have observed to be omitted in the nests built inside caverns; and there is no warm lining whatever. After laying ineffectual siege for half a day, we were reduced to the very vulgar and unsatisfactory expedient of collecting all the sticks we could obtain, splicing them together, and with a fork at the top, tearing down the nests as best we might, while one of the party attempted to catch the eggs as they fell in an open butterfly-net. Sad was the havoc, and loud and indignant the complaints of the birds as they dashed backwards and forwards overhead. But, besides many fragments, we did actually succeed in saving two sound eggs, both nearly ready to hatch. Several of the broken eggs were quite fresh.

“On my return to Jericho, I found, on April 14th, that all the Swifts which bred in the caves of the Jebel Quarantania had already hatched, and that some of the young were fledged

and had left the nest. Yet, on proceeding north the second time, and revisiting the scene of our first bird-nesting exploit by Gennesaret, the birds we had so plundered had repaired their nests and were again sitting. This was on May 7th. Having no desire to exterminate these little confederates, we did not again disturb them, but proceeded to visit a cave in which, on my former visit, I had discovered a pair of *Hirundo rufula* building. As we entered, a pair of the pretty Swallows dashed out; and we soon saw the nest at which I had seen them at work, evidently finished. It was at the further end of a low cavern; and Mr. Cochrane, going towards it, was surprised to see a Galilean Swift fly out. Putting up his hand, he caught the other Swift, a female, in the nest, and afterwards drew out two Swifts' eggs, quite fresh. It seems probable that, after we had destroyed their first nest, this pair of Swifts had taken possession of that of the Swallow, close at hand, to save time and labour, and had adapted it to their own purposes by simply adding an agglutinated straw-and-feather doorway to the original construction of clay. The nest of *Hirundo rufula* is very like that of our House-Martin, but larger, and attached to the roof of caves. It has also a long wide passage or neck for entrance, which in this instance the Swifts had contracted. The displaced owners had not, however, quitted the cavern; for they had patiently built another nest for themselves near the entrance, which they were then occupying."

Mr. Phillips, who states (P. Z. S. 1857, p. 88) that it is very common in the neighbourhood of Muttra, in India, says that he has "caught many specimens by simply standing at the bottom of a staircase in which were numbers of their nests, and waving the hat as they flew out, when they were instantly entangled. They appear half blind or stupid after daylight. They quite fill up with feathers &c. any hole in the wall for their nest; but when they build in the corner of a building, they make a very thin cup-shaped nest. These nests they fasten one to another. The materials in the latter case appear glued together. Their claws are excessively sharp, and hold on to the flesh with desperate tenacity." Mr. Blyth says (Ibis, 1866, p. 340), "I have known it to construct its continuous mass of nests in a low porch, so near the ground as to be reached by the hand; and I have also seen a huge cluster of the nests attached to the roofing of one of the lofty minarets of the Mosque of Aurungzebe, at Benáres, and I have noticed the species resorting to other elevated sites; but it very commonly breeds in the porticos of houses, and sometimes within reach of the hand in a crowded bazaar." Mr. Swinhoe describes (Ibis, 1863, p. 254) its nest as similar to those found by Canon Tristram in Palestine, and says that they roost in their nests, and use them again the next year, after having patched them up. These birds are, he says, very gentle and greatly attached to one another.

I possess two eggs of this species collected by Mr. Cochrane at Magdala on the 1st April and 9th May, 1864, which in form and colour resemble those of *Cypselus apus*, being pure white and elongated, but are much smaller in size, measuring only $\frac{3.6}{4.0}$ by $\frac{2.4}{4.0}$ inch.

The specimen figured is an adult male in my own collection, and is the bird described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Gennesaret, Palestine, April 1st, 1864 (H. B. Tristram).

E Mus. G. E. Shelley.

a, b. Fort Victoria, Fantee, 1870 (*Ussher*). *c.* Cape-Coast Castle, March 5th, 1872. *d.* Cape-Coast Castle, March 9th, 1872 (*G. E. S.*). *e.* Elmina Castle, Cape Coast, April 1872 (*Blissett*).

E Mus. H. B. Tristram.

a, ♂, b, ♀. Gennesaret, Palestine, April 1864. *c, ♀, d, ♀, e, ♂.* Gennesaret, May 1864 (*H. B. T.*). *f.* China (*Swinhoe*).

E Mus. R. Swinhoe.

a, ♀. Amoy, China, April 29th, 1857. *b.* Amoy, November 1866 (*R. S.*).



Zeilemans del.

Mintern Bros. imp.

1 PALLID SWIFT.
CYPSELUS PALLIDUS.
2 MADEIRAN SWIFT.
CYPSELUS UNICOLOR

CYPSELUS PALLIDUS.

(PALLID SWIFT.)

- Cypselus apus*, L., Webb & Berthelot, Orn. Can. p. 23 (1841, nec Linn.).
 ? "*Cypselus murinus*, A. & E. Brehm," C. L. Brehm, Vogelfang, p. 46 (1855).
Cypselus murarius, Vern. Harc. Ann. & Mag. Nat. Hist. ser. 2, xv. p. 437 (1855, nec Temm.).
Cypselus apus, L., Heugl. Syst. Uebers. Vög. Nordost-Afr. p. 16 (1856, nec Linn.).
Cypselus pallidus, Shelley, Ibis, 1870, p. 445.

Figura nulla.

Ad. grisescenti-murinus, fronte et pileo vix pallidioribus, alis et caudâ saturatoribus: mento et gulâ albidis: ante oculum maculâ nigrâ: plumis in corpore subtùs vix albedo marginatis: rostro nigro: pedibus rufescenti-fuscis: iride brunneâ.

Adult Male (Egypt, 14th March). Resembles *Cypselus apus*, except that instead of being sooty black it is dull soft mouse-grey; forehead and crown rather paler than the back, the wings and tail being rather darker; chin and upper throat whitish grey; rest of the underparts mouse-grey, darkest on the breast and abdomen, and most of the feathers on these parts are narrowly margined with lighter grey; in front of the eye is a black spot, which is extended to a very slight extent round the edge of the eye; bill black; feet dark purplish brown; iris brown. Total length about 6 inches, culmen 0·3, gape 0·65, wing 6·4, tail 2·7, tarsus 0·45.

Female. Similar to the male.

Obs. Although I think it *probable* that the bird referred to by Brehm (*l. c.*) under the name of *Cypselus murinus* is the present species, still his description is so very imperfect that it cannot possibly be taken as sufficient to identify his bird with the Pallid Swift; and I have therefore been compelled to adopt Captain Shelley's name for it. All that Brehm says is as follows:—"Mäusegrau mit weissem Kinne, verfliegt sich sehr selten aus Nordafrika nach Südeuropa, 6 $\frac{1}{3}$ " lang."

Specimens from Egypt and Spain agree closely, except that those from the latter country appear to have the margins to the feathers on the undersurface of the body rather broader; it is possible that they may not be so fully adult as the Egyptian examples.

THE present species having been by so many naturalists confused with the common Swift, it is by no means an easy task to correctly define its geographical range, and doubtless it is to be met with in many parts of Europe from which I have no record of it. It is certainly found, and is not rare, in Spain; but how far north in that country it ranges I am unable to say. As will be seen from the notes below given, it is very local in its distribution and not so generally scattered over the face of the country. Colonel Irby informs me that he has occasionally seen it at Gibraltar in April, and he has shot it there, where, he adds, it is not common. "At Algeciras," he writes, "where the common Swift swarms in almost incredible numbers, both Mr. Stark and

myself failed to distinguish among them a single *C. pallidus*, whilst near Casa Vieja, towards Vejer, where I conjecture they nest, the Murine Swift, as I should term it, was in May the most common species, flying in company with *C. apus*, and at times all three European Swifts were to be seen hawking about together. The Pallid or Murine Swift is easily distinguished on the wing by its light colour; and when flying about in company with the common Swift this difference in colour is strikingly apparent." Besides Spain I know of no European country from which it has been recorded, except Malta, where it has only quite recently been met with; and both Mr. C. A. Wright and Captain Feilden have sent me specimens obtained in that island. Mr. C. A. Wright says (*Ibis*, 1874, p. 226), "undoubted examples of this Swift have been taken in Malta in May of the present year. Captain Feilden procured one in the market on the 18th; and I obtained another at Salini on the 27th. Both specimens were females, and in good condition. In mine the ovary was beginning to enlarge. He observed a bird on the 13th, which must have belonged to this species, in company with common Swifts; and, on the wing, it reminded him of a large Land-Martin. I am nearly certain that I have shot this light-coloured Swift before; and one occasion especially recurs to my memory; this was in August, when I killed several out of a large flock on Fort-Manuel Island. Unfortunately I did not preserve any, mistaking them for the young of *C. apus*. Little doubt now remains on my mind that *Cypselus pallidus* visits us, both in spring and autumn, and is probably a regular migrant to and from Southern Europe. Considering it is common in Egypt, and has been obtained in Tangier by Major Irby (*Ibis*, 1870, p. 445, and Shelley's 'Birds of Egypt,' 1872, p. 172), it would be rather curious if we did not find it here; and a further search may possibly demonstrate the fact of its breeding in this island."

In North-east Africa it appears to be very common; and I have little doubt that many records of so-called *Cypselus apus* in North-east Africa really refer to the present species. Captain Shelley writes (*B. of Egypt*, p. 172):—"This species is very abundant throughout Egypt and Nubia. It has long been included in the Egyptian lists as *C. apus*, from which, however, it differs in its rather smaller size, whiter throat, and general paler coloration, which latter character suggested to me the name *C. pallidus* as appropriate when I first described it." It was not breeding up to the beginning of May, when Captain Shelley last shot it. Von Heuglin states that he observed it in Nubia, and considers it identical with *C. apus*—a view in which I cannot participate. I have an undoubted specimen of this bird from the Bogos country, collected by Von Heuglin; and I think it probable that the species referred to by Mr. Blanford (*Geol. & Zool. of Abyss.* p. 335) as *C. apus* is the present species. He states that "in the Anseba valley many appeared at the end of July."

I have no data respecting its occurrence in North-west Africa, excepting from Colonel Irby, who informs me that, "according to Favier, it arrives near Tangier during April and May, and is the most scarce of the Hirundinidæ. Olcese, the Tangier naturalist, says they arrive earlier than *C. apus*; but this is contrary to my observations, as I never noticed any on the Andalucian side sooner than the first week in April."

Mr. Godman met with it in Madeira and the Canaries, and says (*Ibis*, 1872, p. 170) that "it is rather remarkable that in Madeira both this species and *Cypselus unicolor* are said to be stationary throughout the year, while in the Canaries they leave in autumn and return in

March. *C. pallidus* appears usually a few days before *C. unicolor*. It breeds, both in the Canaries and Madeira, in cliffs." Dr. Carl Bolle (J. f. O. 1857, p. 322) is "quite sure, however, that it breeds on the towers of the cathedral of Ciudad de las Palmas. On the 10th July" he "got some young birds, not quite fledged, which were caught there by some boys in St. José."

In its habits the present species does not appear to differ from *C. apus*. So little, however, is known or has been recorded respecting it, that I am fortunate in having obtained, besides the information given by Colonel Irby, the following excellent field-notes from Mr. A. C. Stark:—"In May 1874 I found these Swifts abundant at Casa Vieja, Andalucia, about equalling the Black Swifts (*Cypselus apus*) in numbers, and always flying in company with those birds. There appears to be nothing in the habits or flight of the Pallid Swift to distinguish it from its black relative. It can nevertheless be recognized, even at a considerable distance, by its lighter colour, and I never committed the mistake of killing one bird for the other. In the early morning numbers of both the Black and Pallid and a few Alpine Swifts are to be found flying in company over the marsh and river near Casa Vieja. As soon as the sun becomes hot they retire to the Sierra. Here on the 6th of May I noticed numbers of these three species hawking in front of some sandstone cliffs. They did not appear to be nesting in the rocks; at all events I could detect none leaving the holes or crevices. Although so common at Casa Vieja, the Pallid Swift appears to be quite unknown at Algeciras, only twenty-five miles off. I could never distinguish one among the myriads of Black Swifts that frequent that town and the old aqueducts near. On the 17th of last May I stood under the aqueduct for over an hour; during this time thousands of *Cypselus apus* passed within a few yards of me, but not a single *Cypselus pallidus* could I distinguish. A Spaniard, who was shooting Swifts for the market, did not know the Pallid Swift; and his heap of victims was composed entirely of the common black species."

Colonel Irby further informs me that he never heard any of these Swifts utter any cry or scream like their congeners, though probably they do so. "As to its breeding-habits," he writes, "I regret to be unable to give any personal information, not having had time to go to Vieja to see if they nested there; but Favier, in his MS., states that at Tangier in July 1861 he found a pair breeding in an old nest of the House-Martin which the Swifts had appropriated, and whence he took two eggs of the usual elongated *Cypselus* type. The colour he does not mention, probably because they were white."

The specimen figured is an adult male from Egypt, in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂, *b*, ♀. Casa Vieja, Andalucia, May 1874 (*L. H. Irby*). *c*, ♂. Casa Vieja, Andalucia, May 5th, 1874 (*A. C. Stark*). *d*, ♂. Casa Vieja, Andalucia, May 6th, 1874 (*A. C. Stark*). *e*. Egypt, March 14th (*G. E. Shelley*). *f*, ♀. Keren, Bogos, August 1861 (*Von Heuglin*). *g*. Tangier (*G. E. Shelley*).

E Mus. L. Howard Irby.

a, ♂, *b*, ♀. Casa Vieja, Andalucia, May 7th, 1874 (*L. H. I.*).

E Mus. Feilden and Harvie-Brown.

a, ♀. Malta, May 17th, 1874 (*H. W. Feilden*).

E Mus. Salvin and Godman.

a, ♂, *b*. Teneriffe, March 28th, 1871. *c*, ♂. Madeira, June 18th, 1871 (*T. D. Godman*).

E Mus. Howard Saunders.

a. Tangier, March 1871 (*G. Olcese*). *b*, ♂. Granada, May 26th, 1871 (*Sauechez*). *c*, ♀. Malaga, July 3rd, 1872 (*H. S.*). *d*, ♀, *e*, ♀, *f*, ♀. Malaga, May 18th, 1873 (*H. S.*).

E Mus. C. A. Wright.

a, ♀. Salini, Malta, May 27th, 1874 (*C. A. W.*).

CYPSELUS UNICOLOR.

(MADEIRAN SWIFT.)

Cypselus murarius, Heineken, in Brewst. Journ. p. 232 (1829, nec Wolf).*Cypselus unicolor*, Jard. Edinb. Journ. of Nat. & Geogr. Sc. i. p. 242, pl. vi. (1830).*Andorhina da serra*, Portuguese.*Figuræ notabiles.*Jardine, *l. c.*; Jardine & Selby, Ill. of Orn. ii. pl. 83.

♂ *Cypselo apodi* similis, sed minor, corpore nigricanti-fuliginoso, in corpore suprâ vix viridi nitente: gulâ pallidiore, abdomine leviter fuscescente albido fasciato: caudâ valdè furcatâ.

Adult Male (Madeira, 27th June). In coloration resembling *Cypselus apus*, but considerably smaller in size, having a more deeply forked tail, and on the underparts of the body slightly barred with dull brownish white; throat but little lighter than the rest of the underparts; bill, feet, and iris as in *Cypselus apus*. Total length about 5·5 inches, gape 0·6, wing 5·8, tail 3·1, outermost rectrices 1·05 longer than the central ones, tarsus 0·4.

Adult Female (Teneriffe). Undistinguishable from the male.

THIS is certainly one of the rarest of the Swifts, being met with only in the islands off the west coast of Africa, and thus only just comes within the limits of the Western Palæarctic Region. It occurs commonly at Madeira and on the Canaries; and Messrs. Webb and Berthelot (Orn. Can. p. 24) say that they found it common on Teneriffe, and when they had ascended the Peak of Teneriffe they observed that numbers were flying over the crater, apparently undisturbed by the clouds of warm sulphurous vapour which were rising continually into the air. They feed on Arachnidæ, of the genus *Phalangium*, which are found in that locality. Mr. F. DuCane Godman (Ibis, 1872, p. 170) says that it appears to be equally common with the Pallid Swift both in Madeira and the Canaries, where it frequents chiefly the high land, while its congener is most abundant near the sea, whence the latter has received the name of "Andorhina do mar," while the former is called "Andorhina da serra." Dr. C. Bolle says (J. f. O. 1857, p. 323) that he saw them sailing above the town of Santa Cruz on the 16th February and throughout the spring, but not in large numbers. On the 10th March, whilst walking on the coast near the castle of Paso, in the dusk of the evening, he saw and heard a pair which were flying round the rugged cliffs like Bats, every now and then dropping like a stone nearly to the surface of the sea, and suddenly rising again. He remarks that in bad weather he has seen them flying quite low like Swallows, and that their note is wild and harsh, but not so shrill as that of *C. apus*. "It is nowhere wanting," he says, "in Teneriffe and Canaria, and may be seen sailing over the fir-groves of Chasna and Higueste, and especially numerous on the Cumbra of Canaria, where it frequents

the honeycombed rocks, from which it emerges in flocks like a swarm of bees. In September they had all disappeared from Teneriffe, and probably it wanders to the Cape-Verd Islands in winter."

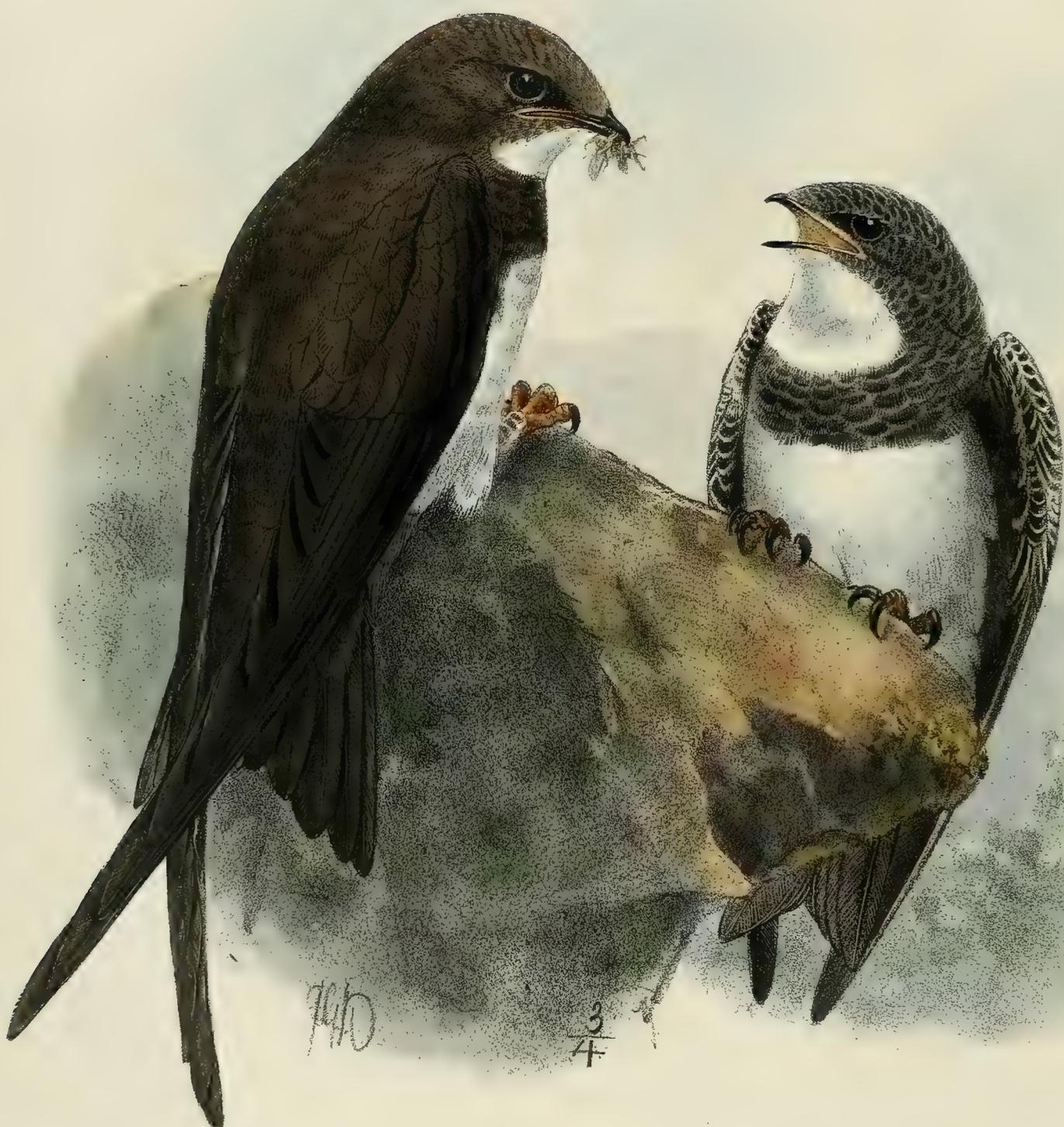
I have never seen the eggs of this species; nor do I know of any collection in which they are. It breeds in the most inaccessible rocks; and hence its nest is difficult to obtain. It is said to breed in May or late in April, as Messrs. Webb and Berthelot heard the young birds calling in a fissure of the rock in the Barranco de Martianez early in May, but could not succeed in getting at the nest.

The specimens described are the only two I have examined, the male being the specimen figured on the same Plate with the Pallid Swift.

In the preparation of the above article I have examined the following specimens:—

E Mus. Salvin and Godman.

a, ♂ *ad.* Madeira, June 27th, 1871. *b*, ♀. Teneriffe, April 23rd, 1871 (*F. D. Godman*).



Milner Bros. unj

WHITE-BELLIED SWIFT.
CYPSELUS MELBA

CYPSELUS MELBA.

(WHITE-BELLIED SWIFT.)

- Greatest Martin, or Swift*, Edw. Nat. Hist. Birds, pl. 27 (1747).
Hirundo melba, Linn. Syst. Nat. i. p. 345 (1766, ex Edwards).
Hirundo alpina, Scop. Ann. i. Hist. Nat. p. 166.
Le grand martinet à ventre blanc, Mont. Hist. Nat. Ois. vii. p. 316 (1783).
Le Martinet à gorge blanche, Levaill. Ois. d'Afr. v. p. 143, pl. 243 (1806).
Micropus alpinus, Wolf, Taschenb. Deutsch. Vogelk. i. p. 282 (1810).
Cypselus melba, Illig. Prodr. Syst. Mamm. et Av. p. 230 (1811).
Hirundo gularis, Steph. in Shaw's Gen. Zool. x. p. 99 (1817).
Cypselus gutturalis, Vieill. Tabl. Encycl. p. 534 (1822).
Cypselus alpinus (L.), Meyer, Taschenb. Deutsch. Vogelk. iii. p. 255 (1822).
Cypselus melbus (L.), Vieill. Galerie des Ois. i. p. 192, pl. 121 (1825).
Cypselus alpinus (Scop.), C. L. Brehm, Vög. Deutschl. p. 134 (1831).
Cypselus melba (L.), id. tom. cit. p. 134 (1831).
Micropus melba (L.), Boie, Isis, 1844, p. 165.
Micropus gutturalis (Vieill.), id. tom. cit.
Cypselus fuscicollis, L. Brehm, Naumannia, 1855, p. 270.
Cypselus melba alpinus, A. E. Brehm, Verz. Samml. C. L. Brehm, p. 3 (1866).
Cypselus melba fascicollis, id. ut suprâ (1866).
Cypselus melba microrhynchus, id. ut suprâ (1866).

Alpine Swift, White-bellied Swift, English; *Martinet à ventre blanc*, French; *Alpensegler*, German; *Avion*, Spanish; *Andorinhão gaivão, ferreiro*, Portuguese; *Rundun ta Zaccubaida*, Maltese; *Randone di mare, Rondone maggiore*, Italian; *Stresh Kamenny, Belobruhey Stresh*, Russian.

Figuræ notabiles.

Edwards, *loc. cit.*; Levaillant, *loc. cit.*; Werner, Atlas, *Chélidons*, pl. 5; Kjærb. Orn. Dan. taf. xiv.; Fritsch, Vög. Eur. taf. 13. fig. 4; Naumann, Vög. Deutschl. taf. 147. fig. 1; Bechstein, Orn. Taschenb. taf. 18; Gould, B. of Eur. pl. 53. fig. 2; id. B. of G. Brit. ii. pl. iv.; Roux, Orn. Prov. pl. 146; Bettoni, Ucc. Lomb. tav. 64.

Ad. corpore suprâ fusciscenti-murino, plumis nonnullis vix pallidiore marginatis: remigibus et rectricibus sordidè fuscis: capitis lateribus dorso concoloribus sed saturatoribus: ante oculum maculâ nigrâ: gulâ et gutture abdomineque albis, torque pectorali fusco, plumis vix albido marginatis: hypochondriis, subalaribus et subcaudalibus sordidè fuscis vix albido apicatis: rostro nigricante: iride brunneâ: pedibus pallidè brunneis.

Juv. adulto similis, sed grisescentior et paullo saturator: plumis in corpore suprâ albido marginatis.

Adult Male (Malta, 22nd April). Upper parts mouse-brown, with a faint metallic gloss in some lights, some of the feathers on the back having a scarcely perceptible lighter margin; quills and tail dull dark brown; chin and throat white, in front of the eye a black spot; sides of the head and neck, and a broad band across the breast, similar in colour to the upper parts, but rather darker, and some of the feathers having narrow whitish margins; abdomen pure white; flanks, under wing-coverts, and under tail-coverts dull mouse-brown, most of the feathers having whitish margins on the terminal portion; tarsus covered on the front with brownish feathers; bill blackish; iris dark brown; feet dull yellowish brown. Total length to the tip of the tail about 8·5 inches, bill from gape 1·0, wing 8·7, tail 3·8, tarsus 0·6.

Female. Similar to the male.

Young fresh-fledged (Bern). Much greyer and rather darker than the adult bird, almost all the feathers where the plumage is not white edged with white. In this specimen the wings scarcely extend beyond the tip of the tail, and on the lower part of the abdomen there are remains of down.

Nestling. M. Fatio describes the nestling as being covered entirely with grey down, like a young Raptor.

Obs. I have carefully compared two specimens from South Africa in Canon Tristram's collection with my series of European examples, and can find no specific difference. It appears, however, that these two birds have the dark band on the breast a trifle broader than the average of my specimens.

THIS, the largest of our European Swifts, is found in Central and Southern Europe (occasionally straggling as far north as Great Britain), Asia as far east as India, and Africa as far south as the Cape of Good Hope. Throughout Europe it is a summer visitant, migrating southward at the approach of winter to return again to its breeding-haunts in the spring.

As a rare straggler it has been met with in Great Britain; Yarrell (*Brit. Birds*, ii. pp. 276, 277) records the following occurrences, viz.:—one, shot early in June 1820, at Kingsgate, in the Isle of Thanet; one near Buckenham church, Norfolk, in September 1831; one Rathfarnham, Ireland, early in March 1833; one Saffron Walden, in Essex, in July 1838; one off Cape Clear, on the south-west point of the coast of Ireland; one Oakingham, 8th October 1841; one Dover, 20th August, 1830; and one St. Leonards, in October 1851. Besides these Mr. Harting enumerates many other instances of its having been seen or obtained, but chiefly the former. Mr. Stevenson, in referring to the above-mentioned record of its occurrence in Norfolk, says that the specimen was obtained in September 1831, and not, as Yarrell states, in October. It does not appear ever to have occurred in Scotland; but Thompson (*B. of Ireland*, i. p. 418) says that, besides the specimen shot at Rathfarnham, one was obtained at Castle Warren, near Doneraile, in June 1844 or 1845.

It has not been recorded from Norway or Sweden, but has been met with in Denmark on one occasion; for Kjærbölling states that Mr. Schade picked one up dead on the 17th June, 1804, at Lödderup church, on the island of Mors. In Germany its range is restricted to the mountains, and only as a straggler is it met with elsewhere. Borggreve says that it has once been killed in Mecklenburg, but doubts the correctness of statements to the effect that it has occurred in Thuringia. He further says that Ratzeburg observed it on several occasions at Heligoland, where several specimens have been obtained. Dr. Girtanner (*Ber. St.-Gall. naturw. Gesells.* 1867, p. 106) says that stragglers have been found near Offenbach, Coburg, and Berlin, but that

it has not been known further north than Ehrenfels, in Würtemberg. In France it occurs in the alpine regions, and is found every season in the mountains of Dauphiné, Savoy, the Alps, and the Pyrenees, and on its migrations is obtained in the intervening districts. In Portugal it is by Professor Barboza du Bocage said to be common; and Dr. E. Rey (J. f. O. 1872, p. 142) observed it near Villa do Bispo in April. In Spain, according to Mr. Howard Saunders (Ibis, 1871, p. 68), it arrives in March, and breeds in colonies in the mountains, notably near Alora. Dr. Brehm met with it at Montserrat; and Mr. A. von Homeyer observed it in the Balearic Islands in the month of April, when they were migrating. The Alps appear to be the true home of the present species in Europe; Dr. Girtanner says (*l. c.*) that there are colonies in all the more lofty mountains of Switzerland, but it appears to be most numerous in Canton Wallis. He says that in Freiburg, Bern, and Burgdorf, which are more distant from the mountains, it breeds in the towers and other old buildings; but this is not the case in towns near the mountains. There are many colonies in the Swiss Alps. Tschudi refers to such colonies at Oberhasli, Gemmi, Pletschberg, and in the rocks of the Entlibuch. Fatio says there are breeding colonies in the Urbachthal, in Canton Bern, and in the Héremancethal, in Canton Wallis; and Dr. Girtanner himself says that there are similar ones in Graubündten, in the Appenzeller mountains, and in the Sentisgebirg. In Italy it occurs in most localities where there are heavy rocks; and in the island of Sicily numbers breed every year, which are recruited by new arrivals during the seasons of migration. Salvadori (J. f. O. 1865, p. 130) says that many inhabit the mountains of Sardinia during the summer, migrating southward in September.

At Malta, according to Mr. C. A. Wright (Ibis, 1864, p. 58), it is "much less common than its congener. A few are annually seen in spring and autumn; but it makes no lengthened stay, and does not breed here. Mr. Tristram and Mr. Medlycott found it breeding in the island of Sardinia in May, in company with the Lesser Kestrel (*Falco cenchris*)." Lord Lilford says (Ibis, 1860, p. 234) that it "arrives in May in great numbers in Corfu, and remains till the end of September. Several pairs breed annually in the citadel-rock." According to Lindermayer and Von der Mühle it arrives in Greece in May, and is a common summer resident; being considered good for the table, great numbers are, Von der Mühle says, sold in the markets in Greece. Dr. Krüper found it breeding on the island of Naxos; and it appears to be generally a tolerably common species on the rock-bound coasts of the Mediterranean during the breeding-season. In Southern Germany it is rare; and my friend the Ritter von Tschusi-Schmidhofen informs me that it breeds in the mountains of Upper Austria, Salzburg, Tyrol, Kärnthen, Dalmatia, and in the coast-regions, but is rare in Siebenbürgen. When they arrive, and when they collect to leave, they are met with for several days in the plains, and are also seen there during rainy weather. Messrs. Elwes and Buckley say (Ibis, 1870, p. 200) that they observed several flying round the tower of Galata, in Constantinople, in April; and Mr. G. C. Taylor (Ibis, 1872, p. 230) states that it was "abundant in the Crimea, breeding in the cliffs. They were constantly to be seen flying in flocks over and about the camp; near St. George's Monastery was a great resort for them. Plentiful as they were, it so happened that I was never able to secure a specimen. I also saw them at Koslou. In Constantinople they are common, and may be seen any summer's day wheeling about the Galata tower." Von Nordmann says that it is numerous in the mountainous portions of the Crimea as well as in similar localities on the eastern side of the Black

Sea. Mr. Sabanäeff informs me that it is occasionally met with in the Keshtem, Ufaley, and Uraim (Niejepetrovsk) Ural, sometimes ranging as far as the Kaslinsky Ural, and probably occurs in the Zlatoustovskaya Dacha. Ménétries met with it about sixty versts from the Caspian; and Canon Tristram records it from Palestine as very abundant in localities, but rather a local species, and further states (Ibis, 1865, p. 79) that "there are large colonies in all parts of the country up to the highest ranges of the Lebanon."

In Africa it is found as far south as the Cape of Good Hope. In North-east Africa Captain Shelley speaks of it (B. of Egypt, p. 171) as being "a rare bird of passage in Egypt and Nubia, only met with in the more mountainous parts during the autumn and spring. Mr. Blanford met with it in Abyssinia, where he did not see it in the highlands; but many appeared in the Anseba valley at the end of July, none being seen before the 25th. In North-western Africa it is, according to Loche, common during migration in the province of Constantine, but it only occasionally visits Algiers and Oran. Mr. Taczanowski saw it in the month of March, two days' journey south of Constantine. Mr. O. Salvin says (Ibis, 1859, p. 302) that it "is more commonly seen about the plains of the Salt Lake district than in the more mountainous parts of the country, though in the latter it is by no means of infrequent occurrence. At Kef Laks I was vain enough to attempt to shoot some specimens on a windy day; though they frequently came within shot, their pace was so great, that I totally failed in my object, and only succeeded in firing my gun two or three times. The Alpine Swift breeds in most of the rocks of the country; but I did not procure any of its eggs." Canon Tristram states that it breeds in the cliffs and mosque-towers, and retires southward in the winter; and Mr. C. F. Tyrwhitt Drake, in his paper on the ornithology of Tangier and Eastern Morocco (Ibis, 1867, p. 425), records it as only seen on passage. In Southern Africa it is recorded by Mr. Andersson, who writes (B. of Damara Land, p. 46) that he "observed at Objimbinque a large flight of these Swifts, which, to the best of my recollection, were the first I ever saw in Damara Land. Subsequently I observed immense numbers in various places, and particularly noted them as very numerous on the Omaruru river on the 2nd November;" and Mr. Layard (B. of S. Afr. p. 49) says that it "is very abundant about Cape Town. I have seen it at the Knysna, and have received it from a valued correspondent at Swellendam, William Cairncross, Esq., who has sent it with several other Swifts and Swallows killed in that neighbourhood. *C. melba* appears to reside principally in the mountains, only occasionally descending into the plains when some particular food is to be found. On the top of Table Mountain I have seen it in great abundance. Once, after lighting a fire there, I found myself surrounded by hundreds of them, hawking after the flies which the fire drove up. They dashed through the dense smoke and skimmed along the burning ground at the risk of singeing their wings. I never heard this species utter a note, even in company with *C. caffer*, screaming and chasing each other in a thousand airy evolutions."

To the eastward the present species is found to Western India. Severtzoff writes that it breeds throughout the whole western part of Turkestan, near the rivers Aris, Kalles, Chir-chik, the Syr Darja, and Kisil-cum. It is found breeding in the mountains, at an altitude of from 1000 to 8000 feet, being only found in the latter altitudes during the summer, whilst it winters up to about 4000 feet.

Dr. Jerdon says (B. of Ind. i. p. 175) that it is "not rare in the south of India all along the

range of Western Ghâts from Honore to Cape Comorin, extending its daily flights often to the western sea-coast, and occasionally eastwards to Salem, Madura, and Madras even. At times they are very abundant on the Neilgherries, and during the cold weather may generally be seen on the Malabar coast. I saw, on several occasions, large flocks of them flying eastward towards the sea from the rocky hills near Madura about sunset. On another occasion I saw, at midday, an enormous flock of them flying eastwards from the same range, a little south of Madura: these, however, were probably merely taking their ordinary rounds of a few hundred miles; but the others flying seaward at sunset, where were they bound for? I discovered one roosting-place of this Swift on the magnificent precipices at the falls of Gairsoppa. Here, especially on the cliffs on each side of the great fall, above 900 feet perpendicular height, these Swifts were congregated in vast numbers; and from the way in which some of them remained about the cliffs at all times of the day, I have little doubt but that they breed here. It is possible that all the Alpine Swifts that traverse the south of India, with such amazing speed, meet here nightly for roosting, and for breeding in their appointed season; or are there other similar places of resort for them along the chain of Western Ghâts? However this may be, my own impression, from long observation on the west coast of India, is that such of these Swifts as have been questing at great distances from their roosting-haunts, fly first towards the coast, and then make their way along the seaside, picking up stragglers from other regions on their way to the cliffs of Gairsoppa or other similar precipices. At Tellicherry I frequently saw them early in the morning along the sea-coast, always flying southwards." In his supplementary notes (*Ibis*, 1871, p. 354) he further says that he has occasionally seen it at Darjeeling. Herr von Pelzeln (*J. f. O.* 1868, p. 25) found it at Kotegurh during the winter; and Captain Elwes (*Ibis*, 1870, p. 527) says that he met with it in the Cardamum Hills of Travancore, where it was numerous at the highest elevations. It occurs in Ceylon, where Mr. Holdsworth (*P. Z. S.* 1872, p. 419) states that it is "probably a winter visitor. It is found in some abundance on the hills at that season, but is rather local in its distribution. I have seen it at Nuwara Eliya in the cold season; and it remains there several months, particularly frequenting some precipitous cliffs overlooking the plain on which the little town is built. In the afternoon fifty or sixty of these birds might any day be seen on the wing dashing past the hill-sides in pursuit of insects, or sweeping in wider circles at a considerable elevation." Mr. Swinhoe does not include it in his list of the birds of China; but Père David observed a large Swift in the highest mountains of Mongolia, which he believes to be this species, though he did not secure specimens.

The breeding-haunts of this Swift are in the mountains and rocky districts of the lower part of Central and in Southern Europe. They usually arrive from the south in April, and soon commence repairing their old nests or constructing fresh ones. The nest, which is placed in an old building, most frequently in a church-tower, or in a suitable cavity in the rocks, is constructed of small bents, leaves, and any thing that they can pick up without having to alight on the ground, and is worked together with the spittle of the bird itself, which secretes a sort of viscous semifluid spittle in considerable quantities, and like the rest of its allies uses it to glue or fasten together the various substances used in the construction of its nest. This latter is extremely small compared with the size of the bird. Dr. Girtanner (*Ber. St. Gall. naturw. Gesells.* 1867, p. 111) gives the size of the nest as 10–12 centimetres diameter, 4–6 centimetres height outside,

and 3 centimetres depth in the cup, and says that when a suitable place, on a beam in the niche of a wall or a cranny in a rock, is chosen the bird lays the foundation of straws, dry grass-bents, or leaves, which are heaped loosely or placed in a circle, then covered with spittle and worked together so firmly that often when the nest is taken a piece of wood must be taken with it; on this the lower walls of the structure are worked well to the foundation with spittle, and consist of coarser straws, and the sides are continued, and in case of need fastened to the place where the nest is built; the upper part of the nest consists of a close mass of grass, the husks of buds, feathers, with a few bits of paper and fine roots intermixed, and the form is made either round, or half round, or else as near round as possible, the materials being carefully glued together where necessary; and when stouter Swift-feathers are used, they are bent or broken into form. There is no further lining to the nest. M. Fatio remarks that this Swift not unfrequently makes use of Sparrows' eggs in working together the materials used in the construction of its nest, which give a yellowish tinge to the structure, and portions of the shells are worked in the nest. The eggs, which are usually from three to four in number, are deposited early in June, are pure white in colour, without any gloss, elongated in shape, tapering somewhat towards one end; and specimens in my collection from Bern Oberland measure from $1\frac{8}{40}$ by $\frac{29}{40}$ to $1\frac{8}{40}$ by $\frac{32}{40}$ inch.

They always, or almost always, build in colonies, generally a tolerably large number of birds living in the same colony. Like the common Swift the present species is noisy; and where it is found its harsh scream may continually be heard as it rushes pass at lightning speed in pursuit of its insect prey. It feeds exclusively on insects, which it catches on the wing, never picking any thing off the ground. Small winged insects, especially gnats, are said to form its staple food; and when feeding its young it collects them until they form a lump in its sticky gape, which it then takes to its young. Too swift on the wing to be molested by any bird of prey, it appears to be subjected to but little persecution, except in those parts of Southern Europe where every bird that flies is considered good for the table; and there it is frequently captured, killed, and sent to market. They are frequently caught by boys, who attach a feather to a hook and a very fine line and let it float through the air from the edge of a precipice to be snapped up by the bird when collecting materials for its nest. Dr. Girtanner says that the Alpine Swift is greatly troubled with parasites, and that its nest harbours all sorts of vermin. He gives a careful description (communicated to him by M. Fatio) of one of these parasites which dwells in the feathers covering the rump of the Swift, and which he calls *Anapera maxima*. Besides being infested with these, it is frequently much troubled with bird-lice. Like the common Swift the present bird is unable to raise itself from the level ground into the air, but once fallen it must remain there, unless indeed, as is said to occur, its comrades fly swiftly down and striking it assist it again into the air. It usually takes flight by pushing itself to the edge of any elevated place where it may be, and thus launches itself into the air. Some interesting notes on its habits were published by Canon Tristram, who writes (Ibis, 1866, p. 77), as follows:— "*Cypselus melba*, though very abundant in localities, is rather a local bird in the Holy Land. Unlike its congener, it is only a summer migrant, but returns earlier than the common Swift, *C. apus*. The first time we noticed it was at daybreak on February 12th, when, camped outside the walls of Jerusalem, we saw large flocks passing with amazing rapidity, at a great height, towards the north. A few days afterwards we noticed several of these birds among the

hills of Benjamin, disporting themselves and often descending near the ground. They were probably preparing to breed in some of the deep ravines which run down towards the Jordan. From that time, throughout the summer, we rarely lost sight for many days together of this noble bird. The Wady Hamam, opening into the plain of Gennesaret, was a favourite resort of large flocks, which bred in fissures of the stupendous cliffs, hopelessly beyond the reach of the most ardent rock-climber and nester. From their habit of selecting chinks under the overhanging ledges, it was impossible, even by the aid of ropes, to reach their holes; and could they have been attained, the pick and chisel must have been applied indefatigably to reach many of the nests. About daybreak they might be seen dashing in long lines with lightning speed down the ravine, and exercising themselves over the plain. At this time in the morning we were able occasionally to secure a specimen; but very soon they began to rise higher and higher, mingled with numbers of the two other species, till in the depth of that dark, blue, cloudless sky they were at last lost even to the keenest sight. Towards evening they began again to descend, and would fly lower than either of their associates, sometimes sweeping close to the ground—a habit which we never observed in *C. abyssinicus*. They would dash past us with bewildering swiftness. The sharp, grating sound of the whirr of their wings struck the ear for a moment; but the eye could scarcely follow them. However, as their flight was always remarkably straight, we were able to secure several specimens as they passed us. The motion of their long sharp wings was scarcely perceptible. Dr. Jerdon says that the flight of this Swift, though elegant and rapid, is not nearly so powerful as that of the two Spine-tailed species. If so, the speed of these latter must be a considerable improvement on the 'greased lightning' of American imagination. Near Safed we found a colony breeding in a much more accessible position, evidently having young in the middle of May. We obtained several specimens, but had neither time nor appliances to attempt their nests.

“Once only did we find this Swift breeding near the ground and in an accessible position; and then we had the vexation of actually touching the eggs without being able to take them. On the 2nd of May we had climbed to the summit of Jebel Jilad (Mount Gilead), overlooking the deep Jordan valley from the east side, one of the grandest panoramic views in Palestine. After standing for some time on a projecting platform of rock which forms the western brow of the mountain, we descended to examine the face of the cliff, and discovered three large and partly artificial caves immediately below us. They were a mass of fossilized ammonites; and while hammering away at these in one of the caves, out flew two Alpine Swifts, whose nest we soon discovered in a crevice about six feet above the floor of the cavern. The chink, which was about three inches in perpendicular diameter, was contracted by a plastering of very hard mud, which cost us some labour to work out. Inside, the cavity enlarged as it descended; and after scooping away the clay and portions of the rock with a small hammer, I was at length able to touch the two eggs with the tips of my fingers. Any thing for a scoop! A kingdom for a spoon! But in vain; and when we went up again to search for an available stick, we found our companions gone and out of sight in the forest. Grievous as was the disappointment, it would have been yet worse to be benighted in that wild and lawless region; and there was nothing for it but, while daylight served, to mount and follow the track of the horses as rapidly as we might. We never again met with an accessible nest. Indeed this was

- the only instance in which we observed *C. melba* breeding not in large colonies. Their roosting-places are few; but what matters this to a bird which can traverse the whole extent of the Holy Land in an hour? The bird does not appear to resort much to Hermon or the Lebanon, preferring the far more precipitous though lower cliffs which line the ravines running down to the Ghor. One other nesting-place we noticed, in a spot certainly selected with a view to the picturesque. Just above Afka (Aphek), where the ground is strewn with the marble shafts of the famed temple of Venus at Adonis, the classic stream of the Adonis bursts, full-grown at birth, in a prodigious volume, from the foot of a shallow cave under a lofty precipice. Here on the 18th June a colony of Alpine Swifts were busily engaged in feeding their young."

The note or scream of the present species resembles that of the common Swift, and is quite as harsh, but is much louder.

Dr. Girtanner obtained a pair of Alpine Swifts alive, together with their nest and four young, and gives (*l. c.*) some interesting details respecting them. He could, he says, only distinguish the male from the female by dissection after they had died, but not from outward appearance of plumage. The female refused to take food, and died in five days; but the male suffered itself to be fed, and lived three weeks. The young he kept alive, and killed one four months, the second five months, and the third six months after he received them, keeping the fourth until the following May. He says that when five weeks old the young birds closely resembled their parents, except that the dark feathers had white edges, which had disappeared entirely, except in the quill-feathers, in the following February. He remarks that the old birds never swallowed small portions of food, but waited until a tolerably large lump or ball was formed, when they bolted it, apparently with some slight difficulty. On the level ground they could, he says, push themselves along, but could not raise themselves and take wing. The young could never, even at the last, be taught to feed themselves, but had invariably to be fed. As cage-birds he does not recommend them, and ends by saying that they had far better be left to enjoy their freedom in the open air.

The specimens figured and described are from Switzerland and Malta, and are in my own collection. Full particulars as to locality &c. are given above.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, b. Southern Europe (*Cooke*). *c, ad.* Switzerland. *d, juv.* Bern, Switzerland (*Nager-Donazian*). *e, ♂.* Malta, April 22nd, 1868 (*C. A. Wright*). *f, ♂ juv.* Piedmont, September 1869 (*Salvadori*).

E Mus. H. B. Tristram.

a. Geneva. *b, ♂.* Forest of Bashan, Palestine, March 14th, 1864. *c, ♀.* Gennesareth, March 31st, 1864 (*H. B. T.*). *d, e.* South Africa (*Layard*).

E Mus. Salvin and Godman.

a. Turkey. *b, c, ♂.* Ain Djendeli, North Africa, May 18th, 1857 (*O. Salvin*).

E Mus. Howard L. Irby.

a, ♂, b, ♀. Gibraltar, April 12th, 1874 (*H. L. I.*).

Genus ACANTHYLLIS.

Hirundo apud Latham, Ind. Orn. Suppl. p. lvii (1801).

Acanthylis, Boie, Isis, 1826, p. 971.

Chætura apud Stephens in Shaw's Gen. Zool. xiii. pt. 2, p. 76 (1826).

Hirundapus apud Hodgson, J. As. Soc. Beng. v. p. 779 (1836).

Pallene apud Lesson, Compl. Buff. viii. p. 493 (1837).

Cypselus apud Delessert, Mag. Zool. 1840, Ois. pl. 20.

Hemiprocne apud Struebel, Isis, 1848, p. 362.

Acanthyllis apud Salvin, Gen. Index to Ibis (1879).

THE Spine-tailed Swifts, which differ chiefly from the common Swifts in having a short even tail with the feathers tipped with sharp spines, inhabit the Palæarctic, Oriental, and Australian Regions, only one species occurring, as a rare straggler, in the Western Palæarctic Region; and several species belonging to the very closely allied (if distinct) genus *Chætura* inhabit the Nearctic and Neotropical Regions.

In general habits the species belonging to the present genus closely resemble *Cypselus*, but they are even swifter on the wing, and are seldom seen to rest. They are said to construct agglutinated nests in hollow trees, like the American Chimney-Swallow, and to lay elongated white eggs.

Acanthyllis caudacuta, the type of the genus, has the bill as in *Cypselus*, the wings very long, narrow, and pointed, considerably exceeding the tail in length, the tail short, even, the feathers terminated by long sharp spines; the feet as in *Cypselus*, but rather stronger, the tarsus bare in front and non-scutellate; claws strong, large, curved, acute.



Hanhart imp

NEEDLE TAILED SWIFT.
ACANTHYLLIS CAUDACUTA.

J.G. Keulemans del.

ACANTHYLLIS CAUDACUTA.

(NEEDLE-TAILED SWIFT.)

- Hirundo caudacuta*, Lath. Ind. Orn. Suppl. p. lvii. (1801).
Hirundo ciris, Pallas, Zoogr. Rosso-As. i. p. 541. no. 160 (1811).
Hirundo fusca, Steph. in Shaw's Gen. Zool. x. p. 133 (1817).
Chætura australis, Steph. in Shaw's Gen. Zool. xiii. pt. 2, p. 76 (1826).
Chætura fusca, Steph, ut suprâ (1826).
Acanthylis (Hirundo spinicauda, Temm.), Boie, Isis, 1826, p. 971.
Chætura macroptera, Swains. Zool. Ill. 2nd ser. i. pl. 42 (1829).
Chætura nudipes, Hodgs. J. A. Soc. Beng. v. p. 779 (1836).
Hirundapus, Hodgs. (*Chætura nudipes*), tom. cit. p. 780 (1836).
Pallene, Less. (*Cypselus giganteus*, Temm.), Compl. Buff. viii. p. 493 (1837).
Cypselus leuconotus, Delessert. Mag. Zool. 1840, *Ois.* pl. 20.
Acanthylis caudacuta (Lath.), G. R. Gray, Ann. Nat. Hist. xi. p. 194 (1843).
Pallene macroptera (Swains.), Boie, Isis, 1844, p. 168.
Pallene caudacuta (Lath.), Boie, ut suprâ.
Pallene leuconota (Deless.), Boie, ut suprâ.
Acanthylis nudipes (Hodgs.), G. R. Gray, Gen. of B. i. p. 55 (1845).
Hemiprocne leuconotus (Deless.), Struebel, Isis, 1848, p. 362.
Chætura caudacuta (Lath.), Gould, Handb. B. Austr. i. p. 103 (1865).
Hirundapus nudipes (Hodgs.), Gould, Handb. B. Austr. i. p. 103 (1865).
Hirundapus caudacuta (Lath.), G. R. Gray, Hand-l. of B. i. p. 67. no. 770 (1869).
Hirundapus nudipes (Hodgs.), G. R. Gray, tom. cit. p. 67. no. 770 (1869).
Hirundapus ciris (Pall.), G. R. Gray, tom. cit. p. 67. no. 771 (1869).
Acanthyllis caudacuta (Lath.), Newton, Proc. Zool. Soc. Jan. 6, 1880.

*Figuræ notabiles.*Swainson, *l. c.*; Delessert, *l. c.*; Gould, B. of Austr. pl. x.

Ad. fronte, mento et gulâ albis: pileo, nuchâ et capitis lateribus nigricantibus viridi-cæruleo nitentibus: dorso et uropygio fuscis, illo centraliter fusco-albido: supracaudalibus et caudâ nigris viridi nitentibus, rectricum scapis versus apicem nudis et acuminatis: alis nigris viridi-cæruleo nitentibus, secundariis intimis in pogonio interno albis: pectore et abdomine fuliginoso-fuscis, hypochondriis imis albo et nigro immixtis, crisso et subcaudalibus albis: rostro nigro: pedibus livido-purpureis: iride fuscâ.

Adult Male (Himalayas). Forehead white; crown, nape, and sides of the head dusky black glossed with bottle-green, back and rump brown, darkest on the sides of the back and on the lower rump, becoming pale whity brown on the centre of the back; upper tail-coverts and tail black glossed with bottle-green, the latter with the terminal portions of the shafts naked and pointed, forming spinous tips; wings black glossed with bottle-green, the innermost secondaries with the inner webs white; chin, throat,

vent, and under tail-coverts pure white, rest of the underparts sooty brown, but the lower flanks are white mixed with glossy blue-black; bill black; legs livid purplish; iris deep brown. Total length about 8·5 inches, gape 0·75, wing 8·1, tail 2·4, tarsus 0·7.

Adult Female. Resembles the male, but is rather smaller in size.

THIS Swift, one of the larger species of the genus, inhabits Asia, ranging south to Australia, and has only, so far as I can ascertain, occurred twice in the Western Palæarctic Region—on both occasions in Great Britain. At first I was undecided as to the propriety of including it, as it had only been once killed; but now that a second example, undoubtedly genuine, has been obtained, there can be no question that it ought to be included; besides, as it breeds in the same districts as the Yellow-browed Warbler, which has been frequently obtained in Europe, it is the more probable that it will again be met with here. The first example was shot at Great Horkesley, near Colchester, on the 8th July 1846, and was examined in the flesh by Yarrell, Doubleday, and others; and the second, which was accompanied by another bird of the same species, was obtained near Ringwood, in Hampshire, in July 1879, was exhibited at the meeting of the Zoological Society on the 6th January, 1880, by Professor Newton; and I then had an opportunity of personally examining it, which I did most carefully, and am quite satisfied as to its genuineness.

The true summer home of this species is in North-eastern Asia; and it winters in Australia.

According to Von Schrenck (Vög. Amurl. p. 252), it occurs in considerable numbers, and regularly, in the Amoor, remaining there from May to July. Maack obtained it on the 24th May, O. S., on the Upper Amoor, near the mouth of the Oldoi, and on the 8th (20th) June between the mouths of the Sungari and Ussuri, when he shot five. Von Schrenck himself saw large numbers on the 22nd July, O. S., on the Lower Amoor, near the mouth of the Pächssa, in 49° N. lat., and in the following summer, on the 6th (18th) July, near the mouth of the Ussuri. He remarks that he never saw one settle on a tree or rock, though they often pass close to them. Pallas and Dr. Radde met with it in South-east Siberia; and, according to Steller, it nests in rocks on the banks of the Angara in June, July, and August. Dr. Radde writes as follows:—"I first met with this bird on the 12th August 1859, on the elevated ridge which separates the Kaja valley, near Irkutsk, from the Angara valley; and I recognized it by its flight, and more especially by the white on its flanks. Here these Swifts were generally observed towards evening in large numbers, flying very close to the ground. I did not, however, observe them during my hunting-expeditions in the spring of 1855; and in the Bureja Mountains I looked in vain for it in the summer of 1857; nor did it appear in the elevated Sabbatsch plateaux until the latter part of August, and disappeared again altogether on the 1st of September. It appeared to be then migrating towards the south-east; but in the summer small parties are seen flying about: and they are then not always observed in steep rocky localities; for on several occasions I saw individuals on the open plains which are situated between the Sungari and the Ussuri. Above the Bureja Mountains I found them most abundant on the eastern slope of the Chingan Mountains, where I usually saw them on the lowlands, which were covered with lofty pines. Here they frequented clearings, and in flying about seemed to follow regular aerial paths, time after time in succession, threading their way through the umbrella-shaped crowns of the pine trees. On the banks of

the Schilka I first observed it on the 23rd of May 1857, about 200 versts above Ust-Strelka; but I did not meet with it in Russian Dauria, though I looked out most assiduously for it near Zagan-olui, which locality is much frequented by *Cypselus apus*. It occurs singly in the lowlands of Tunkinsk, where it was first seen on the 10th May 1859, and also in the pine-forests; but few seemed to have then arrived, and on the Naragun brook (ten versts north-east of the Tunka village), where it is said to breed, none had put in an appearance."

Colonel Przevalsky, who records this Swift from Mongolia, writes in his notes on the birds of Mongolia (in Rowl. Zool. Misc.):—"We met with a few specimens on the autumnal migration in S.E. Mongolia, at the northern bend of the Hoang-ho. It does not occur in Kansu; . . . but it goes as far north as Irkutsk, and a specimen obtained there is now in the Irkutsk Museum. It is tolerably common in the Ussuri country, and breeds in the cliffs on the shores of rivers, and in hollow trees. It appeared to me to be most numerous on the forest-clad hills around Lake Hanka. Usually several pairs breed in close proximity to each other; and during the nesting-season (in May) the males, like our Swifts, chase the females on the wing, describing all sorts of circles in the air, uttering a weak note, which is more like that of the Swallow than our Swift. In the Ussuri country this Swift arrives at the end of April, and in Mongolia a week or two later. When migrating they do not form compact flocks, but fly at short distances from each other, and very close to the ground; and we saw them leave Mongolia in the autumn in this way. Their departure from the southern parts of Ussuri occurred in the end of August, some, however, remaining as late as the beginning of September. The principal migration took place on the 9th September, when we saw an almost uninterrupted flock of them passing above our heads during nearly a whole day. They were migrating in company with *Cypselus pacificus*."

Mr. Swinhoe records it (*l. c.*) as found in the south of China; Père David says that when in Moupin he saw numbers circling at a great altitude, and he likewise met with it in the mountains in the north of China. It is also found in Japan. Captain Blakiston sent examples to Mr. Swinhoe, which were obtained in August and September at Hakodadi; and Messrs. Blakiston and Pryer say (*Ibis*, 1878, p. 231) that it is found in the Nikko Mountains, and is common in Yezo in the summer. Dr. Jerdon, who records this Swift as found in India, says that it has only been found in the south-eastern portion of the Himalayas, in Nepal, Sikkim, and Bhotan. He frequently saw it near Darjeeling (often in the station itself), at Kursion, and other places in Sikkim. Tickell also met with it at Darjeeling, and Hodgson in the northern regions of Nepal. There is also another species in the Himalayas, *Acanthyllis indica* (Hume), which is of about the same size as the present species, but is easily distinguishable by its much darker upper parts, and by having the throat brown and not white, the chin only being dull brownish white, and the spiny tips to the tail-feathers very much longer than in *Acanthyllis caudacuta*.

The present species does not appear to have been met with in the Philippines; but Von Rosenberg records it from Southern New Guinea, and it is tolerably common in Australia. Mr. Gould says (*l. c.*):—"This Swift is a summer visitant to the eastern portions of Australia, proceeding as far south as Tasmania; but its visits to this island are not so regular as to New South Wales. During the months of January and February it appears in large flocks, which, after spending a few days, disappear as suddenly as they arrive. I am not aware of its having

been observed in Western Australia; neither has it occurred in any of the collections formed at Port Essington, although it doubtless pays that colony passing visits during its migrations."

The present species and *Acanthyllis gigantea* are said to be the swiftest birds in existence. Tickell says that he never witnessed any thing equal to the prodigious swiftness of its movements; and he also remarks that it frequently changes its ground, being seldom seen for two days together in the same spot. It is generally seen on the wing, and is evidently capable of traversing immense distances without resting; hence its range is very extensive. Von Schrenck observes that, though he frequently watched these birds for a long time, he never saw one settle on a branch or cliff, though they often passed close to them during their aerial evolutions. Mr. Gould, speaking of its habits as observed by him in Australia, says (Handb. B. Austr. i. p. 104):—"The keel or breast-bone of this species is more than ordinarily deep, and the pectoral muscles more developed than in any bird of its weight with which I am acquainted. Its whole form is especially and beautifully adapted for extended flights; hence it readily passes from one part of the world to another, and, if so disposed, may be engaged in hawking for flies on the continent of Australia at one hour, and in the next be similarly employed in Tasmania.

"So exclusively is this bird a tenant of the air, that I never, in any instance, saw it perch, and but rarely sufficiently near the earth to admit of a successful shot: it is only late in the evening and during lowery weather that such an object can be accomplished. With the exception of the Crane, it is certainly the most lofty as well as the most vigorous flier of the Australian birds. I have frequently observed in the middle of the hottest days, while lying prostrate on the ground with my eyes directed upwards, the cloudless blue sky peopled at an immense elevation by hundreds of these birds, performing extensive curves and sweeping flights, doubtless attracted thither by the insects that soar aloft during serene weather; on the contrary, the flocks that visit the more humid climate of Tasmania, necessarily seek their food near the earth."

So far as I can ascertain, there are no authentic details on record respecting the nidification of the present species; but it is said to nest in rocks, and to build gelatinous nests. Dr. Radde says, however, that he was assured by the Buriats of Siberia that this Swift builds its nest in hollow pine trees—which may very possibly be correct, as its small American ally, *Chaetura pelasgia*, certainly builds a nest of twigs, cemented together with a tough gelatinous substance, which it places in hollow trees. Mr. Swinhoe, writing respecting the Needle-tailed Swift, remarks (Ibis, 1870, p. 90), "A Chinese work on the island of Hainan, in its list of birds, mentions a large species of Swallow, 'as big a Dove,' which makes its nest in the caves of certain small islands off the southerly coast of Hainan. It adds that, in autumn, when the birds desert their nests, the nests are collected and sold for food, and that epicures esteem them much more highly than those imported from the Straits of Malacca. The builders of such nests must surely be this large Spine-tailed Swift. We passed close to some of these islands, but looked in vain for the birds. They had not yet returned to their breeding-places. None of the nests were to be purchased in the various markets we visited in Hainan towns; but out of a pirate the gunboat captured, off Lingshuy, we took a parcel of rather large gelatinous nests, which possibly were collected from the neighbouring island rocks; but we could procure no satisfactory evidence to show that they were. I therefore was forced, with much reluctance, to abandon the determina-

tion of this interesting question to the next adventurer who has the good fortune to go over my ground.”

Mr. G. R. Gray (Gen. of B. i. p. 55, footnote) states that the generic term *Chætura* has been preoccupied, and he therefore uses that of *Acanthylis* (or, more correctly, *Acanthyllis*), a genus of grasses having been called *Chæturus*; but in 1826 it was the practice (since abandoned) not to admit the same name in both botany and zoology; and though, according to the rules now in force, *Chætura* could be used, yet it appears to me more advisable to adopt the generic name *Acanthyllis*, which was given in the same year as *Chætura*; I have accordingly done so.

The specimen figured is one I received with a few other birds from the Himalayas, without any particulars as to precise locality or date of capture.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Himalayas.

E Mus. H. Seebohm.

a, ♂. Amoy, China, 1856 (*R. Swinhoe*).

E Mus. Brit. Reg.

a. India. *b*, *c*. Simla, India. *d*. Nepal (*Hodgson*). *e*. Amoor. *f*. Australia.

Family CAPRIMULGIDÆ.

Genus CAPRIMULGUS.

Caprimulgus, Brisson, Orn. ii. p. 470 (1760).

Hirundo apud Pallas, Zoogr. Rosso-As. i. p. 542 (1811).

Nyctichelidon apud Rennie in Mont. Orn. Dict. 2nd ed. p. 335 (1831).

THE Goatsuckers are certainly more closely allied to the Swifts than any other group; and I have therefore decided to place these two families in an order by themselves. Members of the family are found nearly all over the world; and the genus *Caprimulgus* inhabits the Palæarctic, Ethiopian, Oriental, and Australian Regions, three species being found in the Western Palæarctic Region.

These birds are peculiar in being nocturnal in their habits, but seldom flying about during the daytime, when they hide away in some well-sheltered place, which, as soon as the shades of evening set in, they leave and commence searching after their insect food. They feed entirely on nocturnal insects of various kinds, which they usually capture on the wing. Their flight is light, rapid, and noiseless. They are migrants, leaving for warmer climes early in the autumn. Their note is peculiar, being whirring, resembling the sound of a spinning-wheel; and they also utter a shrill whistle. They deposit their eggs, two in number, on the ground, making no regular nest. The eggs are elongated, dull white in colour, clouded with purplish grey and brown.

Caprimulgus europæus, the type of the genus, has the bill very short, feeble, much depressed, broad at the base, the tip narrow and deflected; nostrils elliptical; mouth extremely wide, the gape furnished with stiff bristles; wings very long, the second quill longest; tail long, slightly rounded; feet small, tarsus partially feathered; anterior toes webbed at the base, the centre one much the longest; claws small, curved, compressed, that of the middle toe proportionally longer, curved outwards, and pectinate on the thin inner edge; plumage very soft and blended.



J. Gould del.

Milner. Prosc. imp.

COMMON NIGHTJAR.
CAPRIMULGUS EUROPEUS

CAPRIMULGUS EUROPÆUS.

(COMMON NIGHTJAR.)

- Caprimulgus*, Brisson, Orn. ii. p. 470, pl. 44 (1760).
Caprimulgus europæus, Linn. Syst. Nat. i. p. 346 (1766).
Caprimulgus punctatus, Wolf, Taschenb. deutsch. Vogelk. i. p. 284 (1810).
Hirundo caprimulgus (L.), Pall. Zoogr. Rosso-As. i. p. 542 (1811).
Caprimulgus vulgaris, Vieill. Faun. Franç. i. p. 140 (1828).
Caprimulgus maculatus, C. L. Brehm, Vög. Deutschl. p. 131 (1831).
Nyctichelidon europæus (L.), Rennie, in Mont. Orn. Dict. 2nd ed. p. 335 (1831).
Caprimulgus maculatus, C. L. Brehm, Vogelf. p. 44 (1855).
Caprimulgus foliorum, C. L. Brehm, ut suprâ (1855).
Caprimulgus europæus maculatus, A. E. Brehm, Verz. Samml. C. L. Brehm, p. 3 (1866).
Caprimulgus europæus punctatus, A. E. Brehm, ut suprâ (1866).
Caprimulgus europæus punctorum, A. E. Brehm, ut suprâ (1866).
Caprimulgus europæus foliorum, A. E. Brehm, ut suprâ (1866).
Caprimulgus europæus peregrinus, A. E. Brehm, ut suprâ (1866).

Fern-Owl, Night-Hawk, Goatsucker, Nightjar, Churn-Owl, Dor-Hawk, English; *An t'seabhag-oidhche*, Gaelic; *Engoulevent ordinaire*, French; *Crapô-volant*, in Savoy; *Noitibo*, Portuguese; *Papa-vientos*, Spanish; *Bukrak*, Maltese; *Succiacapre, Nottolone*, Italian; *Ziegenmelker, Geissmelker, Tagschläfer, Nachtschwalbe*, German; *Geitenmelker, Nachtzwaluw*, Dutch; *Natteravn, Natskade*, Danish; *Nattskärra*, Swedish; *Natteravn*, Norwegian; *Kehräjä*, Finnish; *Kozodoy polunotchnik*, Russian.

Figuræ notabiles.

D'Aubenton, Pl. Enl. 193; Werner, Atlas, *Chélidons*, pl. 7; Kjærbo. Orn. Dan. taf. xiv.; Frisch, Vög. Deutschl. taf. 101; Fritsch, Vög. Eur. taf. 13. fig. 1; Naumann, Vög. Deutschl. taf. 148; Sundevall, Sv. Fogl. pl. xxi. fig. 2; Gould, B. of Eur. pl. 51; id. B. of G. Brit. ii. pl. 1; Schlegel, Vog. Nederl. pls. 61, 62; Roux, Orn. Prov. pl. 147; Bettoni, Ucc. Lomb. tav. xv.

♂ *ad.* corpore suprâ saturatè cinereo nigricante vermiculato et penicillato: pileo valde nigro striato: scapularibus eodem modo striatis et in pogonio externo ochraceo lavatis: dorsi plumis nigro striatis: remigibus primariis nigricantibus, in pogonio externo rufescente ochraceo notatis, tribus externis versus apicem maculâ albâ notatis, secundariis dorso concoloribus: tectricibus alarum minoribus ochraceo apicatis: caudâ saturatè cinereâ nigro-fusco transfasciatâ et marmoratâ, rectricibus externis rufescente ochraceo lavatis, duabus externis utrinque conspicuè albo terminatis: gulâ, gutture et pectore grisescenti-cervinis, et corpore imo rufescenti-cervino, ubique nigro-fusco transfasciato, gutture lateraliter

maculâ albâ utrinque notato : subcaudalibus rufescente cervino vix nigro-fusco fasciatis : rostro et iride nigris, pedibus rufescenti-fuscis.

♀ *ad.* mari similis sed remigibus primariis et rectricibus non albo sed rufescente ochraceo, fusco marmorato, notatis.

Adult Male (Kåreholm, Sweden, 20th May). Upper parts dark ashy grey, richly pencilled and vermiculated with blackish brown; centre of the crown broadly streaked with black; scapulars similarly streaked, and with the outer web marked with dull ochre; most of the feathers on the back more or less streaked with blackish brown; upper surface of the wings like the back, but marked, especially on the smaller wing-coverts, with warm clay-colour; primaries blackish, on the outer web marked with rufescent ochre, the first three with a large round white spot towards the terminal portion of the inner web; secondaries marked like the back; tail dark grey, banded and pencilled with blackish, and on the outer rectrices slightly washed with warm reddish ochre, the two outer rectrices on each side broadly terminated with white; underparts dusky greyish buff, becoming orange-buff on the abdomen and crissum, the entire undersurface being narrowly barred with blackish brown; on the sides of the throat are two whitish patches (and in some specimens a large white patch on the centre of the throat); under tail-coverts orange-buff, slightly barred with blackish; beak and irides black; legs reddish brown. Total length about 10 inches, gape 1·2, wing 7·8, tail 5·5, tarsus 0·8.

Adult Female. Similar to the male, except that the white spots on the wings and tail are wanting, being replaced by dull orange-buff, slightly marbled with brown.

Nestling in first feathers (Hampstead, Middlesex). Resembles the female, but is duller in colour.

THIS, our common European Nightjar, inhabits Europe generally during the summer season, being met with at least as far east as Persia and Turkestan. It migrates southward at the approach of winter, and at that season of the year does not appear to occur north of the Mediterranean.

In Great Britain it is very generally distributed and common during the summer season in suitable localities, being most so in our southern counties, according to Yarrell particularly in Kent, Surrey, Sussex, Hampshire, Wiltshire, Dorsetshire, and westward to Cornwall. Mr. Cecil Smith informs me that in Somersetshire it is common, but somewhat local, being more numerous in the partially cultivated districts than in the highly cultivated vale. I have met with it very numerous in Kent, Essex, Middlesex, and several of our midland counties. Mr. Stevenson speaks of it as being common in Norfolk; and it is not uncommon in the northern counties. Mr. Robert Gray says, it is "a common bird in almost every Scottish county from Wigtown to the north of Caithness, extending also to the inner group of islands, but not, so far as I can learn, reaching the Outer Hebrides. It is not uncommon in Islay, Iona, and Mull, and is generally distributed in Skye, in all of which islands eggs have been found. In the Western Highlands, the haunts of the Nightjar are, for the most part, in retired tracts which are covered with 'brackens,' or in the vicinity of fir-woods, where, on still evenings, its strange jarring cry may be heard till an advanced hour. Occasionally, however, it is seen hawking for insects in parks in the low grounds; and at times it approaches even large towns like Glasgow." It is included as a straggler in the work on the birds of Shetland by Dr. Saxby, who writes (p. 147), "stragglers have been observed in summer and autumn for many years past; but

the appearance of this species in Shetland must be regarded as merely accidental. I have seen it myself at Balta Sound, in the end of July, skimming over the fields, and now and then alighting on the dykes." In Ireland it is common in suitable localities, but is said to be somewhat local.

It does not appear to occur in Greenland or Iceland, and is only a straggler to the Færoes. Captain Feilden says that "Mr. H. C. Müller received it in the summer of 1859; on the 25th May, 1871, one was shot at Sund; and on the 22nd July, 1871, another was taken on Skuoe." In Norway, according to Mr. R. Collett, it breeds commonly in the southern provinces up as far north as the Trondhjems fiord, where it is frequently seen near Trondhjem and in the Oerkedale; it is less numerous on the west coast than in the eastern districts; and on the fell-sides it passes over the border of the conifer-region. On the Swedish side it is, according to Sundevall, tolerably common as far north as Gefle, in 61° N. lat., but is scarcely ever met with further north; and though it has been said to have occurred at Sorsele, in Lapland, this statement can scarcely be credited. In Finland it is met with at least as far north as Kuopio, in 63° N. lat., and is common in the southern portions of the country, where I have frequently seen it. It appears to occur in Northern Russia to about the same latitude as in Finland; for it is not uncommon, and breeds, near Archangel. Mr. Sabanäeff informs me that he met with it everywhere in Central Russia and in the Ural, except in woodless plains, and says that it is especially numerous in the Government of Tula. In the Baltic Provinces, Poland, and North Germany it is tolerably common during the summer; and the same may be said regarding its occurrence in Denmark. Borggreve remarks that it is commoner in Eastern Germany; but Herr von Homeyer says (*J. f. O.* 1870, p. 218) that Oberst von Zittwitz found it common in Thuringia, and that he himself met with it most numerous at Rastatt, in Baden. In Holland, Mr. H. M. Labouchere informs me, it is not very common; but in Belgium and France it is abundant and generally distributed during the summer season, being more numerous in the latter country, especially in the southern departments, where it arrives in April. In Portugal it is said by Professor Barboza du Bocage to be common, and it also occurs in Spain. Both Lord Lilford and Mr. Howard Saunders obtained specimens from near Seville; and the latter informs me that he has received several from Malaga and Valencia, all procured at the time of the spring migration. Dr. A. E. Brehm writes (*Allg. deutsch. naturh. Zeit.* 1859, p. 442) that during the two seasons of migration (say, in about the middle of April and again in the latter part of September) it is found throughout the country, in Catalonia, Galicia, the Asturias, Leon, Navarre, &c., and probably to some extent remains there during the summer. Passing eastward, again, I find it recorded as tolerably common in Savoy, where it arrives about the 20th April, and in Italy and Sicily, where it is a summer visitant. Mr. A. B. Brooke mentions (*Ibis*, 1873, p. 236) that he only once saw one in Sardinia, in the middle of April. It touches at Malta during migration; and Mr. C. A. Wright speaks of it (*Ibis*, 1864, p. 58) as being "plentiful towards the end of March and in April and May. Great numbers are shot in these months for the table. As many as one hundred and thirty have been shot in a day by one gun. In spring they are most abundant in south-westerly winds after a dark night. They are generally found asleep in the day-time on the branches of the carob-trees, invariably arranging their bodies and long tails in a line with the branches. Thus, being of the same colour as the bark, they are

very difficult to perceive. They are also found reposing on stones and on open rocky ground. In Gozo the country people have a way of snaring them with a noose at the end of a stick. I have often seen these birds before sunrise, and again in the evening after sunset, hunting for insects on the wing. They repass in September and October, at the same time as the Scops Owl." Lord Lilford says (*Ibis*, 1860, p. 236) it arrives in small numbers in Corfu and Epirus in April, but does not, he thinks, remain to breed; and he found a small party of Nightjars at Paganía in September 1857. It appears to be tolerably common in Greece during the summer, and especially so during passage. Lindermayer says that it arrives between the 15th and 30th April, and breeds in the hills, where he several times obtained its nest and eggs. It breeds throughout Southern Germany, where it is found during the summer season, and is found in the countries bordering the Southern Danube; but Messrs. Elwes and Buckley do not appear to have found it in Turkey proper, though it is doubtless found there. Professor von Nordmann states that it is distributed everywhere in Southern Russia; and Ménétries records it from the Caucasus, but remarks that four specimens obtained by him at Zouvant, two males and two females, had no trace of white on the tail.

Canon Tristram writes (*Ibis*, 1866, p. 76) that he several times met with it in Palestine after the beginning of April, in the first week of which month he found it at Jericho.

It visits Africa during the winter season, when it is common. In Egypt it is stated to be met with only during migration, passing further south to spend the winter. Rüppell observed it in Egypt and Arabia Petraea; Von Heuglin writes (*Ibis*, 1859, p. 339) that it was met with in September on the Danakil, and in October on the Somali coasts; and Dr. Brehm states (*J. f. O.* 1853, p. 452) that it arrives in Egypt and Nubia in September or early in October. In 1848 he observed one at Wady Halfa on the 6th October; in 1849 he saw it near Alexandria in October; in 1851 he noticed it on the 4th September near Abu-Hamed, on the 15th September at New Dongola, and on the 30th near Abu Simbil in Nubia. It arrives about the same time at Sudan, where he observed it in 30° N. lat.; and he killed one near Chartoum on the 11th September. In North-western Africa it is found during winter, but does not appear to be very common. Mr. Salvin writes (*Ibis*, 1859, p. 302) that he only once met with it in Algeria, at Kef Laks, where an Arab brought one to him half-dead; and Mr. C. F. Tyrwhitt-Drake says (*Ibis*, 1867, p. 425) that it is known to breed towards Ceuta, in Morocco. Finally, it is stated by Vernon Harcourt (*P. Z. S.* 1851, p. 146) to straggle to Madeira; but Mr. Godman did not meet with it there.

In South-Africa there is said to be a distinct species, *C. smithi*, Bp., which, Mr. Sharpe writes (*Ibis*, 1870, p. 427), "besides sundry differences in colour, wants altogether the white spots on the wings and tail so conspicuous in the male of *C. europæus*." I have not a sufficient series of South-African specimens to determine whether *C. smithi* really is a valid species; but it appears to me to be very doubtful if such is the case. In Captain Shelley's collection are two specimens with the sex unmarked, one of which, collected by Mr. C. J. Andersson on the Knysna river, does not in the least differ in general coloration from European-killed specimens of *C. europæus*, but has the white patch only on the second primary, and there is only a dull whitish tip to one or two of the tail-feathers. The other specimen, from Durban, closely resembles pale varieties of the female of our European bird.

To the eastward *C. europæus* is met with at least as far as Persia and Turkestan, and is stated by Dr. G. Radde to occur at Irkutsk. Mr. Taczanowski also writes (J. f. O. 1872, p. 350) that it is "very rare in Kultuk, commoner in the neighbourhood of Irkutsk, has not been met with at Darasun. A young specimen in first plumage differs not from European specimens of the same age." There is, however, a possibility that in some instances *Caprimulgus jotaka* may have been mistaken for it. Mr. Blanford writes that the present species appears to extend throughout the Persian highlands, at all events in summer. He did not meet with it in Baluchistan. Major St. John obtained one in the forest west of Shiraz, at an altitude of 7000 feet, but says that it is commoner about gardens and irrigated land, though nowhere very plentiful. Mr. Blanford remarks that "the specimens vary much in colour. Those from Northern Persia agree well with European birds; the others are rather paler; and the three skins from Bam and Sar-i-júm are greyer than the rest. One skin of a male from Bam differs so much from typical birds that for some time I thought it distinct, the prevailing colour above and below being dusky grey; but the specimen does not differ in its markings or dimensions from others. A young bird from the Elburz is very pale-coloured, but more rufous than the other specimens; there is a similar skin from Syria in the British Museum." Mr. Severtzoff also remarks that Turkestan specimens are lighter than others from Europe, but says that on the Don and in the Ural he has seen examples intermediate in coloration. He speaks of it as being common throughout Turkestan during the breeding-season, but seldom met with below 1000 feet altitude, being most numerous from that to 8000 feet.

During the day-time the Nightjar remains resting in some shady place, either amongst the ferns or else seated lengthways on a bough. I have sometimes started one up when walking in the fern-covered glades of some of our parks, and have on one or two occasions seen one flying about during the day-time, evidently untroubled by the sun-glare. Its American ally, *Chordeiles popetue* (Vieill.), I have still more often seen hawking after insects in the full glare of a southern sun. Still these are exceptions, and it is not until the shades of evening set in that the Nightjar or Fern-Owl, as it is frequently called, comes out of its concealment; and in a still evening its churring note may be heard all through the open glades in the woodlands. Its flight, like that of all nocturnal birds, is noiseless; and as it sweeps round fluttering, turns suddenly to catch a passing moth, shooting off again, it gives one the idea of a large nocturnal Swallow. The whirring or churring note, something like that produced by a spinning-wheel, is uttered whilst the bird is perched on a branch; and when flying it every now and again strikes the points of its wings together, making a sound which may be heard at a considerable distance, at the same time uttering a whistling note. It is by some observers said to possess the power of ventriloquism; but I think that from turning its head when uttering its note it makes it appear now close and now distant from the listener. Macgillivray's correspondent furnished some very interesting notes on the whirring note uttered by the Nightjar, which were published by Macgillivray (Brit. Birds, iii. p. 641) as follows:—"In this parish only one Nightjar has this season (1839) made its appearance. On Wednesday evening, the 5th of June, between eleven and twelve o'clock, while standing at the door of my house, I heard a male Nightjar uttering very distinctly his whirring sound. On the evenings of the 8th and 9th of the same month he was heard in a moor about the distance of half a mile from the former situation. He remained silent until Tuesday evening

the 16th of July, when he again whirred in a moor near the south-west corner of the parish. This moor is upwards of a mile in circumference, and surrounded chiefly by Scotch fir trees. On the 20th inst. I went thither to observe his habits. It was a very pleasant evening, and the thermometer at 54° . At the south-west corner of the moor, at five minutes before nine o'clock, he began to whirl, and continued about two minutes. He then flew about in pursuit of his prey. About ten minutes after nine he alighted on the top of a Scotch fir at the south-east corner, and continued to whirl for three minutes and a half. After having hawked about for six minutes, he alighted upon a tree at the north-east corner, where he whirred for a short time. He then flew to the north-west corner, where he uttered his whirring sound for one minute and a half. He once rose to the height of about sixty or seventy feet, whistling as he mounted. On this occasion his peculiar mode of flight was similar to that which the male Cushat makes when he rises and falls in the air at the season of pairing. At a quarter to ten o'clock, after having made almost a complete circuit of the woods, he returned to the same tree upon which he was perched when first heard. After remaining there about two minutes he flew past me in an abrupt and wavering manner, and was not heard again during the evening. The wind had by this time risen, which perhaps accounts for his silence. His flight was sometimes very rapid, and not unlike that of the Swallow. The particular noise, which has been compared to that of a spinning-wheel, is said by some ornithologists to be produced when the bird is perched with its head lowermost. This, however, is not always the case; for upon this evening I again and again distinctly heard and saw the Nightjar whirring while perched upon the top of a Scotch fir, with his head in a position even more erect than that in which he generally carries it. On Tuesday evening, the 23rd, about a quarter before nine o'clock, I again went to watch this bird. I continued upon the moor until half past eleven; but I neither saw nor heard him, although the wind was south-west, and the thermometer 59° . At nine o'clock on Wednesday evening the 24th, I again returned, being determined, if possible, to get another glimpse of him. Having remained for an hour in a state of anxiety, I was just on the eve of departing, when, exactly at ten o'clock, in the north-west side of the moor I heard the accustomed sound, which continued one minute. Having flown about for two minutes in search of moths and beetles, the bird alighted on a tree in the north-east corner, where he whirred for about four minutes. After a momentary pause he whirred for a similar period; then making another pause for a moment, he whirred for three minutes. After having been engaged for twenty-eight minutes in capturing his prey, and whistling now and then whilst doing so, he sat upon the top of a tree at the east corner, and whirred six minutes without intermission. Having paused for a second, he whirred other two minutes, and then went in search of food for a short time. From the top of a tree in the south-east corner he whirred five minutes, then having made a momentary cessation he whirred other two minutes. At one minute after eleven o'clock he flew very quickly past me, making a whistling sound eight times. He performed exactly the same circuit round the moor as he had done on the 20th inst., but in the reverse direction, and stopped at the same places as on that evening. Although it was a most charming bright moonlight evening, and the ensuing morning very beautiful, the wind from the south-west, and the thermometer 53° , he did not again whirl. I remained in the moor till twenty minutes to three o'clock. Between eleven and half past one o'clock I occasionally heard him whistle. He ceased from feeding when the

morning light came in; at least I did not observe him, although I traversed the moor in every direction. The Nightjar occasionally whirs between twelve and two o'clock in the morning, sometimes even later."

The Nightjar feeds on moths, beetles, and insects of various kinds, most frequently capturing its prey on the wing, its capacious gape forming an excellent moth- or beetle-trap. That it eats caterpillars is also certain; for Macgillivray writes that he has found the inner surface of its stomach, like that of the Cuckoo, bristling with caterpillar's hairs. Naumann writes that it feeds more especially on the larger beetles, such as May-bugs (*Melolontha vulgaris*) and other allied species (*M. solstitialis*, *M. horticola*, *M. agricola*, &c.), dung-beetles (*Scarabæus stercorarius*, *Scarabæus vernalis*, &c.), large night-flying moths, especially the sphinx moth, and various species of nocturnal insects. It is a very greedy feeder, and digests its food quickly, but is usually in good condition, and in the autumn often very fat. The indigestible portions of the insects it devours (which, I may add, it swallows entire) it throws up in long pellets, which may frequently be found in the places where it reposes during the day. As it feeds more especially on those insects which are to be met with amongst the dung in places where cattle have been feeding, or where they are stalled, it frequently happens that the Nightjar is more often to be met with in these pastures or in the immediate vicinity of outlying folds; and hence the popular delusion that it sucks the goats, hanging on to their udders; and from this belief has arisen its common appellation of Goatsucker.

This species has the claw of the middle toe furnished on the side with peculiar pectinations forming a sort of close-toothed comb; and the use made of this peculiar appendage has puzzled naturalists not a little; nor has it been at all satisfactorily decided for what purpose this pectination exists. Some observers contend that it is used to clean the basirostral vibrissæ from the fragments of the wings of insects which may adhere to them; but I agree with Macgillivray that this cannot well be the case, as these vibrissæ or bristles are large, strong, and placed at some distance apart, whereas the teeth of the claw are thin and very close. Others think that as the bird invariably perches along a branch in a direction parallel to its axis, and never across the bough, this pectinated claw may assist it in keeping its perch more firmly than it otherwise would do. Other naturalists, again, contend that it is used to hold large insects with greater security; but it appears that the Nightjar almost invariably takes its prey with the mouth and not with the foot; and consequently this supposition falls to the ground. I observe in Rennie's 'Field Naturalist' some notes on the pectinated claws of the Bittern and the present species by an anonymous writer, who suggests that the comb-like structure on the claw may have been intended for disengaging the hooked feet of beetles from the bill, to enable the bird to swallow them; and this may possibly be the case, as the serrations are well calculated to catch in the polished limbs of beetles. Any one, he says, who has attempted to confine *Dytisci* or *Scarabæi* in a collecting-box must be aware of the difficulty in getting their feet free from the edge, to which they hold with the greatest pertinacity, one foot being no sooner pushed in than another is protruded. It is curious that this pectination is found in the claws of many widely different species, as, for instance, in the Bittern and Gannet, which, I may add, have no bristles at the base of the bill.

The Nightjar breeds in June, making no nest, but merely depositing its two eggs on the

ground in a slight hollow, either on the open heath or else amongst the trees. The eggs are elongated, tapering equally towards each end, and measure from $1\frac{6}{40}$ by $\frac{33}{40}$ inch to $1\frac{12}{40}$ by $\frac{34}{40}$ and $1\frac{12}{40}$ by $\frac{37}{40}$ inch. In colour and markings they are subject to considerable variation, some having the ground-colour nearly pure white, and being more or less blotched and marbled with pale purplish underlying shell-markings and dark brown surface-spots; whereas others have the ground-colour greyish white, with a buff tinge, and are faintly blotched and marbled with dull purplish grey, or else are thickly blotched with purplish grey and dark brown on a greyish white ground tinged with buff. One brood only is raised in the season, unless the first eggs are destroyed, in which case it is said to lay again; but then, as a rule, only one egg instead of two is deposited. The young birds when first hatched are covered with grey down, which is darker on the back and lighter on the underparts; but ere long they get feathered, and then resemble the female, but are duller in colour.

The specimen figured is the adult male, from Sweden, above described, and is in my own collection.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. West Drayton, May 25th, 1869. *b*, ♂. Farnboro', Kent (*H. E. D.*). *c*, ♂. Kåreholm, May 21st, 1867. *d*, ♂. Syria (*Verreaux*). *e*, ♀. South Persia, May 29th, 1872 (*W. T. Blanford*). *f*, *g*, *juv.* Highgate, July 14th, 1869 (*R. B. Sharpe*). *h*, *juv.* Hampshire (*P. L. Sclater*).

E Mus. J. H. Gurney, jun.

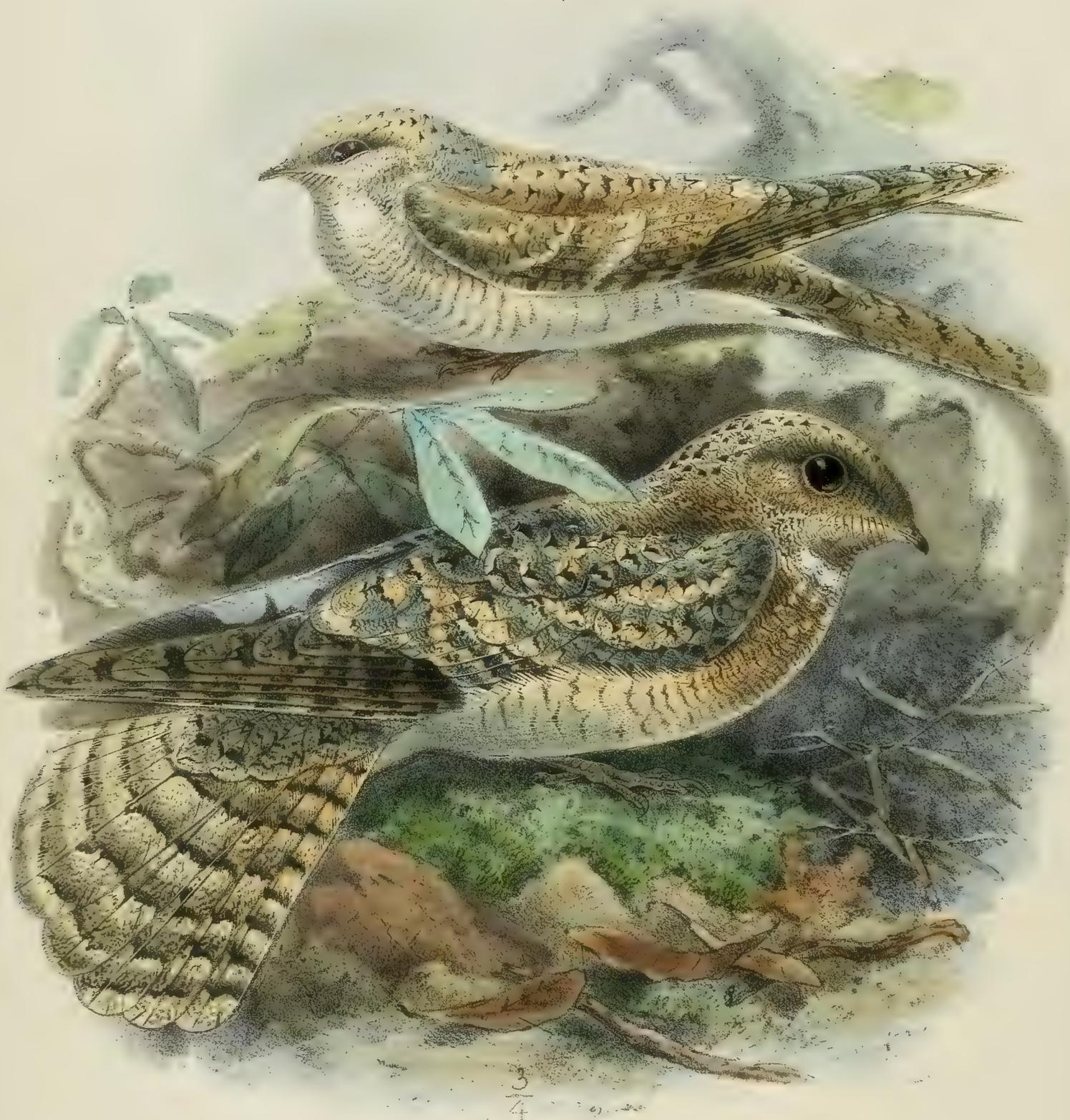
a, ♂. Northrepps, Norfolk, June 7th, 1867. *b*. Walsingham (*J. H. G.*). *c*, ♀. Genoa, May 1871.

E Mus. Howard Saunders.

a, ♀. Near Seville, May 18th, 1868 (*H. S.*). *b*, ♂. Malaga, April 29th. *c*, ♀. Malaga, May 19th. *d*, *e*, ♂, *f*, ♀. Valencia, March 24th to 28th. *g*, ♂. Valencia, April 30th.

E Mus. H. B. Tristram.

a. Durham (*H. B. T.*). *b*. Sussex, September 1863 (*J. E. Harting*).



W. Z. J. J. J. J.

M. N. H. H. H.

EGYPTIAN GOATSUCKER
CAPRIMULGUS ÆGYPTIUS.

CAPRIMULGUS ÆGYPTIUS.

(EGYPTIAN GOATSUCKER.)

Caprimulgus aegyptius, Licht. Verz. Doubl. p. 59 (1823).*Caprimulgus isabellinus*, Temm. Pl. Col. 379 (1825).*Caprimulgus arenicolor*, Sev. Ibis, 1875, p. 491.*Figuræ notabiles.*Temm. *l. c.*; Shelley, B. of Egypt, pl. 8.

Ad. supra isabellino-cinereus, delicatissimè nigro-fusco irroratus et vermiculatus: remigibus extùs et in parte apicali cinereo-isabellinis nigro vermiculatis et fasciatis, pogoniis internis basin versus albidis: rectricibus dorso concoloribus nigro fasciatis, binis externis albo isabellino terminatis: corpore subtùs isabellino-cinereo, angustè nigro-fusco fasciato, maculâ gulari conspicuè albâ: pedibus rufescentifuscis: rostro saturatè fusco: iride nigrâ.

Adult Male (Turkestan). Upper parts sandy isabelline with a greyish tinge, finely vermiculated and narrowly barred with black; quills on the outer web and on the terminal portion sandy grey, barred and vermiculated with black, on the inner web, near the shaft, blackish brown, with black bars going nearly half across the web, the rest of the web white; inner secondaries coloured like the back, but boldly barred with blackish brown; tail greyish isabelline finely vermiculated with black, the central rectrices finely, and the rest somewhat boldly barred with black, the external ones with the tips unmarked with black; underparts sandy isabelline narrowly barred with blackish, a patch on the throat white; legs reddish brown; beak dark brown; iris black. Total length about 10·5 inches, gape 1·1, wing 8·1, tail 5·3, tarsus 0·9.

Adult Female (Egypt). Differs scarcely from the male in plumage, being a trifle duller and less clearly marked.

THIS Goatsucker is easily distinguishable from *Caprimulgus europæus*, not only by its pale sandy-grey coloration, but by lacking the bold black stripes on the upper parts, in having the tail more finely barred, and especially in having the basal and outer part of the inner webs of the primaries white. Its range is not very extensive; for it is found in North-east Africa, ranging eastward to Turkestan; and it has even straggled as far north as the island of Heligoland, whence one was lately brought by Mr. H. Seebohm, who writes (Ibis, 1877, p. 163) that it was shot there on the 22nd June 1875. Elsewhere in Europe proper it has not been obtained; but, Captain Shelley writes (B. of Egypt, p. 175), it is found throughout Egypt and Nubia, and appears to be most plentiful in spring and autumn, when it is generally in flocks. "In the Fayoom," he adds, "in March, I met with a small party of four, all of which were males, from which it would appear that these birds travel in flocks of the same sex, and do not pair until shortly before breeding. Those I met with in the Fayoom were sitting on the bare sand; and as they

rose they frequently uttered a little snapping sound, and took refuge in some neighbouring tamarisk bushes. I have also occasionally seen them flitting over the water towards sunset." According to Von Heuglin (Orn. N.O.-Afr. i. p. 128) this Goatsucker inhabits Nubia throughout the summer, and especially the sand islands in the province of Dongolah, where it is found in large numbers, and breeds in July and August. In April and May, and again in September, large flocks were met with by Von Heuglin in Lower Egypt, in places where, he says, "it is otherwise not to be met with (for they frequent the small acacia-groves on the edge of the desert), and in Halfa, where it is scarcely able to find shelter from the glare of the sun. They rise most unwillingly, and will often run along, with puffed-out throats, uttering their curious note, from one bush to another, though they can see well enough. I once shot six, all females, out of such a flock consisting of more than fifty individuals."

This Goatsucker does not appear to have been met with in Palestine; but I have examined a specimen obtained by Mr. Blanford in Baluchistan which agrees closely with examples from Egypt; and it was obtained by Dr. Severtzoff in Turkestan, and described by him as new under the name of *Caprimulgus arenicolor*. I possess the specimen from which Dr. Severtzoff's description was taken; and, after a careful comparison of it with Egyptian examples, I have no hesitation in uniting it with the present species. He says (*l. c.*) that it is common only on the Lower Oxus, rarer on the Syr and in the south part of the shores of the East Caspian, and is everywhere a summer visitant. In a MS. note in my copy of his work on the fauna of Turkestan he writes as follows:—"There is no constant difference in colour between the young and old birds; but the former are recognizable by their laxer plumage on the body. This lax plumage is moulted in July, soon after the young leave the nest and when they are in family parties with their parents; and, judging from these parties, two or three young are reared from each nest. About the end of August these family parties break up; and then the young have lost the immature plumage, except as regards the under tail-coverts. After leaving their parents they are found in pairs; and the old birds leave the Lower Oxus about the first half of September, the young remaining till the end of that month, and some few until the middle of October. I met with the present species near the Lower Oxus, and in the undulating thinly bush-covered sand-wastes, as also in the densely bush-covered alluvial marly clay country, never very far from water, round which they fly after sunset. On the Lower Syr (Jaxartes) it was rarer; and here I first noticed it, and received specimens also from Krasnovodsk, on the east coast of the Caspian."

Beyond what few notes I give above, I find nothing on record respecting the habits of this species; and scarcely any thing is known about its nidification. Von Heuglin says (*l. c.*) that the nest is a mere depression in the soil, usually close to some halfa or under an acacia bush; and he found in it two eggs, which he describes as being smaller, paler, and more ochreous yellow in tinge than those of *Caprimulgus europæus*, clouded with light ashy blue and brownish yellow, and measuring $12\frac{1}{8}$ " by nearly 9". The old birds, he adds, sit very close, and when disturbed will only run a few paces from the nest.

In coloration, as well as in size, there is no slight individual variation in the present species. Even in the few specimens I have now before me I find this very perceptible; for of two examples from Egypt one is lighter and more isabelline than the specimen from Turkestan, and the other is darker and greyer; and in one the wing is barely 7.3 inches in length, whereas in the other it

is fully 7·65. Von Heuglin says that examples he has measured vary from 7·3 to 7·9 in length of wing; and there is in the British Museum a specimen from Egypt fully as large as the one from Turkestan, the bird obtained in Heligoland being also similarly large, and in coloration agreeing closely with the smallest of the Egyptian examples. I find also a variation in the proportion of the primaries of the specimens I have examined—which shows that no character can be based on these.

The specimens figured are the pale form from Turkestan above described, and a dark specimen from Egypt, the latter being in the collection of Captain Shelley.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Turkestan (*Severtzoff*, type of *C. arenicolor*).

E Mus. G. E. Shelley.

a, ♂. Fayoom, Egypt, March 4th, 1871 (*G. E. S.*). *b*, ♂. Egypt, April 6th, 1870 (*G. E. S.*).

E Mus. H. Seebohm.

a. Heligoland, June 22nd, 1875.



J. C. Keulemans del.

Montern. P. 9. 4mp

RUSSET-NECKED NIGHTJAR.
CAPRIMULGUS RUFICOLLIS

CAPRIMULGUS RUFICOLLIS.

(RUSSET-NECKED NIGHTJAR.)

Caprimulgus ruficollis, Temm. Man. d'Orn. i. p. 438 (1820).*Caprimulgus rufitorquis*, Vieill. Encycl. Méth. Orn. p. 546 (1823).*Caprimulgus rufitorquatus*, Vieill. Faun. Fr. p. 142 (1828).*Caprimulgus torquatus*, Brehm, Naumannia, 1855, p. 270.*Caprimulgus ruficollis latirostris*, A. E. Brehm, Verz. Samml. C. L. Brehm, p. 3 (1866).*Caprimulgus ruficollis brachyurus*, A. E. Brehm, loc. cit. (1866).*Caprimulgus ruficollis macrourus*, A. E. Brehm, loc. cit. (1866).*Engoulevent à collier roux*, French; *Noitibó*, Portuguese; *Zamaya*, *Chota-cabras*, *Engaña-pastores*, *Gallina ciega*, Spanish.*Figuræ notabiles.*Werner, Atlas, *Chélidons*, pl. 8; Gould, B. of Eur. pl. 52; id. B. of G. Brit. ii. pl. 2; Vieill. Faun. Fr. pl. 62. fig. 1.*♂ ad. Caprimulgo europæo* similis sed major et multo pallidior: collo imo torque rufescenti-ochraceo nigro-fusco variegato cincto: corpore subtùs rufescentiore, mento rufescenti-ochraceo.*♀ ad. mari* similis.*Adult Male* (Southern Spain). In general coloration resembling *Capr. europæus*, but paler than the ordinary form, and closely assimilating to the pale variety from Persia, though larger, and with the underparts rather more rufous; chin reddish ochraceous, below which there is a white patch, as in *C. europæus*, but larger; the lower neck encircled by a tolerably broad yellowish rufous collar, marked and varied with black and dark brown; bill blackish brown; legs dull brown; iris black. Total length about 13 inches, gape 1·3, wing 7·9, tail 6·25, tarsus 0·95.*Female*. Unlike that of *C. europæus* the female of the present species is undistinguishable from the male, and has the white markings on the wing and tail quite as much developed.*Nestling* (Southern Spain). Upper parts covered with pale buff downy feathers, finely barred and marked with black or blackish grey, and intermixed with down; underparts covered with dull yellowish buff down; the short wing-quills, which are just appearing, are black, broadly tipped and varied with rufous buff.THIS, the largest and handsomest of the Nightjars inhabiting the Palæarctic Region, has a comparatively restricted range, being only found in South-western Europe and North-western Africa. It has, however, straggled as far north as Great Britain, where, however, its occurrence has only once been recorded, by the well-known ornithologist Mr. J. Hancock, who writes (*Ibis*, 1862, p. 39):—"So far back as the 6th October, 1856, I obtained a fresh-killed specimen of this rare

European Goatsucker of Mr. Pape, a game-dealer of this town. It had been shot the previous day at Killingworth, near Newcastle. I was unable to determine the sex from dissection; but I think it is most probably a male, as the first primaries have each a spot upon their inner webs, and the first two spots are white." It does not appear to have occurred elsewhere in Northern Europe; but Degland and Gerbe write that it has been several times obtained in Provence and Languedoc, and Baron J. W. von Müller says (J. f. O. 1856, p. 226) that it has several times been captured near Marseilles, and almost always eaten! Polydore Roux records one single instance of its capture near Marseilles; and Messrs. Jaubert and Bathélemy-Lapommeraye also speak of one having been knocked down by a carter with his whip as it flew across the road.

In Portugal it is recorded by Professor Barboza du Bocage as "common;" but the Rev. A. C. Smith says (Ibis, 1868, p. 449) that he "anxiously hoped to obtain it in Portugal, but found it was extremely rare." In Spain it is found during the summer season, and, judging from the number of specimens of both the eggs and birds sent from there, must be tolerably numerous. Colonel Irby sent many specimens from near Gibraltar; and Mr. Howard Saunders, in his notes on the ornithology of Southern Spain, writes (Ibis, 1871, p. 67) that it "arrives in May, and is always to be found in the pine-woods near Seville. The eggs, two in number, are, as a rule, a trifle larger than those of the preceding species [*C. europæus*], but they vary so much that unidentified specimens are valueless. This species enjoys the same evil reputation for sucking the teats of goats and cows; but I never yet found a Spanish peasant who was idiot enough to class it with the Hawks, as many of our gamekeepers do its congener." It has not been recorded from Italy, but has been twice obtained at Malta by Mr. C. A. Wright, who says (Ibis, 1864, p. 58), "a specimen of this bird was shot at Imtahlep, on the south-west of Malta, at the end of May 1860. The preserved skin fell into my possession a few days afterwards;" and again (Ibis, 1865, p. 464), he writes as follows:—"A male specimen (the second I have met with) of this fine Nightjar was shot here on the 12th May of the present year (1865), and I have preserved the skin. It flew up against the balcony of a country-house, and thus brought about its own destruction; for the inmate, being a sportsman, immediately went out with a gun and bagged it." It does not appear to have occurred in Greece; but Canon Tristram speaks of a specimen having been obtained in Palestine, for he writes (Ibis, 1866, p. 76) as follows:—"A skin of this species was offered to me for sale by a Greek in Jerusalem, who assured me he had bought it in the flesh in the market there; and as all his other birds were unquestionably natives, I had no reason to doubt his statement; but his price was prohibitory. I have remarked that while in Algeria the common Nightjar is a winter visitant only, the red-necked species is certainly only a summer migrant, though very abundant. It is curious that in the more southern latitude of Palestine this certainly does not hold good, and that neither species should remain through the winter." None of the authors on the ornithology of North-east Africa includes it as occurring on that side of the continent; but it is common in North-western Africa, and Major Loche speaks of it as being "numerous in Algeria, where it frequents wooded districts;" he obtained a specimen near Djelfa. I have obtained an exceedingly pale specimen from Tunis through Mr. Fairmaire, who labelled it *Caprimulgus isabellinus*; but it is certainly nothing but a pale variety of the present species. Canon Tristram met with it in Algeria; and Mr. J. H. Gurney, jun., writes (Ibis, 1871, p. 73) as follows:—"On the 8th of

April, about 8 P.M., at Guelt el Stel, I saw three birds which I suppose were of this species. They were evidently preying upon young locusts, with which the ground was so perfectly covered in places as to appear black at a little distance. I saw them (apparently) pick up several insects from the ground. The previous evening a specimen had been given me at Ain el Ibel, where the coach stopped. A sportsman brought it in alive, remarking that it was the only thing he had shot." It is also, according to Mr. C. F. Tyrwhitt-Drake (*Ibis*, 1867, p. 425), "known to breed towards Ceuta, Morocco." It likewise inhabits the Canaries; and Mr. F. DuCane Godman writes (*Ibis*, 1872, p. 169):—"Mentioned by Webb and Berthelot as of accidental occurrence, though Bolle seems to consider it a regular summer visitant. The latter observer says it breeds in Lanzarote and Fuerteventura, and therefore ought to be included amongst the recognized birds of the Canaries. It is probable it does not extend to the western islands. I did not see it myself."

In its habits the present species does not differ from its close ally *Caprimulgus europæus*. Like that bird it remains during the daytime hidden away in some shady spot, and commences hawking after food when the shades of evening set in. It feeds on insects, which it catches on the wing, but is said sometimes to pick an insect from the ground. I have seen it in Spain; and on the wing it so closely resembled our common Nightjar that I did not know it was this species until I shot it. It nests on the ground, the nest being a mere depression in the soil, usually amongst the herbage or undergrowth; and in it are deposited two eggs, which so closely resemble those of the common species that they can be easily mistaken for them. I have a fair series, chiefly from Arganda, Spain, which very closely resemble the eggs of *Caprimulgus europæus*, and are quite as variable as these in the distribution and shade of colour of the markings.

The specimens figured are an adult male and a nestling, both from Spain, and in my collection, these being also the specimens described.

In the preparation of the above article I have examined the following specimens:—

E Mus. H. E. Dresser.

a, ♂. Southern Spain (*Col. Irby*). *b*, ♂. Pinares de Coria, Spain, May 18th, 1868 (*H. Saunders*). *c*. Tunis, 1868 (*Fairmaire*). *d*, *e*, pulli. Seville (*Lord Lilford*).

E Mus. Lord Lilford.

a, *b*. Seville (*Sanchez*).

E Mus. H. B. Tristram.

a. ♂. Aranjuez, Spain, May 5th, 1865 (*Lord Lilford*). *b*. Boghar forest, Algeria, May 29th, 1856 (*H. B. T.*). *c*. Algiers, June 1856 (*H. B. T.*).

E Mus. Howard Saunders.

a, ♂, *b*, ♀, *c*, ♀. Pinares de Coria, S. Spain, May 18th, 1868 (*H. S.*). *d*, ♀. Arganda, June 16th, 1863 (*M. Sanchez*). *e*, ♂. Malaga, July 19th, 1868. *f*, ♀. Seville, September 30th, 1869.

