

J. H. Riley.
Falls Church, Va.

THE
BIRDS OF TUNISIA

*The Edition of this book consists of two hundred and fifty copies,
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The Birds of Tunisia.



Photograph by Burt & Robinson, L^{rs}

Author's Caravan approaching Sfax, Tunisia, Sahara.

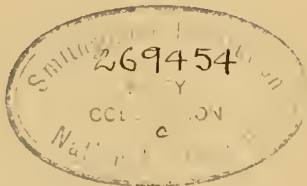
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THE
BIRDS OF TUNISIA

BEING A HISTORY OF THE BIRDS FOUND IN
THE REGENCY OF TUNIS

BY
J. I. S. WHITAKER
F.Z.S., M.B.O.U., ETC.

VOL. I.



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J. H. Riley,
Falls Church, Va

TO
MY DEAR WIFE
TINA,
I DEDICATE THIS BOOK.

J. I. S. W.

INTRODUCTION.

THE object of the present work is chiefly to supply a want, which I myself, and probably others, have felt, in the absence of any English publication which treats systematically of the birds to be found in the Regency of Tunis. It is true that during the past few years our brother-ornithologists in Germany have not been idle in this part of North-west Africa, but, on the contrary, have contributed valuable information to our knowledge of the Tunisian Avifauna, and to Prof. A. Koenig of Bonn and the late Carlo Freiherr von Erlanger of Ingelheim, we are indebted for highly interesting accounts of their researches in the Regency, which have been published in the *Journal für Ornithologie*.

I take this opportunity of publicly expressing my deep regret at the premature death of Carlo v. Erlanger, whom I had the privilege of knowing personally, and whose many good qualities I was thus the better able to appreciate. As an ardent naturalist and careful observer he was perhaps unsurpassed, and the promise he gave of good work in the future was great. His loss is a serious one to Science in general, and to our much-loved branch of Ornithology in particular.

With the exception of the publications mentioned above, and some minor ones, among which may be included a series of papers written by myself in the *Ibis*, little has been written of late years on the Ornithology of the Tunisian Regency, but I may observe, *en passant*, that Algeria and Tunisia were among the first countries regarding the Avifauna of which articles appeared in the *Ibis*, such pioneers of Ornithology as Canon Tristram, Osbert Salvin and Mr. J. H. Gurney junr., having each in their turn written on the subject in the earlier volumes of that journal.

Algeria having been under French rule for so many years, has

naturally been more visited by ornithologists and naturalists generally than Tunisia, and its Avifauna has been treated of by Malherbe, Loche, Taczanowski, Salvin, Canon Tristram, Mr. J. H. Gurney and others, as also more recently by Dr. Koenig.

Marocco, owing to its unfortunate state of almost perpetual internecine strife and tribal warfare, with the consequent absolute absence of public security for travellers, has been the least explored of the three North-west African countries, but some valuable information regarding the Ornis of Tangier and its neighbourhood is to be found in Colonel Irby's "Ornithology of the Straits of Gibraltar," while papers and articles on the birds of the Empire by Mr. Tyrwhitt-Drake, Mr. Meade-Waldo and myself have at various times appeared in the *Ibis*. Dr. Hartert also has given an interesting account of a journey made by him in Marocco, together with some excellent notes regarding the birds he met with (Novit. Zool. ix, pp. 310-339).

Obviously a good deal that has been written on the Ornithology of Algeria will apply equally to that of Tunisia, and *vice-versá*, for there is no natural boundary or division separating the two countries, or much difference in their physical features to cause a diversity in their Avifauna.

Between the Ornis of Tunisia and that of Marocco, however, there undoubtedly is a considerable variation, which is due to the different climate, physical character and geographical position of the two countries. Thus Marocco, with the greater part of its seaboard washed by the stormy Atlantic, and with its mountainous and well watered interior, may naturally be expected to have a different climate, soil and character generally, from that of Tunisia, which is bounded by the Mediterranean on the north and east, is less mountainous and watered and has the sandy desert for its "hinterland."

Hence we find that certain species, which are abundant in the one country, are rare or entirely absent in the other. Most noticeable also is the variation in the coloration of birds according to their more easterly or westerly habitat in this portion of North-west Africa, the tendency of species in Tunisia being to become pale, whereas in Marocco, on the contrary, the inclination is towards an intensity of colour.

This colour variation is apparently not confined to birds alone, but extends to animal and vegetable life generally in this region. Prof. A. Newton, speaking of Madeira birds (*Ibis*, 1863, p. 189), and

referring to Mr. Wollaston's admirable remarks on the effects of isolation and exposure to a stormy atmosphere upon the insect world (Variation of Species. p. 70, *et seq.*), alludes to the effect of the latter conditions as one of the principal causes of the darkening of the plumage of birds.

With regard to the Ornithology of that part of North-west Africa included in the Western Palæarctic Region and which, roughly speaking, may be said to comprise the greater part of Tunisia, Algeria and Marocco, or that portion lying to the north of the Great Sahara Desert, we are perhaps justified in considering our knowledge fairly well advanced, although we probably still have a good deal to learn concerning it. Regarding, however, the Ornis of the country immediately south of the above region, stretching from South Marocco, across the Sahara, to Tripoli and Cyrenaica, we know comparatively little and of some parts absolutely nothing.

There can be no doubt that the Ornis of the country lying immediately north of the Atlas mountains bears considerable affinity to that of South Europe and the Mediterranean sub-region generally, but, on the other hand, it differs from the latter in possessing many species and forms, which either never occur north of the Mediterranean, or which are only to be met with there accidentally as stragglers.

Immediately to the south of the Atlas mountains also certain species and forms are to be found, which do not occur north of that range, or are merely met with there accidentally from time to time.

Although I am not of the opinion held by some ornithologists that there is more difference between the Ornis of the districts north of the Atlas and that immediately to the south of those mountains than between the former and the South European Ornis, it is undoubted that the Atlas range *does* form a very important natural barrier between the two districts, and still further south in Tunisia there are other, though less important and less clearly defined, natural divisions.

Confining myself to the Regency, and wishing to give some idea of the varied character of the country, as affecting its Ornis, I may make the following remarks:—

Tunisia has been subdivided by geographers into three natural divisions or regions, each of these differing from the other two in its climate, hydrography and topography, and consequently in its flora and fauna, viz.: the Northern region comprising that part of the

Regency lying to the north of the Atlas mountains, the Central region including the districts between the Atlas and the Chotts, and the Southern region embracing all the country south of the Chotts.

This rough division is no doubt correct, so far as it goes, and may perhaps be adopted for all ordinary purposes, but wishing for greater precision, it may be found advisable to modify it somewhat, and to subdivide the Southern region into two separate regions. This would give four distinct regions, which may be described as follows, viz. :—

(1) The Northern region, comprising that part of the Regency lying to the north of the Atlas mountains, which, in Tunisia, run from North-east to South-west, and extend from Hammanet on the east coast to El Oubira on the western frontier. This region is mountainous in great part, well watered, the usual annual rainfall, according to recent statistics, being from 450 mm. to 1 metre, and well wooded, besides having large tracts of fertile plains. Its climate, temperature and flora, resemble greatly those of South Europe and the Mediterranean, the latter including, in addition to cereals, fine forest trees, such as oaks and conifers of various species, olive and other fruit trees, vines, and a great extent of “maquis” vegetation, consisting of tree-heath, juniper, thuja, myrtle, cistus, and similar low-growing shrubs.

(2) The Central region, embracing the country lying between the Atlas and the irregular and broken chain of mountains running from Mîdés, on the Algerio-Tunisian frontier, across the Regency north of Gafsa to the neighbourhood of Skirra, between Sfax and Gabès, on the east coast. This region includes the high plateaux between El Oubira and the Feriana district, and the lower plateaux between the latter and Gafsa, as also those lying to the west of this country. It also comprises the fertile plains of the Sahel in the neighbourhood of Sousa, and the less fertile districts south of the last named town. The region is less hilly and much drier than the Northern region, the annual rainfall being only about 200 mm. It is, however, fairly productive in some years, and has a large extent of excellent pasturage and grazing land. The vegetation consists chiefly of cereals and olive trees in the Sahel, of Aleppo-pine-woods and “maquis” growth on the mountains and higher plateaux, and of *Halfa* grass on the vast plains of the southern part of the region. The climate is naturally drier and the temperature higher than in the preceding region.

(3) The semi-desert region, comprising the country between the

southern boundary of the Central region and the southern shores of the Chotts Djerid and Rharsa, together with a zone of country extending along the south-east coast of the Regency as far as the Tripoli frontier, this zone or belt reaching inland as far as the Matmata range of mountains. The elevation of this region is considerably lower than that of the Central one, there being a great dip in the land immediately to the north of Gafsa. The Chotts or Sebkas cover a large extent of country and form an important feature of this region. Although not quite so low in level as the Chott Melghir in Algeria, they are in some parts as low as, or lower than, the level of the sea. Mountains of a certain altitude are to be found in different parts, but the general character of the country is arid and more or less desert-like, being only redeemed in some measure by the oases, of which the most important are those of Gabès, Gafsa, Tozer, and Nefta. Rain falls but seldom here, and some parts of the country may be said to be practically rainless. I have, however, known torrential rains fall at Gafsa, the streets of that town being flooded for several hours. The flora, except in the oases, is scanty and dwarfed, and is confined chiefly to the banks of the *oueds*, or water-courses, which are dry, as a rule, above ground, but contain sufficient moisture below the surface to sustain life in certain plants, such as tamarisks and oleanders. In the oases, however, particularly those where water is plentiful, a rich and luxuriant vegetation may be found; below the magnificent date-palms, fruit trees of all descriptions flourish, and below these crops of corn and vegetables are grown, not an inch of land being uncultivated, or a drop of the precious life-giving water lost. The temperature of this region is high during the summer months, but very pleasant in winter, and occasionally even cold, falling as low as freezing point.

(4) The Desert region, consisting of the inland country south of the Chotts, is bounded on the east by the Matmata mountains, and a continuation of that chain running to the Tripoli frontier. This region is composed chiefly of sandy desert or sand-dunes formed by blown sand, intermixed here and there with more solid ground, particularly on the east, in some parts of which the desert is distinctly petraic or rocky, and the hills of a conical shape, with flat summits.

As might be expected, the vegetation of this region is extremely scanty and is limited to a few desert plants which eke out an existence in spots where there may be a little moisture. Most of the country, however, is practically rainless. Between the temperature of this and

the preceding region there does not appear to be much difference, but dust storms are more frequent and add to the discomforts of the hot season.

The above partition may not perhaps be quite in accordance with the views of some travellers and authorities on the subject, and is of course open to criticism, but in the main I think it may be taken to be fairly correct.

Some writers, M. Fernand Lataste among them (*Expl. Scient. de la Tunisie*, p. xiv.), have eliminated the Central zone entirely, on the ground that no *Hauts Plateaux* exist in Tunisia. This I need hardly say is a mistake, for although the high plateaux may be limited and less in extent than in Algeria, they certainly are to be found in the west of Tunisia, and extend like terraces, gradually diminishing in elevation, almost to the Chott district. Apart from this, however, there are other extensive tracts of country in the Central Tunisian region, which differ in their character both from the country north of the Atlas and from the southern desert districts. It is true that the Central region comprises such districts as the Sebka Sidi-el-Hani and the Sebka-el-Melah, which in character undoubtedly belong to the Chott region, but these districts are limited in extent and cannot be taken as representing the greater part of Central Tunisia.

With regard to the Ornis of the several regions mentioned, each appears to have certain species which are either peculiar to that particular region or are more abundant in it than in the other regions. Besides this, in the case of some of the resident species, such as the Crested Larks, for instance, different forms of the same species are to be found in the different regions, the variation of these forms being in some cases considerable, and not always limited to the coloration of the plumage alone, but occasionally extending to the structural parts of the birds. The Crested Larks undoubtedly afford a striking example of the extent to which local variation may be carried by natural causes, and no country probably affords a better opportunity of observing and studying this interesting subject than Tunisia.

The Larks, as a family, are remarkably well represented in this country, their sole rivals being perhaps the Chats, especially in some of the southern districts of the Regency, where these two families are often the only birds to be met with.

It may at first sight appear somewhat curious that of these two families of birds, both so well represented in this country, one, that

of the Larks, should bear what may be called distinctly protectively coloured plumage, while the other, that of the Chats, except in a few instances, is more or less conspicuously attired, particularly in the case of the males. It will, however, be found that these conspicuously attired species of Chats frequent, as a rule, rocky and broken ground, full of dark clefts and fissures, where a strongly-marked plumage is really far less conspicuous than a uniform light-coloured one would be, thus *Saxicola leucura* or *Saxicola halophila* are very much less in evidence in such spots than *Saxicola isabellina* or *Saxicola deserti* would be. Even between the rock-frequenting Chats, moreover, there is a difference in plumage, according to the particular character of their habitat, for instance, the favourite haunts of *Saxicola leucura* are dark mountain ravines and chasms strewn with black rocks and boulders, while those of *Saxicola halophila*, although also very rocky and broken, are less dark and gloomy, and often, on the contrary, as in the Metlaoui district, where the species is particularly abundant, of a glistening white, relieved by numerous deep cracks and fissures, the general environment harmonising wonderfully in appearance with that of this bird's plumage.

As is the case with several other species of birds, the females of most of the Chats are more soberly coloured than the males, and consequently escape notice to a great extent.

The necessity of protective colouring is undoubtedly great in a country like Southern Tunisia, where the scanty vegetation affords but little shelter to its feathered denizens. Hence we find that the plumage of most of the species resident in those desert or semi-desert regions harmonises with the sandy coloration of the soil and environment. The Ravens, it is true, do not do so, but they frequent for the most part cliffs and rocky localities, and their case appears to be analogous to that of the rock-frequenting Chats.

The Birds of Prey may be reckoned as next in importance to the Larks and Chats among the Tunisian Avifauna. Including both diurnal and nocturnal species, these number over forty, many being plentiful in some parts of the Regency, others less so, while a few are distinctly rare. In some localities Birds of Prey are not at all common, and it is a mistake to suppose that the *Raptores* are equally distributed and generally abundant throughout Tunisia.

Of other birds found in Tunisia the following are fairly well represented, *viz.*, the Warblers, Wagtails, Pipits, Shrikes, Swallows, Finches,

Crows, Swifts, Nightjars, Doves and Sand-Grouse. The *Herodii* and many of the *Anseres*, *Grallæ* and *Limicolæ*, are also well represented in the north of the Regency, particularly in winter. The *Gaviæ* are equally numerous, not only in the north but also in the south of the Regency, and many members of the Order breed in the country.

Among the species or forms most noteworthy individually may be mentioned the following: *Saxicola caterinæ*, *Saxicola moesta*, *Saxicola halophila*, *Diplootocus moussieri*, *Melizophilus deserticolus*, *Argya fulva*, *Scotocerca saharae*, *Parus ledouci*, *Parus ultramarinus*, *Pycnonotus barbatus*, *Lanius elegans*, *Lanius algeriensis*, *Telephonus cucullatus*, *Passer simplex*, *Fringilla spodiogenys*, *Erythrospiza githaginea*, *Loxia curvirostra poliogyna*, *Chersophilus duponti*, *Chersophilus duponti margaritæ*, *Galerida cristata macrorhyncha*, *Galerida cristata arenicola*, *Galerida theklæ major*, *Galerida theklæ superflua*, *Galerida theklæ deichleri*, *Galerida theklæ carolinæ*, *Ammomanes deserti algeriensis*, *Ammomanes cinctura arenicola*, *Rhamphocorys clotbey*, *Otocorys bilopha*, *Garrulus cervicalis*, *Pica mauritanica*, *Corvus corax tingitanus*, *Corvus umbrinus*, *Cypselus murinus*, *Cypselus affinis galilejensis*, *Dendrocopus numidicus*, *Gecinus vaillanti*, *Bubo ascalaphus desertorum*, *Gypaëtus barbatus*, *Falco barbarus*, *Falco eleonora*, *Phœnicopterus roseus*, *Turtur senegalensis*, *Pterocles coronatus*, *Pterocles senegalus*, *Turnix sylvatica*, *Porphyrio cæruleus*, *Porphyriola alleni*, *Otis undulata*, *Cursorius gallicus*, *Sterna dougalli*, and *Larus audouini*.

Although the present work purports to be merely a history of the birds noticed in Tunisia, and of their lives as observed in that country, I have thought it advisable, when possible, to allude to the occurrence of the various species also in Algeria and Marocco, as likewise, in some cases, in Tripoli and in the Mediterranean basin generally. Italy and particularly Sicily, so near the North-west African coast, are constantly referred to in the pages of this book, the latter island, my winter home, having afforded me considerable opportunity for the observation and study of Mediterranean bird-life.

Regarding the migration of birds as noticed in Tunisia, space will not allow of my saying more than a few words here, but I may briefly remark that few countries are, geographically, so favourably situated as the Regency for the observation of this important instinct. Placed as Tunisia is at the extreme eastern corner of this portion of North-west Africa, and with its relatively long stretch of coast-line extending northwards from Tripoli, it may be considered as one of the main

highways for the passage of our feathered travellers to and fro between the European and African Continents. There are indeed several localities in the Tunisian Regency which would form admirable ornithological stations for the study and observation of migration.

The Regency also appears to form the meeting point of some of the eastern and western Palæarctic birds, thus we find in Tunisia such eastern forms as *Saxicola stapazina*, *Saxicola melanoleuca*, and *Hypolais icterina*, which either do not occur or are rare, further west, and on the other hand, such western forms as *Saxicola caterinae*, *Saxicola occidentalis* and *Hypolais polyglotta*, which do not occur, or are rare, further east.

With regard to nidification and alimentation, two other important factors in the economy of bird-life, I have given such information as lies in my power when treating of the several species individually in the body of this work.

The number of species and subspecies of birds included in this work as belonging to the Tunisia Avifauna is about 365. Of most of these my collection contains examples which have been obtained either by myself, when travelling in the Regency, or have been collected for me by M. Marius Blanc, a French naturalist resident in Tunis for many years.

Those species included in my list, of which I do not actually possess specimens, have either been observed by myself or my collectors, or are recorded on good authority in other ornithological works. A few species are also included which, though not actually recorded as having occurred in the Regency, are believed to be found there.

Most of the information given regarding the occurrence and life of the several species in Tunisia is first hand, and the result of personal observation during the various journeys I have made in the Regency, but in some cases I have had to rely on the information kindly supplied me by others, foremost among whom I may mention Mr. O. V. Aplin of Bloxham, Oxon, who collected for me in Tunisia between the months of January and June, 1895, and M. Blanc of Tunis. To Mr. Edward Dodson also I am indebted for valuable information regarding the birds of Marocco and Tripoli, in both of which countries he spent several months collecting for me, and in the course of his travels visited districts rarely, if ever, previously explored by Europeans. To each of these gentlemen I beg to express my gratitude and thanks.

My own collecting expeditions in Tunisia have extended over a period of about ten years, and apart from the ornithological knowledge and interest accruing therefrom, they have afforded me intense pleasure and delight. So pleasant and delightful have my experiences been, that I can heartily recommend a trip into the interior of the Regency to anyone fond of natural history and sport who wishes to enjoy a few weeks of rest and quiet out of Europe, but not too far from home and civilisation.

Naturally, since Tunisia has been under French protection, and European civilisation, with the "iron horse" as its pioneer and chief auxiliary, has penetrated the savage wilds and fastnesses of many previously all but unknown inland districts, a change has been wrought in various ways, chiefly, no doubt, to the advantage and personal comfort of the ordinary traveller, though to the detriment of the sportsman and naturalist.

The fauna of the country, particularly its larger *Carnivora* and *Raptores*, have been most affected by the inroads of civilisation, and the sportsman to-day must not expect to hear Lions roaring at night, or to come face to face with one of these animals, as did Canon Tristram, some fifty years ago, not far from Tebessa in the Eastern Atlas; or even to meet with the fresh footprints of a Lion, as I myself did not more than fifteen years ago in the forest of Ghardimaou. He may, it is true, still come upon a Panther, of which there are a few left in the country, but the chances of his doing so are remote, and he had better turn his attention to other game, such as the Barbary-Sheep, the "Edmi" (*Gazella cuvieri*) and Wild-boar, of which, as well as of feathered game, there is no lack in the hilly districts of the Atlas. The common Dorcas Gazelle is abundant on the plains further south, and still further south, in the true desert, may be found the pale Loder's Gazelle (*G. leptoceros*) and the Addax Antelope (*Addax naso-maculatus*).

As a country for Caravan-travel and nomad-life the Tunisian Regency is perhaps unrivalled, its climate throughout a considerable portion of the year being all that could be desired, and its safety and freedom from hostile or fanatical natives absolute, provided the French military outposts in the south be not overstepped. Its accessibility and its roads, save in some few districts, are excellent, while means of transport are easily obtainable, and hospitality, both on the part of the French authorities, military and civil, as well as on that of



**Roman Gateway at Kasrin (the ancient Cillium),
Central Tunisia.**

(From a Photograph by the Author.)

the native inhabitants, is proverbial and unfailling. To add to the pleasure and interest of such travel the varied aspect and scenery of the Regency contributes largely; richly wooded mountains and valleys, with fertile plains relieved by lakes and rivers, being characteristic of the more northern districts, lower hills and picturesque undulating park-like country predominating in the Central region, and vast semi-desert prairie-like plains, bounded by savage and richly coloured mountains in the south. To the archæologist the Regency specially commends itself by reason of the numerous remains of important and magnificent monuments, which are to be found throughout the entire length and breadth of the country, traces of pre-historic, Phœnician, Punic, and particularly Roman occupation, being abundant, and attesting to the former greatness of the Kingdom.

Returning to our subject, I would say that of the above number of species and subspecies of birds treated of in the present work about 150 are resident, and to be found in the Regency throughout the entire year; of the remainder about 90 may be considered as summer migrants, appearing in spring and disappearing in autumn; 90 may be regarded as winter migrants, arriving in autumn and departing in spring; while about 35 species are of occasional or accidental occurrence.

The systematic arrangement and nomenclature followed in this work are more or less in accordance with those observed by Mr. Dresser in his "Birds of Europe," which in their turn are based on Huxley's classification, or rather on Dr. Scater's modification of it, and those of the "List of British Birds" compiled by a Committee of the British Ornithologists' Union. The two do not greatly differ from each other, and for the present perhaps, may be considered as good as any other.

I have, however, deviated therefrom, when I have thought it advisable, and particularly in using trinomials in the case of local forms, or subspecies, although making a point of preserving the binomial names of species intact, as I do not think it right that they should be tampered with, or that a species should be degraded to the level or rank of a subspecies, simply because other forms of that species happen to have been subsequently discovered. It is true that the species may be no better than its forms, or that it may not have existed before them, but as it was discovered first, it should have priority over those other forms. If priority counts for anything,

surely this is a case where it should do so. The very term *subspecies* implies the recognition of the species as a higher grade, and this can only be carried out by retaining the original binomial name of that species in its pristine integrity.

With regard to subspecies or local forms, I may observe that I am distinctly in favour of recognising such forms, provided they are constant in their variation, within their range or sphere of habitat. It would, indeed, be contrary to the advancement of science not to do so, and no true lover of Nature would wilfully close his eyes to their recognition. It is, moreover, a highly interesting and instructive study to follow the working of Nature in this respect, and one, which if patiently and perseveringly carried out, cannot fail to teach us much in connection with the mutability of species and the formation of new species.

On the other hand, though strongly in favour of recognising subspecies or local forms, I need hardly observe that I am entirely opposed to doing so on insufficient grounds. Unfortunately there has recently been, I fear, far too much "splitting," based often on most slender grounds, at times on mere individual variation, and this, in some cases, even on the part of good and conscientious ornithologists, who, in their zeal and ardour, have been too prone to grasp at what may at first sight have appeared plausible and sound argument for their conclusions. I trust I may not be accused of having myself erred in this respect, but should I unwittingly have done so, I shall be quite ready to admit my fault and cry "*peccavi*."

Most of the descriptions of birds given in my work are of examples in my own collection, and when it has been possible, particularly as regards the measurements and soft parts, they have been taken from freshly-killed specimens.

The few plates in the work are of some of the more interesting species which occur in Tunisia, and testify to the artistic ability of their author, Mr. H. Grönvold, to whom I am much indebted for the care and attention devoted to their execution.

Messrs. Mintern Brothers have carried out the lithograph printing in their customary excellent style.

The colouring of some of the illustrations has been undertaken by Miss Dora Bowdler Sharpe, and bear testimony to that lady's fine touch; the remainder and greater part have been carefully coloured by Mr. G. Edwards.

The printing of the text throughout, together with the Photo-

gravure and "Black and White" illustrations, have been carefully attended to by Messrs. Bale and Danielsson.

In the two maps given, one of the Regency of Tunisia, the other of Marocco, Algeria, and Tunisia, as also throughout this work generally, I have adopted, to a considerable extent, the French official orthography, as being that now most in use, and employed in recently published maps of those countries.

My best thanks are due and are most heartily tendered to Mr. W. R. Ogilvie-Grant, for having kindly read through the whole of my proof-sheets, and for having given me the benefit of his advice on various points. I also beg to thank those who have afforded me the opportunity of examining specimens, or otherwise assisted me in my work, and among such kind friends in England may be mentioned Dr. Bowdler Sharpe, Dr. Ernst Hartert, and the late Mr. E. Cavendish Taylor, while on the Continent Prof. E. H. Giglioli of Florence, Prof. G. Martorelli of Milan, Count T. Salvadori of Turin, and Dr. E. Oustalet of Paris, have each and all been most kind in allowing me "the run" of the fine collections under their charge, and offering me every facility in their power.

I also take this opportunity of expressing my gratitude to Dr. P. L. Sclater for having first directed my attention to the study of Ornithology, thus affording me so pleasant a "hobby," and interesting an occupation for waning years.

Finally, to Mr. R. H. Porter, and particularly to Mr. E. A. Porter, my thanks are due for the care and attention devoted to the publication and production of these volumes. Mr. E. A. Porter has been of the greatest assistance to me in making out the synonymy and index of the species.

In conclusion, I beg to say that this work has no advanced scientific aim, but is merely intended to be a short, though I trust a faithful, history of the birds to be met with in the Regency of Tunis. It may, I hope, be of some use to ornithologists and bird-lovers generally, and in particular to those who may travel in the country of which it treats, which has proved to me for many years so "happy a hunting ground," and afforded such endless enjoyment.

With these valedictory remarks, and relying on the lenient criticism of brother ornithologists for such shortcomings as may be found in it, I beg to place my book before the public.

JOSEPH I. S. WHITAKER.

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Order PASSERES.

Family TURDIDÆ.

Subfamily TURDINÆ.

TURDUS VISCIVORUS, Linnæus.

MISTLE-THRUSH.

Turdus viscivorus, *Linn. Syst. Nat.* i, p. 291 (1766); *Seebohm, Cat. Birds Brit. Mus.* v, p. 194; *Loche, Expl. Sci. Alg. Ois.* i, p. 183 (1867); *Whitaker, Ibis*, 1895, p. 92; *Erlanger, J. f. O.* 1899, p. 248.

Description.—**Adult male**, spring, from Bou-Chebka, Central Tunisia.

Above grey-brown, with an olivaceous tint, inclining to golden-yellow on rump; the outer pair of tail-feathers tipped with white, this colour extending upwards on the inner web, the next adjoining pair also slightly tipped with white; lores dull white; ear-coverts brown, streaked with yellowish-white; throat creamy-white, slightly streaked with brown; breast, abdomen and remainder of underparts yellowish-cream colour, plentifully spotted with dark brown, the markings being triangular in shape above, and rounder lower down; axillaries and under wing-coverts pure white.

Iris brown; bill dark brown, with the base of the lower mandible yellowish; feet light brown.

Total length about 10·50 inches, wing 6, culmen ·85, tarsus, 1·30.

Adult female similar to male, but rather smaller.

The Mistle-Thrush occurs somewhat sparingly in the Tunisian Regency, and is apparently extremely local in its distribution there, being found only in the more mountainous districts, and on the high wooded plateaux of Northern and Central Tunisia, where, however, it is resident and breeds. From Southern Tunisia the species seems to be unrecorded, which is not surprising, when we consider the arid and treeless nature of the country south of the Atlas.

The Mistle-Thrush also occurs both in Algeria and Marocco, north of the Atlas, but as in Tunisia, is more or less sparingly distributed,

though probably a resident, as well as, to a certain extent, a migratory species.

In Tunisia I met with this Thrush at Bou-Chebka, and at El-Oubira, both localities situated in the extreme west of the Central Region, and not far from the Algerio-Tunisian frontier. These high plateau districts, which are covered in great part with woods of Aleppo Pine (*P. halepensis*, Desf.), have an altitude of between 3,000 and 4,000 feet above sea-level, and according to the resident forest guards, whom I interrogated on the subject, are never excessively hot, even in the middle of summer. This I can well believe, having myself, when travelling in that neighbourhood in the late spring, found the temperature delightfully cool during the day-time and decidedly cold at night. Meeting with the Mistle-Thrush in the above districts so late as the end of April, I concluded that the species probably bred there, and this fact has since been confirmed by Baron v. Erlanger, who obtained its nest and eggs at Ain-Bou-Dries, an adjacent locality (*J. f. O.* 1899, p. 249). This nest was taken as late as June 18th, and the eggs were no doubt of a second laying.

Although a resident and breeding species in Tunisia, the Mistle-Thrush no doubt also occurs in the Regency as a migrant in winter, and may probably, in severe seasons, be fairly numerous in the more hilly and wooded parts. Essentially a tree-loving species, it is rarely to be found far from woods or gardens, and although naturally one of the most wary and suspicious of birds, it affects the neighbourhood of human habitations with the utmost self-assurance and temerity, feeding on the berries of bushes adjoining houses, and even venturing within a few feet of an open window. In order, however, to form an opinion of its extreme vigilance and caution, one has only to watch one of these birds when feeding in a field or on a grass plot. Needless to say, prior to visiting any spot, the bird will have scanned the surroundings carefully, to be sure that the coast is clear; but not content with that, immediately on alighting on the ground, it stands motionless for a few seconds, looking around it, before proceeding further. When satisfied at last that no danger is to be apprehended, it commences operations, hopping along for a few paces, and then suddenly stopping again to listen and look about it. On seizing a worm, and when pulling it out of the soil, the bird jumps vigorously from the ground; then after swallowing the toothsome morsel, it resumes its original attitude of attention, preparatory to repeating its

former tactics. In addition to worms, snails, and insects of different sorts, the Mistle-Thrush feeds to a great extent upon various berries, and, when in season, the fruit of the wild olive in Tunisia forms an important item in its diet. Although no doubt the berry of the mistletoe, in those countries where this parasitic plant flourishes, is eaten by this Thrush, as well as by others of the family, it could never have constituted a very important part of the bird's food, but nevertheless, both the scientific name of the species, as well as some of its trivial names, seem to have had their origin in the popular supposition of this berry having a particular attraction for the bird.

Though non-gregarious during the greater part of the year, the species in autumn seems to become more sociable, and may then be seen consorting together in fairly large numbers, feeding in company in fields, and distributed in open order over the ground. The flight of this Thrush, when rising from the ground, is rather heavy, but when well on the wing it attains considerable velocity. Its alarm note, sure to be heard when the bird is disturbed, is a low grating churr, at times degenerating into a harsh scream, but its song, which has the advantage of being one of the earliest to be heard in the year, and consequently the more appreciated, is pleasing and full of power. When nesting, Mistle-Thrushes become very bold, and will courageously attack and put to flight birds much larger and stronger than themselves, should their eggs or young broods be menaced. In *The Zoologist* for 1903 (p. 129), Mr. J. H. Gurney, in some interesting ornithological notes from Norfolk, writes as follows:—

“May 8th.—Mr. Watson, of Letton, saw a Mistle-Thrush actually strike and kill a Jackdaw as it was circling round the tree which contained the Thrush's nest. They are strong birds, and I have often been threatened by them in the most determined manner when near a nest, both male and female dashing round with loud cries. A few days ago my nephew put a Barn-Owl off her eggs, when immediately a pugnacious Mistle-Thrush knocked her quite off the bough on which she had perched, and which was probably near its own nest.”

Authors appear to differ as to the species being of a pacific or quarrelsome nature, but the balance of opinion seems to be in favour of the latter being the case, and instances of its pugnacity, even out of the breeding season, are not wanting. The bird also enjoys the unenviable reputation of occasionally preying upon the young of other species of birds.

The Mistle-Thrush is an early breeder, and generally rears two broods in the course of a season. The fork of a tree is nearly always selected as a site for its nest, this being roughly constructed of dry grasses and fine roots, cemented together with mud. The eggs, as a rule, four or five in number, have the ground colour light greenish-grey, with a few pale lilac underlying shell marks, and rusty brown spots and blotches, irregularly distributed over the surface. Average measurements, 29×21 mm.

TURDUS MUSICUS, Linnæus.

SONG-THRUSH.

Turdus musicus, *Linn. Syst. Nat.* i, p. 292 (1766); *Seebohm, Cat. Birds Brit. Mus.* v, p. 191; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 186 (1867); *Koenig, J. f. O.* 1888, p. 212; *Whitaker, Ibis*, 1894, p. 86; *Erlanger, J. f. O.* 1899, p. 249.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Above uniform olive-brown, the upper wing-coverts tipped with buff; lores and superciliary stripes creamy-buff; ear-coverts and cheeks thickly streaked with dark brown; a distinct dark brown moustachial stripe; throat creamy-white; breast the same, but tinged with golden-buff; the greater part of the under-surface spotted with dark brown, more thickly so on the abdomen and crissum; axillaries and under wing-coverts golden-buff.

Iris brown; bill horn-brown, yellowish at the base of the lower mandible; feet yellowish-flesh colour.

Total length about 8·75 inches, wing 4·75, culmen ·75, tarsus 1·30.

Adult female similar to male, but rather smaller.

The Song-Thrush is to be met with in winter in large numbers throughout the mountainous and wooded regions of Northern and Central Tunisia, and also, though more sparingly, in the south of the Regency. In Tunisia, as in the rest of North-west Africa, the species seem to be merely a winter visitant, arriving in October and November, and leaving again towards the end of March and beginning of April. It is possible that a few individuals may remain to breed in the higher woods of the Tell, or more northern region, where water

is never wanting; but I know of no instance of this being the case, at any rate in Tunisia, although Mr. C. Dixon, when travelling in the Province of Constantine, seems to have met with the Song-Thrush sparingly in the Aurès Mountains as late as the month of May (*Ibis*, 1882, p. 568). After the end of March an occasional straggler may be met with in the Regency, but such cases are rare, and from Marocco I have no note of the species' occurrence later than April 2nd. Mr. O. V. Aplin, who was collecting for me in Tunisia in 1895, found the Song-Thrush at Gafsa in the south, as late as March 26th, but he never came across the species during his sojourn in the forests of North Tunisia later on in the season.

Throughout the winter and during the periods of passage, most of the wooded hills in the neighbourhood of Kasrin and Feriana, in Central Tunisia, simply swarm with Thrushes, and in particular those where the wild olive and juniper flourish, the berries of these plants being specially attractive to the birds, and probably forming their principal aliment during the time they are in the country. Naturally other food is eaten as well, as for several months of the year Thrushes subsist more upon worms, snails and insects than they do upon berries and fruit, and on the whole live more on animal than on vegetable food.

In its habits the Song-Thrush varies somewhat, according to the season. During a considerable portion of the year it is more or less seclusive, keeping to thick plantations and shrubberies, where it is but little seen or heard, but on the approach of spring it throws off its shyness, and resorts to more exposed spots and to high trees, from the topmost branches of which it pours forth its sweet and rich song for hours together, particularly in the morning and evening. At no time, however, can the bird be called sociable or really gregarious, as even when migrating with others of its kind, each bird seems to shift for itself, and acts independently of its fellows, flying off singly, and, apparently, leading an entirely separate life.

The migration of the Thrush appears to be effected solely during the night and earliest morning hours. In most Continental countries vast numbers of the species are snared during the periods of passage. It has been stated by a competent authority (*Ibis*, 1902, p. 515), that over one million Thrushes are annually slaughtered in Central Europe, of which more than half are Song-Thrushes. This computation is probably by no means exaggerated, but the reverse, as in Italy alone

the number of Thrushes annually netted must considerably exceed half a million. Some interesting statistics touching on this subject, and regarding the numerical passage of birds generally in Italy, are to be found in Professor Giglioli's "Avifauna Italica" (pp. 501-505), from which it would appear, *inter alia*, that in the Florence market alone more than 6,000 Thrushes have been exposed for sale in a single day, and this in a season by no means one of the richest so far as regards the passage of migrants. From my own personal observation, however, I can well believe the above statement, as on frequent visits to the Florence market during the autumn months I have always found vast numbers of Thrushes, Larks, and other species of small birds displayed on all the poultry and game stalls, and the supply is apparently renewed almost daily throughout the season. As Florence is but one of the many important Italian centres, in the neighbourhood of which the wholesale and indiscriminate netting of small birds is carried on, one may form some idea of the total number annually captured in the country, as also, in some measure, of the countless numbers of migrants which must pass through the Peninsula.

Heterochrosis is not unfrequent in the Song-Thrush, pale yellowish and isabelline "varieties" being the most common.

TURDUS ILIACUS, Linnæus.

REDWING.

Turdus iliacus, Linn. *Syst. Nat.* i, p. 292 (1766); Seebohm, *Cat. Birds, Brit. Mus.* v, p. 189; Malherbe, *Cat. Rais. d'Ois. Alg.* p. 9 (1846); Loche, *Expl. Sci. Alg. Ois.*, i, p. 189 (1867); Koenig, *J. f. O.* 1888, p. 191; *id.* *J. f. O.* 1892, p. 389; Whitaker, *Ibis*, 1898, p. 126.

Description.—**Adult male**, winter, from Tunis, North Tunisia.

Above dark olive-brown, darkest on the crown and quills; a conspicuous buff superciliary stripe, extending from the bill to behind the eye; ear-coverts very dark brown; sides of neck golden-buff; under-parts white, suffused here and there with golden-buff, and heavily striped and spotted on the lower throat and breast with very dark brown markings; sides of the body rich rusty red; axillaries and under wing-coverts a paler rusty red.

Iris dark brown; bill dark brown; yellowish at base of lower mandible; feet very light brown.

Total length about 8 inches, wing 4.70, culmen .65, tarsus 1.10.

The Redwing is not a common species in Tunisia, but occurs there in limited numbers as an irregular winter migrant, being more plentiful in some years than others. In exceptionally severe winters the species may be fairly abundant, and it was probably during such a season that Loche observed these birds in Algeria, and alluded to their arriving in autumn in large flocks, and remaining in the country for two or three months (Expl. Scient. Alg. Ois. i, p. 190). As a rule, however, the Redwing is by no means plentiful in North-west Africa, and in ordinary winters only occurs in limited numbers in the more wooded and hilly districts north of the Atlas, never, so far as I am aware, straying south of these mountains.

In North Marocco, as in Algeria and Tunisia, the species is to be met with occasionally in winter, and it has also been recorded from the Canary Islands and Madeira, but appears to be wanting in North-east Africa. Neither the Redwing nor the Fieldfare came under the notice of Mr. Dodson during his collecting tour in Tripoli.

My collection contains specimens from El-Kef and other districts in North Tunisia, and Redwings may sometimes be seen in the Tunis market, the bird-catchers of that town occasionally taking them in their nets together with the common Thrush. When met with in Tunisia the Redwing is generally to be found in small flocks, frequenting well-wooded districts where seeds and berries are plentiful, the food of the species to a great extent consisting of such diet, although worms, snails and larvæ of different kinds, as well as coleoptera and other insects, are eaten by it quite as much, or perhaps even more, than vegetable food.

In its flight and in many of its habits the Redwing greatly resembles the common Thrush, although it is somewhat more shy and wary. Its note in winter is in no way remarkable, but those who have heard the bird in full song in its northern home consider it a good and sweet songster, although not equal to our common Thrush.

Sports or varieties of the Redwing are to be met with occasionally, a rufous form being not uncommon.

TURDUS PILARIS, Linnæus.

FIELDFARE.

Turdus pilaris, *Linn. Syst. Nat.* i, p. 291 (1766); *Seebold, Cat. Birds Brit. Mus.* v, p. 205; *Loche, Expl. Sci. Alg. Ois.* i, p. 185 (1867); *Koenig, J. f. O.* 1888; p. 191, *id. J. f. O.* 1892, p. 389.

Description.—**Adult male**, winter, from Tunis, North Tunisia.

Crown ashy-grey with dark streaks; nape slate-grey; back and upper wing-coverts chestnut-brown; rump slate-grey; quills brown; tail-feathers blackish-brown; a slight buff-coloured superciliary stripe; ear-coverts ashy-brown; throat buffy-white, striped with blackish-brown; breast, sides and flanks buff, suffused with yellowish-brown, and thickly marked with dark centres to the feathers, which are fringed with white; centre of abdomen creamy-white; axillaries and under tail-coverts pure white.

Iris dark brown; bill yellowish, darker at tip; feet dark brown.

Total length about 10·50 inches, wing 5·70, culmen ·80, tarsus 1·25.

Like the preceding species, the Fieldfare is merely an irregular winter migrant in Tunisia, occurring in moderate numbers, or even fairly abundantly in some years, but being scarce, or entirely wanting in others. Of the two species the Redwing is perhaps rather more often met with in the Regency.

The Fieldfare occurs also in Algeria and Marocco as a winter migrant, and, according to Captain Shelley (*Birds of Egypt*, p. 65), is to be found as a winter visitant in Egypt.

In Tunisia I have obtained examples of the species from one or two districts in the north of the Regency, but have no note of its having ever been met with south of the Atlas.

Like the Redwing, it frequents the more wooded hilly districts, particularly those where berry-bearing trees and bushes flourish, and is fond of perching on lofty trees, from which a good look-out can be obtained. Of all the Thrushes, not even excepting the Mistle-Thrush, the present species is perhaps the most wary and suspicious, and seldom allows itself to be caught napping. It is no doubt due to this instinctive shyness that the Fieldfare rarely resorts to the neighbourhood of human habitations for food and shelter in severe weather, as many other Thrushes do. South of the Mediterranean very severe cold is seldom experienced, but even in northern countries,

where hard frosts and heavy snow-storms occur, and food in certain seasons is unobtainable, these birds are rarely to be found in gardens, or the immediate vicinity of buildings, and large numbers of them often perish for want of food and from the inclemency of the weather.

Unlike many of the Thrushes, the Fieldfare is essentially gregarious, and is nearly always to be found in flocks, although in southern countries these flocks in point of number rarely equal those commonly met with in more northern parts. The flight of these birds is easy and rather undulating, and the approach of a flock of Fieldfares is unmistakably proclaimed by the peculiar chuckling cry they utter. Open fields and moist meadows are often resorted to by the species for the sake of food, for, like its congeners, the Fieldfare feeds largely upon worms and insects of various sorts, as well as upon berries. The stomachs of the few specimens of the species I have obtained in Tunisia generally contained small olives.

That the Fieldfare at times roosts upon the ground appears to be undoubted, although where trees are available for the purpose these are naturally preferred.

Both the Redwing and the Fieldfare are reported to have bred in the Italian Alps, but in either case the statements seem to rest upon somewhat slender evidence, and require confirmation, the true breeding home of both species being so very much further north.

Like the Redwing, the Fieldfare is subject to occasional variation in the colour of its plumage, melanic forms being probably most frequently observed.

TURDUS MERULA, Linnæus.

BLACKBIRD.

Turdus merula, *Linn. Syst. Nat.* i, p. 295 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846); *Whitaker, Ibis*, 1894, p. 86.

Merula merula, *Seebohm, Cat. Birds Brit. Mus.* v, p. 235; *Erlanger, J. f. O.* 1899, p. 246.

Merula vulgaris, *Loche, Expl. Sci. Alg. Ois.* i, p. 192 (1867); *Koenig, J. f. O.* 1888, p. 211; *id. J. f. O.* 1893, p. 24.

Description.—**Adult male**, spring, from Italy.

Entire plumage glossy black, the colour of the wings less intense.

Iris brown; bill and rim round the eyes orange-yellow; feet dark brown. Total length 10.25 inches, wing 5, culmen 1, tarsus 1.25.

Adult female has the upper parts dark olivaceous-brown; the throat and the sides of the neck greyish, slightly washed with rufous, and streaked with dark brown; breast rufous-brown, striped with dark brown; abdomen ashy-grey, becoming darker on the under tail-coverts.

Iris brown; bill and feet dark brown.

Observations.—The plumage of the female Blackbird is subject to considerable individual variation, independent of that due to season or age.

The Blackbird found in Tunisia has hitherto been considered identical with our common European bird, and has been referred to it accordingly. Apparently, however, the resident form of the species occurring in the Regency differs from typical *T. merula*, L. sufficiently to require separation, and must be referred to the following sub-species.

There is, however, every reason to believe that the common European Blackbird occurs in Tunisia as a migrant in winter, for, according to Blanc, the number of Blackbirds observable at that season is far greater than it is at any other time of the year, and this can only be due to the influx of migrants. I hope to be able to verify this fact shortly, and obtain specimens of typical *T. merula*, L. from Tunis.

The Blackbird frequents gardens, groves, and wooded localities, where it can conceal itself among thick foliage. In its habits it is bright and active, not particularly shy as a rule, although more so when on migration than at other periods of the year, or when established in its breeding home. It feeds on insects and their larvæ, worms, snails, and slugs, as well as on berries and fruit when in season. Its well-known rich and melodious notes are the cause of the bird being often kept in confinement.

The species is very subject to albinism, both partial and complete.

TURDUS MERULA MAURITANICA, Hartert.

MOORISH BLACKBIRD.

Turdus merula mauritanica, *Hartert, Novit. Zoolog.* ix, p. 323 (1902).

Description.—**Adult male**, spring, from Ain-Rhorab, Central Tunisia.

Differs from *T. merula*, L., in having a larger and stouter bill; the other measurements are about the same as those of that species.

Adult female differs from that of *T. merula*, L., in being greyer, particularly on the underparts, and in lacking any tinge of rufous. It also appears to have a yellow bill at all seasons.

The young bird has the upper parts blackish-brown; the feathers of the back and wing-coverts with buff-coloured shafts, and the tail almost black; the under parts grey, mottled with dark brown, and slightly tinged here and there with yellowish-buff; the throat white, streaked and spotted on the sides with blackish-brown; bill dark brown.

This sub-species, described by Mr. Hartert from Marocco (Nov. Zool. ix, p. 323), appears to be the resident form of Blackbird in Tunisia, as it probably is generally throughout North-west Africa. Examples in my collection from Tunisia, Algeria, and Marocco do not differ appreciably from each other.

The Blackbird of the Canary Islands, which has been distinguished by Mr. Hartert under the name of *T. merula cabrerae*, according to him has the large stout bill of the present form, but differs from it in some other respects. Examples from Madeira also seem to differ somewhat from typical *T. merula*, L., particularly the females, which are greyer on the underparts than those of that species.

T. merula mauritanica is to be met with in Tunisia in most of the wooded districts north of the Atlas, as also, though more sparingly, south of those mountains. I have observed it at Ain-Rhorab, near Kairouan, and on the slopes of the Djebel Semama in Central Tunisia, as also on the Djebel Eshkul, near Bizerta, in the north of the Regency, and have notes of its occurrence at other places. It is to be met with occasionally even in some of the southern oases of the Regency. In the oases of Biskra and El Kantara in Algeria, according to Dr. Koenig, Blackbirds may be met with nesting. In Marocco they are also to be found breeding in the extreme south of the Empire.

In its habits the present sub-species seems not to differ materially from *T. merula*, L., but, according to Dr. Koenig, its song is inferior to that of our European bird, being harsher, shriller, shorter, and more broken, and with far less depth of tone. Its alarm note, when surprised, is, however, the same as that of the European Blackbird.

Dr. Koenig took nests and eggs of Blackbirds near El-Djem, and on the Djebel Batteria. The nest and eggs apparently do not differ from those of the common Blackbird, the former being a compact, cup-shaped structure, composed chiefly of dry grasses and plant-fibre neatly woven together, while the eggs, generally four in number, are dull bluish-green, streaked and spotted all over with reddish-brown. Average measurements 26 × 22 mm. The nest is usually placed in a thick bush.

TURDUS TORQUATUS, Linnæus.

RING-OUZEL.

Turdus torquatus, *Linn. Syst. Nat.* i, p. 296 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846); *Whitaker, Ibis*, 1898, p. 126.

Merula torquata, *Boie, Isis*, 1822, p. 552; *Seebohm, Cat. Birds Brit. Mus.* v, p. 246; *Loche, Expl. Sci. Alg. Ois.* i, p. 190 (1867); *Koenig, J. f. O.* 1888, p. 212; *id. J. f. O.* 1893, p. 24; *Erlanger, J. f. O.* 1899, p. 247.

Description.—**Adult**, winter, from Sousa, Central Tunisia.

Above dark brownish-black, slightly paler on the quills and upper wing-coverts; throat and upper breast brownish-black, with a broad soiled white pectoral band; underparts below the gorget brownish-black, with a very slight whitish fringe to the feathers, and no median white markings.

Iris dark brown; bill dark brown, yellowish at the base; feet dark brown.

Total length 10·5 inches, wing 5·75, culmen ·7, tarsus 1·25.

The Ring-Ouzel occurs in winter in some of the more mountainous regions of Tunisia, but is probably only a migrant in the Regency, and not a resident and breeding species.

It is true Malherbe (*Faune Orn. Alg.* p. 18) alludes to it as having been observed on the Edough Mountain near Bone, in Algeria, as late as the month of May, and Loche (*Expl. Scient. Alg. Ois.* i.

p. 192) mentions having met with the species on the Djebel-Arib, and near Boghar at different times of the year, but the birds met with are more likely to have been examples of the southern or Alpine form of the Ring-Ouzel, and not of the typical *T. torquatus*. Loche, moreover, speaks of the song of the species as being "*dur, et peu agréable*," which terms are more applicable to the song of the former than to that of the latter.

In Marocco, as in Algeria and Tunisia, the Ring-Ouzel is to be found in the more mountainous districts in winter.

In Tunisia the species is far from common, and seems to be very local in its distribution, but, as in the case of some of the other Thrushes, it may occur more plentifully in some years than in others. The only example I have of this form in my collection was obtained in the neighbourhood of Sousa on the east coast of the Regency, where, however, according to information gathered on the spot, the species is but rarely seen. On the higher mountains further inland it is said to be more often observed.

The food of the Ring-Ouzel appears to consist of insects, worms, and snails, as well as berries of various kinds in their season. The bird is generally admitted to be a good songster, although opinions seem to differ somewhat as to its notes being soft or powerful. Its call-note is a sharp "tack," repeated several times.

TURDUS TORQUATUS ALPESTRIS (C. L. Brehm).

ALPINE RING-OUZEL.

Merula alpestris, *C. L. Brehm, Isis*, 1828, p. 1281.

Turdus alpestris, *Stejneger, Proc. U.S. Nat. Mus.* 1886, p. 365.

Merula torquata alpestris, *Seebohm, Ibis*, 1888, p. 310.

Description.—**Adult**, winter, from Tunis, North Tunisia.

Above brownish-black; wings lighter, and upper wing-coverts fringed with white; throat and upper breast brownish-black, with a broad soiled white pectoral band; lower breast brownish-black, the feathers fringed with white; abdomen and rest of underparts brownish-black, the feathers fringed with white, and most of them having white centres, those of the under tail-coverts having very pronounced and elongate white median spots running along each side of the shafts, which are also white.

Iris dark brown; bill brown, and yellowish at base of lower mandible; feet dark brown.

Total length 10.50 inches, wing 5.50, culmen .85, tarsus 1.25.

The present form of Ring-Ouzel was first noticed and alluded to by C. L. Brehm, under the name of *Merula alpestris* (*Isis*, 1828, p. 1281), but no description was given of the bird. This was, however, supplied by Brehm in 1831 (*Handb. Vög. Deutschl.* p. 372), and further supplemented by him in 1848 (*Isis*, 1848, p. 92) and in 1860 (*J. f. O.* 1860, p. 239). To Stejneger is due the credit of having, one may say, rediscovered this Ring-Ouzel, and brought about its recognition as distinct from the typical *T. torquatus*, (*Proc. U.S. Nat. Mus.* 1886, p. 365), and subsequently other good ornithologists, such as Seebohm, Count Salvadori, and Mr. Dresser have all written interesting articles regarding the bird, fully admitting its claim to separation from *T. torquatus*.

Apparently the chief distinguishing feature between *T. torquatus*, and *T. t. alpestris*, is to be found in the feathers of the underparts below the white collar, which in *T. t. alpestris*, at all seasons, have white or light-coloured margins, many of them also, particularly those of the under tail-coverts, having white central spots, whereas in *T. torquatus* the white margins to the feathers are only to be found in autumn and winter, while the white median spots are entirely absent at all seasons.

Besides the above, other minor differential characters are noticeable in the greater prevalence of white in the colouring of the upper wing-coverts and the axillaries of *T. t. alpestris*, as also in the colour of its bill as compared with that of *T. torquatus* and lastly, in the respective notes of the two forms, that of *T. t. alpestris* being said to be much shriller and more powerful than that of *T. torquatus*, although as regards the two latter points further and more conclusive evidence is desirable.

According to Seebohm (*Ibis*, 1888, p. 309), a third form, or geographical race, of *T. torquatus* is recognisable, and occurs in the Caucasus and Persia. In this form the white on the upper wing-coverts and on the axillaries is much more pronounced than it is in *T. t. alpestris*; whilst on the underparts the white on the margins of the feathers is less pronounced, and in the centre altogether absent. For this form Seebohm proposed the name of *Merula torquata*

orientalis. Apparently intermediate forms between the local races have been met with, and it is, of course, not unnatural that hybridism should occur between such closely-allied forms.

The range of the Alpine Ring-Ouzel appears to extend throughout the greater part of the mountainous regions of Southern and Central Europe, reaching as far as Central Germany on the north, Asia Minor on the east, and North-west Africa on the south. Westward it is said to occur in Spain and the south of France, which is no doubt the case, although typical *T. torquatus* is also to be found in these countries.

South of the Mediterranean, the Alpine Ring-Ouzel undoubtedly occurs in Tunisia, as shown by specimens in my collection; and, although I have no examples of it from Algeria and Marocco, the species probably also occurs in both those countries, as well as typical *T. torquatus*.

In Tunisia the present subspecies is not common or of general distribution, although Baron Erlanger mentions having met with it frequently in some of the mountainous parts of the centre of the Regency, and it is not unlikely that it may be more numerous in some years than in others.

There is at present no authentic proof that the Alpine Ring-Ouzel breeds in Tunisia, or indeed anywhere in North-west Africa, but I think it highly probable that it does so in some of the higher mountains of the Tell.

As mentioned in the preceding article, Malherbe alludes to the Ring-Ouzel having been observed on the Edough mountain, near Bone, in the month of May, and it is more probable that the Alpine bird should occur as a breeding species south of the Mediterranean than the northern form.

In its general habits the Alpine Ring-Ouzel does not seem to differ greatly from *T. torquatus*, although it apparently does so in its choice of a site for its nest, this being invariably placed in a tree, and not on the ground or in a low bush, as in the case of the northern bird.

MONTICOLA SAXATILIS (Linnæus.)

ROCK-THRUSH.

Turdus saxatilis, *Linn. Syst. Nat.* i, p. 294 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 10 (1846).

Monticola saxatilis, *Boie, Isis*; 1822, p. 522, *Seeböhm, Cat. Birds Brit. Mus.* v, p. 313; *Loche, Expl. Sci. Alg. Ois.* i, p. 196 (1867); *Koenig, J. f. O.* 1892, p. 389; *Whitaker, Ibis*, 1895, p. 92; *Erlanger, J. f. O.* 1899, p. 243.

Description.—**Adult male**, spring, from Ain Rhorab, Central Tunisia.

The entire head and neck, above and below, slate-blue, becoming darker on the mantle, where there is an admixture of blackish-brown; lower part of the back pure white; rump bluish-slate; upper tail-coverts rich orange; tail also orange, with the exception of the two central rectrices, which are light brown, being only orange-coloured at the base; quills brown; upper wing-coverts darker, most of the feathers being slightly fringed with white; entire under-surface below the throat, as well as the under tail-coverts and the axillaries, rich orange.

Iris, bill and feet, very dark brown.

Total length 8 inches, wing 5, culmen .85, tarsus 1.15.

Adult female, spring. Above mottled brown of different shades; tail and upper tail-coverts orange; below also mottled, but much lighter, the prevailing colours being buff, suffused with pale orange and pale brown, darker on the throat and breast, and lighter on the abdomen and crissum; under wing-coverts and axillaries orange.

Soft parts as in male; measurements slightly less.

Although nowhere plentiful, the Rock-Thrush is not uncommon in Tunisia during the periods of migration, and probably a good many of the birds also remain throughout the summer and breed in the Regency. I have no positive information on this point, but judging from the lateness of the season when pairs of the species have been met with, there can be little doubt as to their nesting in the country. At Kasrin, in Central Tunisia, I found Rock-Thrushes at the end of April, apparently established in their summer quarters; and from other parts of Central and Northern Tunisia I have notes of the occurrence of the species as late as the end of May, when presumably all, except the nesting birds, must have passed northwards. From the far south of the Regency I have only notes of these birds occurring on passage, and apparently the species does not winter anywhere in Tunisia.

In Algeria the Rock-Thrush, although not numerous, occurs in most of the mountainous districts, and probably breeds there.

In Marocco also, according to Mr. Meade-Waldo (*Ibis*, 1903, p. 205), the species is not numerous, but breeds in all suitable localities up to a great elevation. He observed it at an altitude of 10,500 feet.

In its habits and life generally the present species greatly resembles its more frequently observed congener, the Blue Rock-Thrush, though differing from that species in being far more migratory in its instincts. *M. saxatilis* is, in fact, essentially a migrant, occurring in Europe and North Africa almost exclusively in summer and on passage, whereas *M. cyanus* is resident and to be met with at all seasons in most Mediterranean countries. Both species well deserve their names, being true mountain birds, and rarely to be found at any distance from rocky ground, the rougher and more broken this may be, the better suited it is to the tastes and requirements of the birds. Wooded districts are more or less shunned, unless there should happen to be rocky ground also near at hand. The favourite haunts of *Monticola*, however, are undoubtedly wild mountain ravines and valleys, strewn with huge boulders and rocks of every size, where a few dwarf bushes and an occasional stunted and weather-beaten tree are the only signs of vegetation. In such spots as these, which abound in the Atlas region, one may be pretty sure of meeting with *M. cyanus* at any time of the year, and with *M. saxatilis* during the periods of migration, although the latter species is far less abundant than the former, and generally frequents somewhat higher altitudes. Both species are, however, extremely solitary in their habits, and it is a rare occurrence, out of the breeding season, to meet with these birds otherwise than singly. When nesting, they may occasionally be observed in pairs, but as a rule they are not at all sociable in their instincts, or naturally gregarious.

Canon Tristram, however, appears to have had the highly interesting and exceptional experience of seeing a large flock of *M. saxatilis* in Palestine, where, on one occasion, early in April, the whole of Mount Gerizim, according to his account, was covered by a restless flock of these birds, on their passage northwards. A similar flock was also seen by him on another occasion near Damascus in 1881.

The food of the Rock-Thrush consists chiefly of insects and their larvæ, worms, and snails, as also of berries to a certain extent, although

both this and the following species are far more exclusively insectivorous than the true Thrushes.

M. saxatilis is considered to be a good songster, with sweet, flute-like notes, resembling those of *M. cyanus*, and like that species, is said to be much prized as a cage-bird.

MONTICOLA CYANUS (Linnæus).

BLUE ROCK-THRUSH.

Turdus cyanus, *Linn. Syst. Nat.* i, p. 296 (1766).

Monticola cyana, *Boie, Isis*, 1822, p. 552; *Koenig, J. f. O.* 1888, p. 211.

Turdus cyaneus, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Petrocossyphus cyaneus, *Loche, Expl. Sci. Alg. Ois.* i, p. 194 (1867).

Monticola cyanus, *Seebohm, Cat. Birds Brit. Mus.* v, p. 316; *Whitaker, Ibis*, 1895, p. 92; *Erlanger, J. f. O.* 1899, p. 244.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Nearly the whole of the plumage, both above and below, of a dark slate-blue colour, the wings and tail being of a brownish-black.

Iris brown; bill and feet black.

Total length 9 inches, wing 5, culmen 1, tarsus 1.15.

Adult female, spring, from Doux, South Tunisia.

Above uniform umber-brown, below mottled brown and buff. Soft parts and measurements as in male.

The Blue Rock-Thrush is a commoner bird in Tunisia than the preceding species, and is to be met with, as a resident, in most of the mountainous parts of the Regency.

On the Djebel Ressay, near the town of Tunis, as also in the neighbourhood of Kasrin and Tebessa. I have found this Rock-Thrush by no means uncommon, and Mr. Aplin met with it in the far south of the Regency at Tatahouine, Guermessa, and Tamerzed. At the last-named place he found the species frequenting the old troglodytic cave dwellings existing in that neighbourhood, and in some of the caves he noticed several old nests, which, from his description of their shape and structure, I have little doubt were built by the present species.

Like its congener, *M. saxatilis*, the Blue Rock-Thrush is a true mountain bird, frequenting rocky valleys and hill-sides clothed with

a scanty and dwarfed vegetation, and though at times found at a considerable elevation, it generally occurs at a lower altitude than the preceding species. Broken ground of any kind seems to attract this species, and the bird appears to be as much at home among crumbling marl cliffs and banks as on solid rocky ground. It is also fond of ruins and old walls, and may sometimes be seen perching on buildings, for although extremely watchful and wary, it is not a particularly timid bird, and ventures near human dwellings without fear, occasionally even building its nest in the walls of houses.

Colonel Irby ("Orn. Strs. Gib." p. 75) gives an interesting account, which has also appeared in Mr. Dresser's "Birds of Europe," of the nesting of a pair of this species in a hole outside the wall of his stable at Gibraltar.

In their more slender form and sprightly movements, as well as in some of their habits, the Rock-Thrushes resemble Chats more than true Thrushes, and there is no doubt that the genus *Monticola* forms a connecting link between the two subfamilies, partaking as it does of the characters of both.

Like its congener, the present species is generally to be seen perched conspicuously on a rock or other eminence, whence a good look-out can be obtained. Should it be disturbed, the bird will drop quietly off and fly away, reappearing again on a similar perch at some distance. When met with, as is often the case, in underground caves or very broken ground, it will sometimes disappear entirely from view, making its exit through some intricate winding, or tortuous tunnel which is probably too narrow to admit of the passage of a human body.

Like the Chats, this species appears to be chiefly insectivorous, and in Tunisia locusts and coleoptera form an important item of its diet. In confinement, however, it will eat meal, fruit, and indeed almost anything that is given to it, but to keep it in good health a certain amount of animal food appears to be necessary. In most cases chopped meat or liver, varied with a little meal, will be found to be the best food, and on this the bird will thrive and live for several years in captivity. Lizards are sometimes attacked by the Blue Rock-Thrush, and a correspondent of the Italian journal, "*Avicula*," writes that he has often seen one of these birds nip off a lizard's tail and carry it away to its young brood.

The *Passero Solitario*, as this bird is called in Italy, is greatly prized in that and other Mediterranean countries, not only on account of its agreeable song, but also because of its bright and attractive ways; for though rather shy in its natural state, it is capable of becoming remarkably tame in confinement, particularly when brought up from the nest. At the present time I have one which is a delightful pet.

The song of the Blue Rock-Thrush is composed of sweet, flute-like notes, resembling some of those of the common Thrush, although not quite equal to them. The bird is also a good mimic, and has a facility for acquiring the notes of other birds.

The nest of this species, which is generally to be found in a fissure or cleft between rocks, or in the hole of a wall, is composed chiefly of root-fibres loosely put together. The eggs, usually five in number, are of a beautiful glossy greenish-blue, and, in the case of all those in my collection, are without any spots. Average measurements, 25 × 19 mm.

Subfamily SAXICOLINÆ.

SAXICOLA ŒNANTHE (Linnæus).

COMMON WHEATEAR.

Motacilla œnanthe, *Linn. Syst. Nat.* i, p. 332 (1766).

Saxicola œnanthe, *Bechst. Orn. Taschenb.* i, p. 217 (1802); *Seebohm, Cat. Birds Brit. Mus.* v, p. 391; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11, (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 202 (1867); *Koenig, J. f. O.* 1892, pp. 301, 416; *Whitaker, Ibis*, 1895, p. 92.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Crown, neck and back bluish-grey; forehead and superciliary stripes white; lores and ear-coverts black; wings and wing-coverts black, the secondaries and coverts slightly margined with buff; rump and upper tail-coverts pure white; tail-feathers white at the base, the two central ones being black on the terminal half, the remaining ones black on the terminal third only; underparts buffy-white; under-coverts and axillaries blackish, broadly margined with white.

Iris very dark brown; bill and feet black.

Total length 6 inches, wing 3·80, culmen ·60, tarsus 1·10.

Adult female, spring. Above dull grey-brown ; wings and tail browner than in male ; rump white ; lores and ear-coverts brownish ; underparts buff. Soft parts as in male, measurements rather less.

Observations.—I have no specimens in full breeding plumage in my collection from Tunis. The adult male in this stage has the crown, nape and back of a clear blue-grey colour, and the wings and tail quite black, while the underparts are quite white.

The autumn plumage of this species is very different to the spring one, that of the male becoming more like that of the female.

The common Wheatear is abundant in some parts of the Regency during the periods of migration, arriving as a rule after the beginning of March, and repassing, on its return from the north, in September. I know of no instance of the species wintering in the Regency, although Canon Tristram (*The Great Sahara*, p. 395) mentions it as occurring in Algeria in winter. With regard to the common Wheatear breeding in Tunisia, or, indeed, anywhere in North Africa, I have no positive information, but having obtained specimens of it as late as the month of May in the neighbourhood of Tozer and Metlaoui, in South Tunisia, I am inclined to believe that individuals of the species do remain and breed in the Regency, although perhaps they may not be many. Loche, indeed, states that it is resident in Algeria, and Mr. Salvin shot a bird of this species in the month of June, near Zana in the Eastern Atlas (*Ibis*, 1859, p. 306).

After the middle of March, and throughout the month of April, I have found *S. œnanthe* more or less abundant on most of the Tunisian plains and mountain-sides. In the Atlas district I have met with the species in considerable numbers about the end of March on some of the higher plateaux, where tracts of bleak, inhospitable uplands extend for many miles, bare or almost so of vegetation, but rich in Roman ruins. On the lower plateaux further south I have also found the common Wheatear plentiful at times, as also in the Chott country of South Tunisia.

In September, on their return southwards, these Chats are fairly numerous in the Regency, but the autumnal migration seems to be less noticeable or conspicuous in Tunisia than it is in some other Mediterranean countries, as in Sicily for instance, where the “codibianchi” at times form quite an important item in the “bag” of the local “cacciatore.”

The flesh of the Wheatear is considered by epicures to be a dainty

morsel, and large numbers of these birds used once to be snared in England, as well as in other countries, for the table.

In its habits the common Wheatear is an active, lively bird, and, being very restless, is perhaps more often noticed on the wing than perching. When in this latter position it is almost invariably to be seen on a stone or rock, and not on a bush or other plant, as is the case with some other members of the genus. Stony spots generally are affected by this species, and the old Roman ruins, so plentiful in Tunisia, seem to have a special attraction for these birds. The Wheatear's flight is probably more powerful than it appears to be, and when the bird is actually on migration, can be sustained for a considerable length of time.

The food of this species, like that of most of the Chats, is almost entirely composed of insects.

Its song is rather insignificant, and one more often hears the simple "chat, chat" of the bird than any other of its notes.

During the nesting season, in those countries in which it breeds, *S. ananthe* is often met with at a considerable elevation, and I have found the species abundant in summer in the Upper Engadine, at 6,000 feet above sea-level. In Sicily it retires to the higher mountains of the interior for the breeding season, and is not then to be met with in the lower-lying country.

In Europe nests of this species are generally found in holes in rough broken ground, or among rocks, and are shallow structures composed principally of dry grasses and rootlets, with a slight lining of hair or wool. The eggs, four to six in number, are of a delicate pale greenish-blue, sometimes spotless, but more often with a few dark red specks on them. Average measurements 20×15 mm.

I am unable to include in my list of Tunisian birds the rare *Saxicola seebohmi*, as up to the present time at any rate, the species has not been met with within the limits of the Regency. As, however, it occurs in the Aurès Mountains in Algeria, it is quite possible that it may be found on some of the higher mountains further east, which are but a continuation of the Atlas chain, and I shall not be surprised should this eventually prove to be the case, although this range in Tunisia does not attain the same altitude that it does in Algeria and Marocco.

From Marocco I have three examples of *S. seebohmi*, which were obtained in 1897 by Mr. Dodson, at Tilula and Zarakten in the Western

Atlas, and as comparatively little is at present known respecting this rare and interesting Chat, it may perhaps not be out of place to give an extract of what I wrote at the time regarding the species (*Ibis*, 1898, p. 595):—

“*Saxicola seebohmi*.—Three specimens, all males; one obtained at Tilula on May 24th, and the other two at Zarakten on May 29th. Two of the specimens are in fine adult plumage, while the third, which is probably a last year's bird, shows some immature feathers. No female specimens were obtained, and Mr. Dodson says he met with none, and concluded that the hen birds were on their nests at the time. Mr. Dodson met with this rare Chat only in the above-named districts in the Atlas Mountains, where he found it by no means common, and always in the most desolate and barren spots. The height of Zarakten and Tilula is apparently about 5,000 feet above sea-level, or about the same as that of the plateaux of the Djebel Mahmel in Algeria, where Mr. C. Dixon and Dr. Koenig found the species, and this degree of elevation is doubtless a characteristic of the bird's habitat. The range of *S. seebohmi* probably extends throughout the entire chain of the Atlas Mountains, wherever the above-mentioned altitude is reached, but the species appears to be nowhere very abundant, at any rate now, although Mr. Dixon found it common on the Djebel Mahmel in 1882. I may here mention that last year I sent a collector to the Djebel Mahmel in the month of May, with a view to obtaining the nests and eggs of *S. seebohmi*, but although my man spent a couple of days on the mountain, he failed to find what I wanted, nor did he even come across the bird itself, the only Chat he found being *Saxicola aurita*, of which species he brought me a nest with five eggs and the female parent.”

Whether *S. seebohmi* is a resident species in the Atlas, or whether it migrates further south in winter, is at present unknown, the only recorded occasions on which this rare Chat has been met with having been in the late spring. Considering, however, the temperature of the Atlas regions in winter, and the fact of the species never having been met with there during that season, it seems more than probable that it *does* migrate on the approach of winter, only returning to its summer quarters when the spring is fairly well advanced.

In the month of November, 1902, I purposely sent a collector to Djebel Mahmel in search of *S. seebohmi*, but although he spent some days in the neighbourhood he failed to meet with the species.

As in the case of the Black-eared and Black-throated Chats, there would appear to be an analogous affinity between *S. œnanthe* and *S. seebohmi*, not only in their plumage-colouring and marking, but also in their habits and mode of life generally. I am not the first to have remarked this, for Dr. Koenig, in his work on the Ornis of Algeria ("Reis. und Forsch. in Algerien," p. 189), alludes to this resemblance, and makes some highly interesting remarks thereon.

Although we have no examples of *S. seebohmi* available for comparison, except those obtained in spring, judging from the incomplete plumage of some of the male specimens, which show a certain admixture of brownish feathers among the pure blue-grey plumage of the upper parts, we may presume that the autumn dress of this species undergoes a similar change to that observable in *S. œnanthe*, and that the males of *S. seebohmi* in autumn, like those of *S. œnanthe*, become more like the females in their plumage. Judging, moreover, from the incompletely attired specimens above alluded to, the black throat of the male of *S. seebohmi* probably disappears in part, if not entirely, on the approach of autumn. The females of the two species are apparently scarcely distinguishable one from the other, that of *S. seebohmi* being merely a shade browner and less grey than that of *S. œnanthe*. In their choice of habitat the two species also resemble each other greatly. Both are eminently mountain species, frequenting rocky, barren tracts of country, where there is little or no vegetation, and breeding, as a rule, at a considerable elevation. Comparatively little, however, is known thus far regarding *S. seebohmi*, and further information concerning this rare species is highly desirable. This may perhaps be forthcoming shortly, for I hear of an active collector having recently visited the Aurès and there obtained quite a large number of specimens of this Chat.

SAXICOLA ISABELLINA, Rüppell.

ISABELLINE CHAT.

Saxicola isabellina, Rüpp, *Atlas* (1826), p. 52; *Seebohm, Cat. Birds Brit. Mus.* v, p. 399; *Koenig, J. f. O.* 1888, p. 190; *Whitaker, Ibis*, 1896, p. 91; *Erlanger, J. f. O.* 1899, p. 231.

Dromolœa isabellina, *Loche, Expl. Sci. Alg. Ois.* i, p. 201 (1867).

Description.—**Adult male**, from Tatahouine, South Tunisia.

Above sandy-brown; quills rather darker; rump and upper tail-coverts

white; tail-feathers white at the base, the two central ones dark brown on the terminal two-thirds, the remaining ones black on the terminal half; lores black; a whitish stripe from the bill to the eye; ear-coverts darkish buff; chin whitish; remainder of the underparts creamy-buff; axillaries and under wing-coverts white.

Iris dark brown; bill and feet black.

Total length 6.50 inches, wing 4, culmen .60, tarsus 1.25.

Adult female, similar to the male in plumage, but rather smaller.

This is a rare species in Tunisia, apparently only occurring in the more southern districts, and even there not often met with. I have specimens of it, both male and female, obtained from the neighbourhood of Tatahouine, but from no other part of the Regency. Baron v. Erlanger obtained an example of the Isabelline Chat on the Djebel Tfel near Gafsa, but the species is evidently rare in Tunisia, and from Algeria and Marocco it seems to be as yet unrecorded. The species is, indeed, an eastern one, its habitat proper being South-eastern Europe, Asia Minor, North-eastern Africa, and Asia, and although it has been stated to occur in Greece and other parts of Southern Europe, these records apparently lack confirmation. An undoubted example of the species, however, seems to have occurred in England in 1887. This specimen was shot by Mr. Thomas Mann, at Allonby in Cumberland, on November 11th, and was exhibited at a meeting of the Zoological Society of London on December 6th, 1887.

I have no information regarding the breeding of the Isabelline Chat in Tunisia.

SAXICOLA STAPAZINA (Linnæus).

BLACK-EARED WHEATEAR.

Motacilla stapazina, *Linn. Syst. Nat.* i, p. 331 (1766).

Enanthe albicollis, *Vieill. Nouv. Dict.* xxi, p. 424 (1818).

Saxicola aurita, *Temm. Man. d'Orn.* i, p. 241 (1820); *Scebohm, Cat. Birds Brit. Mus.* v, p. 394; *Koenig, J. f. O.* 1888, p. 210; *id. J. f. O.* 1892, p. 416; *Whitaker, Ibis*, 1895, p. 92; *Erlanger, J. f. O.* 1899, p. 224.

S. albicollis, *Loche, Expl. Sci. Alg. Ois.* i, p. 205 (1867).

S. vitiflora rufescens, *Koenig, J. f. O.* 1888, p. 210.

S. stapazina, *Dresser, Birds of Europe*, ii, p. 203, pl. 23 (1874); *Salvadori, Ibis*, 1904, p. 77.

Description.—**Adult male**, spring, from Oglet-Zellès, South Tunisia.

A frontal stripe, extending over the base of the bill, lores, a stripe over the eye, ear-coverts, wings, and scapulars jet-black; crown, nape, back, rump, and upper tail-coverts silvery white, with a tinge of cream colour on the back; the two central tail-feathers white on the basal third, otherwise black; the remaining rectrices white, tipped with black, broadly so on the exterior pair, and slightly so on the rest; underparts white, with a strong tinge of cream colour on the breast: the under-surface of the primaries and secondaries black.

Iris very dark brown; bill and feet black.

Total length 6 inches, wing 3·50, culmen ·60, tarsus ·90.

Adult female is indistinguishable, or nearly so, from that of the following species.

The autumnal plumage of the male is a rich russet-brown, the wing-feathers being conspicuously bordered with rufescent-buff. Besides the seasonal variation there is also some variation in plumage entirely dependent upon age.

As recently pointed out by Count Salvadori (*Ibis*, 1904, pp. 75-78), the Linnæan specific name of *stapazina* undoubtedly applies to the Black-eared and not to the Black-throated Chat. This is clearly shown, not perhaps by Linnæus's own description of his *Motacilla stapazina*, but by his reference to *Enanthe altera* ("Aldrovandi, Orn." ii., p. 763), where, besides a good description of the bird, we find an unmistakable figure of the Black-eared Chat.

From the very first considerable confusion appears to have reigned regarding the names of these two closely-allied species, the Black-eared and the Black-throated Chat. Edwards, as far back as 1743 ("Nat. Hist." i, p. 31, pl. 31), figured under the name of the Red or Russet-coloured Wheat-ear, the Black-throated Chat as the male, and the Black-eared Chat as the female. Brisson, in 1760 ("Orn." iii, pp. 457-459), refers to Edwards's plates, and falls into the same mistake. Vieillot, in 1818 ("Nouv. Dict." xxi, pp. 424-425), first pointed out that Edwards had figured two distinct species under one name, as different sexes of the same bird, but overlooked the fact that Linnæus, in his description of *M. stapazina*, referred to Edwards's figure representing the Black-eared Chat, and retaining the name of *S. stapazina* for the Black-throated Chat, redescribed the Black-eared Chat under the name of *Enanthe albicollis*. Temminck, two years later, also discovered Edwards's mistake, but, like Vieillot, overlooking Linnæus's application of the name *M. stapazina* to the Black-eared Chat, gave this bird the name of *S. aurita*. Mr. Dresser, in his articles on these

two Chats ("Birds Eur." ii, pp. 203-210), enters at some length into the matter of their nomenclature, and rightly refers the Black-eared Chat to *S. stapazina*, although he has recently ("Man. Pal. Birds," p. 37) referred this species to *S. albicollis*, Vieill., and applied the name of *S. stapazina* to the western form of the Black-throated Chat. Finally, Dr. Sharpe, in his "Hand List of the Genera and Species of Birds," has relegated the name of *stapazina* to the synonyms of the Western Black-throated Chat, which he refers to *Saxicola rufa* (Steph.), although that name, from Stephens's description of the bird, appears to belong to the Black-eared Chat.

Neither of the two names, *stapazina* or *rufa*, being available for the Western Black-throated Chat, this bird must no doubt bear Count Salvadori's name of *Saxicola occidentalis* ("Ann. Mus. Civ. Gen." 2, iii, p. 116).

As mentioned in the following article on *S. caterinæ*, both forms or species of Black-eared Chat occur in Tunisia, the present, or Eastern form, however, not being nearly so common as the Western form, *S. caterinæ*. Possibly the Regency forms the extreme western limit of its range in Africa, although in Europe it occurs further west, being found in France, Spain and Portugal. In my Marocco collection I have a large series of Black-eared Chats, but they are all of the Western species. In Spain, Sicily, and the Riviera, as well, perhaps, as in some other West Mediterranean districts, both species occur. I would here observe that in localities where the two species meet, it is by no means unlikely that they may interbreed, being so closely allied to each other, and hybrids be the result; indeed, I have seen one or two specimens of Black-eared Chats which seem to partake equally of the distinguishing characters of the two species.

While on this subject I may allude to the close relationship which evidently exists between not only the two species of Black-eared Chat, but also between them and the two species of Black-throated Chat. These four species, indeed, form a fairly distinct group in themselves, closely resembling one another in many respects, such as structure and plumage colouring, as well as in their choice of habitat, their nesting, and in their habits generally.

In a paper recently published on the birds of the "Bocche di Cattaro," South Dalmatia (*J. f. O.* 1904, pp. 93-100), Herr P. Kollibay gives some interesting notes regarding the Black-eared and Black-throated Chats, and enters at some length into the question of their close relationship.

I have met with *S. stapazina* on three occasions only in Tunisia, and the species is evidently not common there. Whether it breeds in the Regency I cannot say, but it possibly does so, and no doubt its nest and eggs are similar to those of *S. caterinæ*. Baron v. Erlanger seems to have met with *S. stapazina* on one occasion in Tunisia, but treating of the Black-eared Chats found in the Regency (*J. f. O.* 1899, pp. 224-227), he refers the Western form to *S. aurita aurita* (Temm.) (= *S. stapazina*), and the Eastern form to *S. amphileuca* (H. and E.). Curiously enough, although noticing most of the differential characters between the two forms, he failed to observe what is probably the most salient one, viz., the colour of the under-wing surface.

From Tripoli I have a young male specimen of the Black-eared Chat, which appears to belong to the Eastern form, but it is not sufficiently adult for positive certainty of identification.

In the small collection of skins at the Paris Jardin des Plantes Museum I have, however, seen a fully adult male specimen from Tripoli which is undoubtedly of this species.

I would here observe that for proper comparison of the two forms, or species, of Black-eared Chats, it is necessary to have fully adult male specimens in breeding plumage, immature examples being useless for the purpose.

SAXICOLA CATERINÆ, Whitaker.

WESTERN BLACK-EARED CHAT.

Saxicola caterinæ, Whitaker, *Ibis*, 1898, p. 624; *id. Ibis*, 1903, p. 408; Erlanger, *J. f. O.* 1900, p. 99.

Description.—**Adult male**, spring, from El-Madjen, Central Tunisia.

A narrow frontal line, not extending over the base of the bill, lores, a narrow stripe not extending completely over the eye, ear-coverts and wings black; crown, nape, back, and scapulars rich cream colour; rump and upper tail-coverts white; the two central tail-feathers white on the basal third, otherwise black, the remaining rectrices white, broadly tipped with black, the outer pair rather more so than the rest; entire underparts white, faintly tinged with cream colour; under-surface of the primaries and secondaries white and grey.

Iris very dark brown; bill and feet black.



$\frac{7}{8}$
Saxicola ceterinæ

Total length 6 inches, wing 3·60, culmen ·60, tarsus 1.

Adult female, spring, from the Plain of Carthage, North Tunisia.

Forehead, lores, and a stripe over the eyes pale buff; ear-coverts brownish-buff; crown, nape, back and scapulars dark buff; rump and upper tail-coverts white, tinged with buff; the two central rectrices brownish-black, except the basal portion, which is white; remaining tail-feathers white, broadly tipped with brownish-black; quills brown; the secondaries and coverts slightly margined with dark buff; under wing-coverts and axillaries dark brown; under-surface of the primaries and secondaries greyish-brown and whitish; chin and throat pale buff, breast warmer buff, becoming darker on the flanks, and lighter on the abdomen, crissum, and under tail-coverts.

Iris, bill, and feet dark brown.

Total length 5·75 inches, wing 3·55, culmen ·55, tarsus ·90.

Young, apparently about six weeks old, from near the town of Tunis.

Entire crown, sides of head, nape, and back pale buff, mottled with darker buff; rump and upper tail-coverts white; tail as in the adult male, except for a whitish fringe at the tip; quills brown, the secondaries and coverts broadly margined with rufescent-buff; underparts very pale buff, slightly mottled on breast with a darker buff. Soft parts brown.

Observations.—In autumn the male of this species assumes a handsome russet-brown attire, the new wing-feathers being conspicuously margined with buff.

Besides the seasonal variation, there is also a considerable variation in plumage dependent entirely upon age, the tendency in the males being to become whiter and more hoary as they grow older. There is also a slight amount of individual variation, and I have two males of this species in my collection which have no black at all on the forehead and lores, but these cases are no doubt rare and exceptional.

In the *Ibis* for 1898 (pp. 624-625) I wrote a short article, pointing out the distinctness of the Black-eared Chat commonly found in North-western Africa and South-western Europe from that occurring in the rest of Southern Europe, in Asia Minor, and in North-eastern Africa, and describing the former as a new species under the name of *Saxicola caterinæ*. The following is an extract of what I then wrote, stating in what way the two forms differ from each other:—

“The Western Black-eared Chat differs from the Eastern bird in the following respects:—

“(a) The black of the lores does not extend over the base of the bill in a narrow frontal band, this point being of a creamy-white colour, the same as the rest of the crown.

“(b) The scapulars are cream coloured, and not black.

“(c) The under-surface of the wings, both primaries and secondaries, is of a light colour, sometimes quite white, instead of being black.

“The adult male of the Western bird, moreover, does not seem to assume, as a rule, the silvery-white plumage on the head and back found in adult examples of *S. aurita* in spring, but remains always more or less cream coloured.

“On the other hand, the Western bird is generally whiter on the throat and underparts than the Eastern bird.

“In some specimens of the Western form there is very little black on the lores, some examples, indeed, having none at all, although probably this is exceptional.

“The measurements and soft parts are the same in both forms. As in the case of the two species of Black-throated Chat, the meeting-point of the two species of Black-eared Chat is probably, roughly speaking, about the tenth degree of east longitude. From Tunis I have both forms, although the Western is by far the commoner of the two; in fact, out of some twenty specimens in my collection, only one is of the Eastern form. All my specimens from Algeria and Marocco are of the Western form.”

The validity of the name *S. caterinæ* having been disputed, I subsequently wrote on the subject as follows (*Ibis*, 1903, pp. 408-410):—

“In order to arrive at a satisfactory solution of this question of names (for apparently the distinctness of the two forms or species is now recognised by most ornithologists), it is necessary to examine and carefully consider previous descriptions of the Black-eared Chat, with a view to ascertaining, so far as may be possible, to which form they refer.

“Taking first Vieillot’s *Ænanthe albicollis* (“Nouv. Dict.” xxi., p. 424, 1818), the description given of this bird, although in many respects applying equally to both forms, when taken as a whole applies far better to the Eastern form than to the Western. To begin with, the plumage of the upper parts in the Western form could never correctly be described as of a “beau blanc,” even “légèrement teint de roux,” &c., the upper plumage of this form being distinctly cream coloured. On the other hand, in the Eastern form these parts are of a fine white. Secondly, the words “une bande noire traverse et enveloppe l’œil” are certainly more applic-

able to the Eastern form, in which the eye is completely and very markedly encircled by the black band; whereas in the Western form it is not generally so, being either without any black at all above the eye or with merely a very narrow line. Lastly, the words "les couvertures du dessus et du dessous des ailes sont de cette couleur (noire) ainsi que les pennes" would indicate that Vieillot meant that the quills as well as the wing-coverts were black, both above and below.

"I do not know where Vieillot's type-specimen may be, if, indeed, there be one in existence; but I may say that the form of Black-eared Chat most often met with in Europe appears to be the Eastern and not the Western, the range of the latter being more or less confined to a comparatively small portion of the Continent.

"I would here observe that the term Eastern, as applied to the Black-eared Chat with a dark under-wing, is somewhat misleading, the range of this form extending right across the European Continent as far west as France and Portugal. Mr. Dresser is evidently unaware of this fact, as, in a letter, he informs me that he has never heard of its occurrence further west than Montenegro and Albania.

"With regard to Temminck's *Saxicola aurita* ("Man d'Orn." i, 1820, p. 241), his description, although, on the whole, more applicable to the Eastern form of Black-eared Chat than to the Western, is so vague that it might apply equally to either. Owing, however, to the kindness of Dr. Otto Finsch, of the Rikjs Museum at Leiden, where Temminck's collection is preserved, I have been able to ascertain that Temminck's specimens of Black-eared Chats are from South France, Italy, Portugal, Egypt, Bogosland, and Arabia, and that they all agree in having the under-surface of the wing *black*. Dr. Finsch was unable to inform me which particular specimen had served Temminck as his type; but presumably his description was taken from one of these examples, and seeing that all the specimens have the under-surface of the wing black, we are justified in concluding that Temminck's description of *S. aurita* applies to the Eastern and not to the Western Black-eared Chat, which has the under-surface of the wing of a light colour.

"This is, indeed, all the more probable when we consider that the Eastern Black-eared Chat is the form found throughout the greater part of Southern Europe, as well as in Asia Minor and North-east Africa; while the Western form, so far as I have been able to ascer-

tain, with the exception, perhaps, of an occasional straggler, occurs only in North-west Africa, South Spain, Sicily, and one or two other West Mediterranean coast districts.

“Hemprich and Ehrenberg’s descriptions of *S. aurita* var. *libyca*, and *S. amphileuca* (*Symb. Phys.* 1829, and *Symb. Aves*, 1833) are also rather vague, but there can be no doubt that both refer to the Eastern Black-eared Chat, and must therefore be regarded as synonyms of *S. albicollis* (Vieill.), or *S. aurita* (Temm.).

“Dr. Finsch, in his ‘Catalogue of Birds in the Leyden Museum’ (p. 151), is unable to separate *S. aurita* and *S. amphileuca*, specimens in his collection from South France and Bogosland being identical. This form of the species, in fact, as already mentioned, has a wide range from east to west, and the term *Eastern* as applied to it, being misleading, might perhaps with advantage be changed for some other more appropriate designation.

“In conclusion, I maintain that both Vieillot’s and Temminck’s descriptions refer to the Eastern Black-eared Chat, and that Hemprich and Ehrenberg’s names are synonyms; so that the name *Saxicola caterinæ*, failing proof to the contrary, should stand for the Western Black-eared Chat.”

In addition to the various differential characters pointed out in the first of my above letters in the *Ibis*, there is another rather important one, which I had not at first noticed. This lies in the black band at the extremity of the rectrices, which in *S. stapanina* is much narrower than it is in *S. caterinæ*. Very old males, indeed, of the former species have very little black at all on the tips of most of the rectrices, and occasionally specimens are to be met with having all these feathers, with the exception of the central and outermost pairs, entirely white. The same difference in the tail-pattern is observable between the two forms of Black-throated Chat.

I would also here observe that, although so far as is at present known, the range of *S. caterinæ*, with the exception of an occasional straggler, appears to be confined to North-western Africa and South-western Europe, the species being migratory and non-resident in those countries in winter, it must occur also somewhere further south. I may further here allude to the recent occurrence of a fine male specimen of *S. caterinæ* in England, the first recorded in the British Islands. This interesting discovery was made near Polegate in Sussex, on May 28th, 1902, and, together with the specimen itself,

was brought before the notice of the British Ornithologists' Club by Mr. W. Ruskin Butterfield, at a meeting held in June of that year (*Bull. B. O. C.* xii, p. 78).

S. caterinæ is tolerably abundant in many parts of Tunisia as a summer migrant, arriving, as a rule, after the middle of March, and leaving again in September. Its winter quarters are evidently further south, and I have no note of its occurrence anywhere in the Regency during the cold months.

After the termination of the spring passage *S. caterinæ* is more often to be met with north of the Atlas, though a good many of these Chats also breed in the central districts of the Regency, and probably do not cross the Atlas at all. Towards the end of March, and throughout the month of April, I have found the species in considerable numbers on most of the high plateaux and stony scrub-covered plains of Central and South-western Tunisia, notably on those lying between Feriana and Gafsa, and near Oglet-Zellès in the west of the Regency. About Kasrin, too, and on the slopes of the Djebel Semama it is more or less plentiful, and in constant evidence during the spring months. In North Tunisia I have found this Chat common on the plain of Carthage, and on the lower hillsides near Hamman-Lif, within a short drive of the town of Tunis.

Like its near ally, *S. stapazina*, the present species is a bush-loving bird, and evinces a partiality for open, undulating country, where a scrub or dwarf vegetation flourishes, apparently avoiding the more rocky and barren districts frequented by *S. œnanthe*. The species, however, is also to be met with at times on some of the higher mountains, and I have an example of it, a female, which was obtained, together with its nest and eggs, on the Djebel Mahmel in Algeria, at an altitude of about 5,000 feet above sea-level.

Mr. Meade-Waldo (*Ibis*, 1903, p. 204) also mentions having met with the species in Marocco at considerable elevations.

Resembling the preceding species, and the Black-throated Chats, in its slender build and sprightliness, the present species also resembles them in its habits generally, and in its nesting.

Perched on the top of a low bush, or shrub, the male of this species is a conspicuous object, and is oftener to be noticed than its more soberly attired mate. It seems probable that the males precede the females somewhat in their arrival, and this would account for the fact that several of the former sex are occasionally to be seen

together in the early spring. Later on, however, the birds are always to be met with in pairs. Although generally to be found perching on low bushes, or on the ground, this Chat may sometimes be seen on railings, posts, or telegraph wires, and I have shot specimens when thus perching. Naturally rather shy and wary, the present species, like many other birds, becomes doubly so when it perceives that it is being watched or followed, and under such circumstances a near approach to it is extremely difficult. Many a chase used I to have after these birds when wishing to secure them in pairs.

In its flight this Chat does not differ greatly from the common Wheatear, skimming along usually two or three feet above the surface of the ground, and at times darting from side to side. It does not, as a rule, make a long flight, except when pursued, and then it is capable of flying a considerable distance. Occasionally, during the nesting season, this Chat may be observed hovering in mid air, like a Lark, at a considerable height from the ground.

Its song, generally uttered when perching on a bush or stone, is pleasing, though not very powerful or varied.

Its food consists chiefly of insects of different kinds, and in some parts of Tunisia almost entirely of coleoptera.

S. caterinae generally breeds on a low hill-side, or on broken rugged ground, where it places its nest under a rock, or tussock of grass or other plant. The nest is rather a flat structure, composed of dry bents and fibres, loosely put together, and lined with a little hair or wool. The eggs, four or five in number, are of a rich bluish-green, spotted, chiefly at the blunt end, with russet-brown spots. Average measurements 19×14 mm. The nesting season extends throughout April, May and June.

The smaller figure in the accompanying plate shows the light colour of the under-wing in this species.

SAXICOLA OCCIDENTALIS, Salvadori.

WESTERN BLACK-THROATED CHAT.

Cenanthe stapazina, *Vicill. (nec Linn.) Nouv. Dict.* xxi, p. 425 (1818).

Saxicola stapazina, *Temm. (nec Linn.) Man. d'Orn.* i, p. 239 (1820); *Seebohm, Cat. Birds Brit. Mus.* v, p. 387; *Loche, Expl. Sci. Alg. Ois.* i, p. 204 (1867); *Koenig, J. f. O.* 1888, p. 209; *id. J. f. O.* 1893, p. 13; *Whitaker, Ibis*, 1894, p. 87; *id. Ibis*, 1895, p. 93; *Erlanger, J. f. O.* 1899, p. 222.

S. rufa (*Brehm*), *Koenig, J. f. O.* 1888, p. 209; *id. J. f. O.* 1893, p. 13.

S. occidentalis, *Salvad. Ann. Mus. Civ. Gen.* (2) iii, p. 116 (1886); *id. Ibis*, 1904, p. 78.

Description.—**Adult male**, spring, from Sbeitla, Central Tunisia.

Forehead, crown, nape, back and scapulars cream coloured; rump and upper tail-coverts white; wings black; the two central rectrices white at the base, otherwise black; the two exterior rectrices white on the basal two-thirds, and black on the terminal third; the remaining tail-feathers white, broadly tipped with black; lores and region round the eye, ear-coverts, and upper throat jet-black, this colour extending in a narrow line as far as the culmen, but not over it; the remainder of the underparts white, tinged with cream colour; under-surface of the primaries and secondaries greyish-white.

Iris very dark brown; bill and feet black.

Total length 6 inches, wing 3·65, culmen ·65, tarsus ·90.

Adult female, spring, from North Tunisia.

Forehead, lores, and a streak over the eyes greyish-buff; ear-coverts light brown; crown, nape, back and scapulars greyish-brown; rump and upper tail-coverts white; the two central rectrices white at the base, otherwise blackish-brown; the remaining rectrices white, broadly tipped with dark brown; wings brown, the secondaries and coverts margined with buff; chin and throat light grey; breast buff, becoming darker on the flanks and paler on the abdomen, crissum, and under tail-coverts; under wing-coverts and axillaries grey.

Iris, bill and feet dark brown.

Measurements slightly less than in the male.

Observations.—In autumn plumage the light colouring of the upper parts in the male becomes a rich russet-brown, while the wing-feathers are very conspicuously margined with buff.

The principal difference between the females of *S. caterinæ* and *S. occidentalis* appears to be that in the former the general tone of plumage inclines to buff, and in the latter to grey, or in other words, the former is lighter, and the latter darker in colouring. Between individuals of the same species, however, there is a certain amount of

variation in colour, according to age and season, and unless pairs are obtained together, it is not always easy to decide to which of the two species the females may belong.

The fully adult plumage, whether male or female, is probably not assumed by this and allied species until after the first breeding season.

I know of no instance of the female of the present species assuming a dark throat, as appears to be the case, not uncommonly, in the female of *S. melanoleuca*.

As mentioned in the article on the Eastern Black-eared Chat, the proper name for the Western Black-throated Chat must, no doubt, be that of *S. occidentalis*, given it by Count Salvadori (Ann. Mus. Civ. Gen. (2) iii, p. 116).

As stated in my notes on Tunisian Birds (*Ibis*, 1895, p. 93), both species of Black-throated Chat occur in Tunisia, *S. melanoleuca*, or the eastern species, being, however, far less common than *S. occidentalis*, its western representative. That the two species are clearly separable is undoubted, the points of difference between them being the same as those between the two species of Black-eared Chat, in addition, of course, to the black throat-band.

Roughly speaking, the degree of longitude in which Tunis lies seems to be the meeting point of the two species of Black-throated Chat, and, so far as I am aware, the eastern bird does not occur further west than the Regency.

North of the Mediterranean we find the same holding good in Italy, both species, according to Prof. Gigholi, occurring in the neighbourhood of Florence, which lies nearly in the same degree of longitude as Tunis, *S. melanoleuca* being rarer to the west, and *S. occidentalis* to the east of that town, the former, indeed, being unrecorded from Genoa and the western Riviera, while the latter is unrecorded from Bari, and the extreme east of the Peninsula.

In Sicily both species occur, though *S. melanoleuca* appears to be the commoner of the two.

Although the two species are undoubtedly distinct, it is not impossible they may interbreed in districts where they meet, and that hybrids may occasionally occur. In the Florence Royal Natural History Museum, for instance, a male specimen is to be found, obtained from Genoa, which has the narrow black throat-band of *S. occidentalis*, but the dark scapulars, and the dark under-wing surface of *S. melanoleuca*. The specimen in question, however, also

has a curiously marked back, and is evidently abnormal, and possibly a hybrid.

As a straggler the present species has occurred as far north as Heligoland and in England.

Although perhaps not quite so abundant as the preceding species in Tunisia, *S. occidentalis* is fairly common there, arriving, as a rule, after the middle of March, and leaving again in September. I have no note of its occurrence anywhere in the Regency during the winter.

Like *S. caterinæ*, the present species breeds in Tunisia, both north and south of the Atlas Mountains.

In Algeria and Marocco this Chat is fairly abundant, and I also have a specimen of it, a male, from Tripoli.

The Black-throated Chats frequent the same description of country as the Black-eared Chats, and in their habits and life generally greatly resemble those birds, being in fact, as I have already pointed out in the preceding articles, closely allied to them, and forming, it may be said, members of the same group.

In Tunisia the vast semi-desert plains, and lower hill sides clad with a scanty vegetation, seem to be most affected by these Chats, and in such localities one may often detect the handsomely plumaged male birds, perched conspicuously on the tops of low bushes or scrub plants, from whence they are able to keep a good look out around them. Soon after their arrival from the south, pairing commences, and by the beginning of April the nesting season may be said to have begun in earnest. During the period of courtship, these Chats may constantly be observed darting about, and chasing each other, and when thus engaged, they appear to be less shy and wary than at other times.

Their flight, like that of the Black-eared Chats, is not usually a prolonged one, and the birds are generally to be observed flitting along within a few feet of the ground. In their diet, they do not appear to differ from their congeners, living almost exclusively, if not entirely, upon insects and worms.

As regards the song of this species, I cannot say I have ever heard what I could call a true song, but according to Loche, the notes are pleasing and varied.

The Black-throated Chat, as a rule, selects for its nesting place a hole under a rock or tuft of grass, and not uncommonly in a wall,

where it builds a somewhat shallow nest composed of grass-bents and rootlets, lined with a little hair or wool. In this it lays four or five eggs of a rather glossy bluish-green, spotted with minute reddish-brown spots, arranged in a zone round the larger end. Average measurements 19×15 mm.

Second broods are probably not uncommon, and I have in my collection young birds of the species obtained in the month of July.

SAXICOLA MELANOLEUCA (Güldenstadt).

EASTERN BLACK-THROATED CHAT.

Muscicapa melanoleuca, *Güld. Nov. Com. Petr.* xix, p. 468, pl. xv. (1775).

Saxicola melanoleuca, *Seeböhm, Cat. Birds Brit. Mus.* v, p. 385; *Whitaker, Ibis*, 1895, p. 93; *Erlanger, J. f. O.* 1899, p. 223.

Description.—**Adult male**, spring, from Source des Trois Palmiers, Central Tunisia.

Crown, nape, back, rump and upper tail-coverts silvery-white, with a slight tinge of cream on the back; a narrow frontal line, extending over the base of the bill, lores, entire region round the eye, ear-coverts, and upper and lower throat jet-black; wings and scapulars also jet-black; the two central rectrices white at the base, otherwise black, the two exterior rectrices white on the basal half, and black on the terminal half, the remaining tail-feathers white, slightly tipped with black; breast and rest of underparts white, tinged with cream colour; under-surface of the primaries and secondaries black.

Iris very dark brown; bill and feet black.

Total length 5.80 inches, wing 3.55, culmen .60, tarsus .85.

Adult female, from Nubia.

Crown, nape, back and scapulars umber-brown; a faint paler brown stripe over the eye; ear-coverts darker; rump and upper tail-coverts white; the two central rectrices white at the base, otherwise dull brown, the remaining tail-feathers white, broadly tipped with dull brown; wings dull brown; chin and throat greyish-buff; breast buff; rest of underparts pale buff.

Observations.—The chin and throat in some female specimens of this Chat in the British Museum collection are much darker and almost blackish. This is perhaps due to age.

As mentioned in my article on *S. caterinæ*, the tail pattern in the present species differs somewhat from that of *S. occidentalis*, the black band at the

tip being, as a rule, narrower in the present species, and broader in the Western bird. Very old males indeed of the present species have very little black at all at the tip of the tail, and I have even seen some with all the rectrices, except the central and outer pairs, entirely white.

Although less common than the preceding species, the Eastern Black-throated Chat also occurs in Tunisia, being more often met with in the east than in the west of the Regency, its usual course of migration probably extending along the coast-line from Tripoli and the Gulf of Gabes northward. I have, however, obtained specimens of this Chat, on more than one occasion, as far west as Gafsa, which is situated some way inland from the coast.

As stated in my notes on the preceding species, I am not aware of *S. melanoleuca* having occurred in North-west Africa further west than Tunisia. Neither Dr. Koenig, when collecting in Algeria, nor Mr. Dodson in Marocco, appear to have met with it. The latter gentleman, however, obtained specimens of the species for me in Tripoli, during the early part of April, when the bird was no doubt on passage.

In its habits generally, as well as in its mode of nesting, *S. melanoleuca* seems to differ in no way from *S. occidentalis*. I took a nest of this species with five eggs, on April 8th, 1902, on the mountain slopes immediately north of Gafsa. The nest, which was placed under a rock on the hillside, was composed of fine rootlets, lined with a little hair. The eggs were greenish-blue, slightly spotted, and chiefly at the larger end, with russet-brown. Average measurements 19×14 mm. I secured the male bird at the same time.

SAXICOLA DESERTI, Rüppell.

DESERT CHAT.

Saxicola deserti, Rüpp. in Temm. *Pl. Col.* pl. 359, fig. 2 (1825); Seebohm, *Cat. Birds Brit. Mus.* v, p. 383; Loche, *Expl. Sci. Alg. Ois.* i, p. 208 (1867); Koenig, *J. f. O.* 1883, p. 211; *id.* *J. f. O.* 1893, p. 13; Whitaker, *Ibis*, 1894, p. 87; Erlanger, *J. f. O.* 1899, p. 227.

Description.—**Adult male**, spring, from Djemma, South Tunisia.

Forehead and superciliary stripes whitish-buff; crown, nape, back and scapulars sandy isabelline buff, brighter on the back and scapulars, and

greyer on the crown and nape; rump and upper tail-coverts white, faintly tinged with buff; upper wing-coverts jet-black; primaries and secondaries brown, the latter broadly tinged with white and buff; tail white at the base, otherwise jet-black; lores, a narrow line over the eye, ear-coverts, throat and sides of neck jet black; rest of the underparts white, tinged with buff, particularly on the breast; axillaries black, tipped with white.

Iris very dark brown; bill and feet black.

Total length 6 inches, wing 3·60, culmen ·60, tarsus 1.

Adult female, spring, from Gafsa Plain, South Tunisia.

Upper parts similar to those of the male, but the wings and tail much lighter in colouring, the black pattern being replaced by shades of brown; underparts buffy-white, the throat and sides of neck rather greyer.

Soft parts as in the male.

Total length 5·80 inches, wing 3·40, culmen ·55, tarsus ·95.

Observations.—Some female specimens have the throat and sides of neck blackish, as in immature males. These are probably very old birds. Young males have the black colouring less intense than adults, and the wing-feathers more fringed with white. There does not appear to be much, if any, seasonal change in the plumage of this species, some specimens obtained in winter being identical with those obtained in spring.

A true desert bird, this Chat has its habitat proper in Tunisia in the more southern districts, where it is resident and non-migratory. The species appears not to occur in the north of the Regency, and no doubt the Saharan chain of mountains forms its natural northern boundary. I, however, possess a specimen obtained at the Sebka of Sidi-el-Hani, not far from Kairouan in Central Tunisia, where a tract of salt-marsh country exists. Here Mr. Aplin met with this Chat when collecting for me in the spring of 1895. As a rule, however, the country north of Gafsa is not suited to the requirements of the species, and its true habitat is to be found in the Chott country, and on the semi-desert plains further south. These districts are indeed typical of the upper Saharan region, being vast stretches of slightly undulating and broken country, extending for many miles and bounded on the north and south by ranges of hills, which decrease in height as one approaches the true desert. The plains here are mostly hard and stony, with a gravel soil, here and there becoming more sandy, and dotted over with dwarf shrubs and low-growing plants. During the winter and early spring, particularly should there happen to have been copious rains, a certain amount of grass and other herbage crops up, and the country then bears a

green and fresh appearance, but at other seasons it is more or less parched and dry. Numerous *Oueds*, or river courses, also dry as a rule, intersect the country at intervals, and along their borders may be found clumps of Oleander and Tamarisk bushes.

The Chotts and Sebkas, or salt marshes, are natural depressions formed in the soil, some of them being actually below the level of the sea, where water collects in winter, after abundant rain, but which are more or less dry in summer, and indeed for the greater part of the year. During this season these districts are covered with a thick stratum of crystallised salt, below which the soil is a soft clay, or viscid mud, most difficult and unpleasant to walk upon. The larger and most important of the Chotts, however, have a certain proportion of solid ground traversed by roads.

Saxicola mæsta is also a lover of these semi-desert districts, and the two species of Chat, which resemble each other in many respects, may often be found near one another.

In the districts it frequents *S. deserti* is very abundant, and one of the commonest birds to be met with. On some of the plains lying to the west of Gafsa the species is plentiful, and from them as well as from many localities further south, and in the neighbourhood of the Chott Djerid, I have numerous examples.

In the Algerian Sahara, according to various authors, the Desert Chat is abundant in suitable localities, and Dr. Koenig has published some excellent notes regarding the bird and its breeding habits. Canon Tristram's *S. homochroa*, and Eversman's *S. salina* are without doubt referable to the present species. In Marocco Mr. Dodson failed to meet with the Desert Chat when collecting for me in that country, but he found the species remarkably plentiful in Tripoli and Cyrenaica.

As a straggler, this Chat has undoubtedly occurred on three occasions in Great Britain, and likewise thrice on Heligoland. Two of the British specimens were obtained as far north as Scotland, while the third (which I have myself seen) was obtained on the Yorkshire coast and is now in Mr. J. H. Gurney's collection.

Of all the species of Chat the present is perhaps the least shy, and so tame and confiding is it at times, that it will allow a person to approach within two or three yards of it before taking to flight. It is fond of perching on shrubs and low bushes, and the males are often to be seen thus, uttering their short but fairly varied and not

unpleasant song. The call note is particularly sweet. The food of this Chat, like that of other insectivorous birds inhabiting Southern Tunisia, consists largely of coleoptera, of which there is an extraordinary abundance in these southern regions.

S. deserti is an early breeder, nests and eggs being commonly found in March, although its nesting continues throughout April and May, and second broods are probably frequent. As a rule the nest is placed in a hole in the ground, or in a mound of earth, at the foot of some shrub, the deserted burrows of small rodents being often used for the purpose. The nest is built of dry grasses and root-fibres, lined with wool or hair. The eggs are usually four or five in number and of a greenish-blue colour, spotted with violet and reddish-brown. Average measurements 20 × 15 mm.

SAXICOLA MÆSTA, Lichtenstein.

TRISTRAM'S CHAT.

Saxicola mæsta, *Licht. Verz. Doubl.* p. 33 (1823); *Seebohm, Cat. Birds Brit. Mus.* v, p. 382; *Koenig, J. f. O.* 1893, p. 16; *Whitaker, Ibis*, 1894, p. 86; *id. Ibis*, 1898, p. 129; *Erlanger, J. f. O.* 1899, p. 234.

Dromolæa isabellina, *Loche, Expl. Sci. Alg. Ois.* i, p. 201 (1867).

Description.—**Adult male**, spring, from Ras-el-Aioum, South Tunisia.

Forehead, crown and nape hoary white, becoming greyer on the top of the crown; back and scapulars smoke-black, shading into dark grey on the lower back; rump and upper tail-coverts whitish, with a rufescent tinge; the two central rectrices pale rufous at the base, otherwise dark brown, the remaining tail-feathers rufous on the basal half and dark brown on the terminal half; primaries and secondaries brown, the outer webs being fringed with white; upper wing-coverts smoke-black, broadly fringed with white; lores and a line over the eye, ear-coverts, upper and lower throat, neck and sides of breast smoke-black; breast and abdomen pure white; under tail-coverts very pale rufescent.

Iris dark hazel; bill and feet black.

Total length, 6·75 inches, wing 3·75, culmen ·70, tarsus 1·15.

Adult female, spring, from Oglet-Zellès, South Tunisia.

Forehead, crown, nape and ear-coverts light rufous, superciliary stripes rather paler; back and scapulars sandy isabelline grey; rump and upper tail-coverts pale rufescent; tail and wings as in the male, but rather paler, and the wing-edges rufescent and not white; underparts whitish, tinged



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Saxicola moesta.

with rufescent, and a certain admixture of sandy-grey; under tail-coverts pale rufescent.

Iris dark hazel; bill and feet brown.

Total length 6·50 inches, wing 3·40, culmen ·65, tarsus 1·10.

The young of this species, when a few weeks old, resemble the adult birds in the distribution of colouring, but this is less intense, and less clearly defined. Even at an early age the males are distinguishable from the females by their darker and greyer plumage, the latter being lighter and browner. My collection contains young birds in various stages of plumage, from nestlings to almost full-grown birds.

Observations.—The winter plumage of both sexes is duller than the spring one, and the crown of the male bird instead of being white is then grey. There appears to be a certain amount of variation in the colouring of the female, some examples being more rufous than others, though obtained in the same season. Whether this is due to age, or is merely individual variation, I am not able to say.

Regarding this handsome Chat little, if anything, appears to have been known until Canon Tristram, meeting with it in Algeria in 1859, and thinking it a new species, described it as such under the name of *Saxicola philothamna*, publishing at the same time some interesting notes respecting the bird's habits and mode of life (*Ibis*, 1859, pp. 58 and 299). As specimens of this species from Egypt already existed in the Berlin Museum under the name of *Saxicola mæsta*, Licht., Tristram's name has had to give way to the older one and sink into a synonym.

So far as is at present known, the range of *S. mæsta* extends throughout the semi-desert regions of North Africa from the Algerian Sahara on the west to the Lybian Desert on the east, and possibly through the latter region into Egypt.

The species also occurs in Palestine, and not improbably throughout a considerable part of Syria and Arabia, as also perhaps in Persia.

Curiously enough, although the type specimen of *S. mæsta* comes from Egypt, recent travellers in that country have failed entirely to meet with the species there, although discovering a somewhat closely allied Chat, *S. xanthoprymna*, Hemp. and Ehr., the range of which appears to be confined to North-east Africa. Two other closely allied species occur in Persia, *S. chrysopygia*, De Fil., and *S. cummingi*, Whit., the latter of which is so rare that only one specimen of it is known to exist. This is in the British Museum collection, and was obtained by Mr. W. D. Cumming at Fao on the Persian Gulf. Mr.

Dresser (Man. Palæarctic Birds, p. 41) includes this Chat as a subspecies of *S. xanthopygma*, but the point of difference between the two species is so well marked and clearly defined as to warrant full specific distinction.

In North Africa *S. mæsta* occurs more or less abundantly throughout the Algerian and Tunisian Sahara, and in corresponding districts in Tripoli and Cyrenaica. In the last-named country Mr. Dodson found it plentiful along the coast line of the Gulf of Syrtis, south of Benghazi, and obtained numerous examples of it in those districts.

Whether the western range of *S. mæsta* in Africa, extends into Morocco, seems to be at present unknown, but it is quite possible that it does so, and that the species occurs in some of the inland semi-desert districts of the Empire. It is true that Mr. Dodson, when collecting for me in Morocco, never came across the bird, but apparently none of the districts visited by him were suited to the requirements of this Chat, or likely to attract it. For the same reason, many other desert forms of birds, which are common in the Tunisian and Algerian Sahara, are entirely unrepresented in my Moroccan collection.

In Algeria, as already mentioned, *S. mæsta* is not uncommon, and I have met with the species in considerable numbers on the plains lying to the east of Biskra, which run into the semi-desert country of the Tunisian Sahara, and like it, are mostly of a stony, or sandy gravel description, scantily clothed with a scrub-vegetation. Loche, writing of Algerian birds, refers to this Chat under the name of *Dromolæa isabellina* (Expl. Scient. Alg. Ois. i. p. 201).

In the Tunisian Regency the present species is resident and not uncommon in the more southern districts, but it appears never to stray north of the Atlas Mountains, and may therefore be looked upon as being strictly a desert bird. I have found the species particularly abundant on the stony plains lying to the west of Gafsa, where, in the late spring, when most of the migrants have passed northwards, *S. mæsta* and *S. deserti* are the two species most often met with. It must not be supposed, however, that these two species of Chat are always to be found together in the same localities, as in certain districts the one may be most plentiful, while the other is scarce, or even totally wanting.

Although the sandy gravel plains of the Upper Sahara may be

looked upon as the favourite haunts of the species, *S. mæsta* also occurs in the Chott, or salt-marsh country, and indeed the most northerly district in the Regency from which I have a note of its occurrence, is precisely of that description. This district lies between Source des Trois Palmiers and Maharès on the east coast, and Mr. Aplin here met with two pairs of this Chat, both with young broods, about the middle of April. On the whole, however, I am of opinion that the sandy gravel or stony plains are more attractive to the species than the soft salt-marsh country.

From most of the districts bordering the Chott Djerid I have either specimens or notes of the occurrence of this Chat, as also from the country further south, lying between the coast and the true sandy desert, and extending nearly to the Tripoli frontier. In the spring, when my visits to North Africa have generally taken place, I have found *S. mæsta* mostly in pairs, and throughout the month of April often met with such pairs, with their young broods, fully fledged and on the wing. The species is undoubtedly an early breeder, and young birds six weeks old may be obtained at the beginning of April. Nesting, however, continues throughout the spring, and second broods are no doubt common. With regard to the breeding of this interesting species, I think I cannot do better than give the following extract of what I wrote on the subject in the *Ibis* for 1898 (pp. 129-132) :—

“With regard to the nesting of *Saxicola mæsta*, comparatively little has previously been recorded, Canon Tristram, I believe, being the only one who has hitherto been fortunate enough to find the nest and eggs of this bird (*Ibis*, 1859, p. 299; “Birds of Europe,” vol. ii. p. 227). I propose, therefore, giving a description of the nest and eggs I found of this species, and of its breeding-habits generally, so far as I was able to observe them.

“Of this Chat I took three nests, two of them near Ras-el-Aioum, a district about twenty-five miles to the west of Gafsa, and a third at Oglet-Zellés, a few miles still further west. Ras-el-Aioum is situated at the extreme south of the Haut Plateau, which is bounded on the north by the high range of mountains forming the natural frontier between Algeria and Tunisia, and on the south by the lower range, beyond which lies the desert country of the Chotts. The elevation of this district is about 1,200 feet above sea-level, and the character of the country is of the semi-desert description, with stony plains, covered with a scanty scrub vegetation; although, owing to its

proximity to the southern range of hills, there is much broken ground and numerous watercourses, dry as a rule, intersecting the plain. In the immediate vicinity of Ras-el-Aioum, through which flows the Oued Seldja, the vegetation is of a less stunted nature; and by the river-banks there is a thick growth of tamarisks and oleanders, the favourite haunt of many birds. Oglet-Zellés stands a little higher than Ras-el-Aioum; and being situated near the centre of the plain, has a more open and less broken country, but in other respects the two districts resemble each other.

“The first nest taken at Ras-el-Aioum I found on April 13th. It was placed in a hole at the foot of a low marl cliff, a bare spot, destitute of vegetation. The hole, which was just large enough to admit the easy passage of the bird, extended nearly a yard in length, in a horizontal direction, with a bend about half-way. The nest, placed at the further extremity of the hole, was cup-shaped, and fairly large for the size of the bird. It was composed exteriorly of coarse grass-bents, rather loosely put together, with finer and softer grass inside, and lined plentifully with wool and hair, both camels' and goats'. The eggs, which unfortunately were rather hard sat upon, were five in number, and of a very delicate, pale-greenish blue, sparsely spotted, and principally at the larger end, with spots of a pale lake-colour. The following are the dimensions of three of the eggs which I measured: (a) 24×17 mm.; (b) 23×16 mm.; (c) 24×16 mm.

“The second nest, also taken at Ras-el-Aioum on April 13th, was placed in a hole in a marl cliff, like the first; but as this cliff formed one of the banks of a dry water-course, the hole was about five feet from the ground, or bed of the stream, a providential instinct having no doubt taught the bird to avoid a possible catastrophe. As in the first instance, this hole extended nearly a yard in length in a horizontal direction, but without any bend. The nest and eggs, of which there were again five, apparently the full complement, resembled those previously found. These eggs were also somewhat incubated. I did not measure any of them, but they appeared identical with the first clutch. In digging out this nest I unearthed a rather large scorpion, which made me wonder how these birds can bring up their young safely, exposed as they are, particularly those nesting in holes in the ground, to so many dangers.

“The third nest I took at Oglet-Zellés on April 17th. In this instance the hole, which was probably the deserted home of some

small rodent, was in almost level ground, where a few scrub plants served to hold the light crumbling soil together. Like the other two, this hole extended about a yard in length, but in a slightly oblique downward direction. This nest contained only four eggs, very slightly incubated. In colour they resembled those previously found, but the spots were fewer and more minute, in one egg being almost entirely wanting; in another, the few there were, being collected in a zone at the larger end. In shape these eggs were more oval than those of the other two clutches. The following are the measurements of two of them: (a) 24×15.5 mm.; (b) 23×16 mm.

"I secured the hen-bird in each instance, after having seen her enter and leave her nest-hole, and in two of the cases I shot what was presumably the cock-bird as well. I doubt the male parent taking much, if any, part in the incubation of the eggs, as although generally to be seen in the immediate vicinity of the nest, I failed to observe it enter or leave the hole in any one of the three cases I have mentioned. The fact also of the male birds being so much oftener seen during the breeding season than the females, would tend to support this supposition, allowing even for the more conspicuous plumage of the former.

"*Saxicola mæsta* is, without doubt, an early breeder, and has more than one brood in the course of the season, young birds of this species, fully fledged and able to fly, being met with at the beginning of April, or even earlier, and probably the three clutches of eggs found by me were all of a second laying. At Ras-el-Aioum I shot a young male *S. mæsta* on April 13th, which must have been nearly two months old, and at Oglet-Zellés I saw two or three young broods of this species shifting for themselves at the middle of April.

In its mode of life and general habits *S. mæsta* resembles *S. deserti*. It is by no means a shy bird, and will often allow one to approach within a few feet of it before taking flight, indeed I consider the present species and *S. deserti* both remarkably tame and trustful, differing greatly in this respect from most other species of Chat. The male bird has a most melodious note, its short rippling song being singularly sweet and pathetic. As a rule this song is uttered by the bird when perching on a bush or low plant, but I have often known it sing when on the wing, flying from bush to bush. When taking such short flights the bird is in the habit of spreading its tail like a fan, after the manner of *S. leueura*. I have never known *S. mæsta*

take a long flight. The food of this species, like that of *S. deserti*, consists chiefly of coleopterous insects.

The Arabs have a pretty little legend regarding this bird and its song, which so far as I can recall it to mind, runs as follows:—

“An Arab chieftain of great renown had a most beautiful wife, to whom he was greatly attached, and whom he loved *almost* as much as his *Sloughis*, which is saying a good deal, for the *Sloughi*, or Arab Greyhound, is held in the highest possible esteem by the Arabs. In parenthesis, this may appear curious, considering how the Arabs despise all other breeds of dog, the very word *Kelb*, or dog, so often hurled at the unfortunate and unsuspecting Giaour, being synonymous with opprobrium and reproach. War breaking out between his tribe and another, the chief had to leave his home, but before doing so, he called his wife and commended his *Sloughis* to her particular care and attention. Time passed, but no husband returned from the war, and finally came the news of his death on the battle-field. His widow, who had at first strictly complied with her lord's injunction respecting the dogs, now gradually relaxed her solicitude for their welfare, and eventually left her home and re-married! In course of time death came to her also, and on entering another world she was welcomed by her first husband, the Arab chief, who immediately enquired after his *Sloughis*. Confessing her fault, the beautiful wife was ordered to return to Mother earth in the shape of a bird, and she has ever since been wandering over the desert plains under the form of *Saxicola maesta*, bewailing her lot, and vainly whistling for the lost *Sloughis*!”

SAXICOLA HALOPHILA, Tristram.

WESTERN PIED CHAT.

Saxicola halophila, Tristram, *Ibis*, 1859, pp. 59, 301; Erlanger, *J. f. O.* 1899, p. 231.

Saxicola lugens, Loche, *Expl. Sci. Alg. Ois.* i, p. 207 (1867); Koenig, *J. f. O.* 1892, p. 389; Spatz und Erlanger, *Orn. Monatab.* 1894, p. 1; Whitaker, *Ibis*, 1895, p. 94.

Description.—**Adult male**, spring, from Douirat, South Tunisia.

Forehead, crown and nape silvery-white, slightly greyer on the crown; back, scapulars, and upper wing-coverts jet-black; rump and upper tail-



7
8
Salsicola halophila

coverts pure white; quills brownish-black, with a slight white fringe on the tips of the secondaries; the two central rectrices white on the basal half and black on the terminal half; the remaining rectrices white, broadly tipped with black; lores, ear-coverts, throat and sides of the neck jet-black; breast and abdomen pure white; under tail-coverts white, tinged with rufescent; axillaries and under wing-coverts black.

Iris very dark brown; bill and feet black.

Total length 6 inches, wing 3.50, culmen .60, tarsus .90.

Adult female, spring, from Douirat, South Tunisia.

Forehead, crown, nape and back silvery sandy-grey, whiter over the eye-region and on the nape, and greyer on the top of crown and back; rump and upper tail-coverts pure white; wings and scapulars sandy-brown, the secondaries and upper wing-coverts fringed with white; the two central rectrices white on the basal half and black on the terminal half; the remaining rectrices white, broadly tipped with dark brown; lores greyish; ear-coverts sandy-grey; entire underparts whitish, with a slight tinge of grey on the throat; under tail-coverts white, faintly tinged with rufescent; axillaries and under wing-coverts white and grey.

Iris very dark brown; bill and feet dark brown.

Total length 5.75 inches, wing 3.40, culmen .60, tarsus .90.

Very old female, spring, from Tatahouine, South Tunisia.

Similar to the female just described as regards the upper parts, but differing in having the following parts blackish, viz., the lores, ear-coverts, throat, sides of neck, axillaries and under wing-coverts.

Observations.—As will be seen by the foregoing description given of two females of this species, there is considerable variation in the plumage of this sex, which is no doubt due to age; the older the bird grows, the darker its throat and some other parts become, approximating in these respects more nearly to the plumage of the male bird. The upper plumage, however, of the female does not seem to grow dark like that of the male, or to materially alter with age. Between the spring and winter dress, either of the males or of the females, there does not appear to be much, if any, variation.

The accompanying plate shows the difference in plumage between the old and young females.

This Chat appears to be distinct from *S. lugens*, Licht., from Egypt and Palestine, the females of the two species differing entirely from each other in their plumage-colouring, that of *S. lugens* bearing the same plumage as the male of that species, whereas in the present species the two sexes differ from each other altogether, particularly in the colouring of the upper parts. The males of the two species appear to be indistinguishable from each other in plumage, except for the colouring of the crissum and under tail-coverts, which in

S. lugens is of a darker rufescent hue than it is in *S. halophila*, in which latter species it is sometimes almost pure white. Besides the difference in the colouring of the crissum and under tail-coverts, however, there is also a certain difference in the relative size of the two species; adult males, showing an average wing-measurement of 3.75 inches in *S. lugens* against 3.50 inches in *S. halophila*. In both species the females are slightly smaller than the males, and perhaps this forms the only external means of distinguishing between the sexes of *S. lugens*.

Canon Tristram, during his travels in Algeria, appears to have met with adult males and females, as well as with immature males of the present species. The adult males he referred to *S. lugens*, Licht., but the females and the immature males he took to be belonging to a new species, and called them *Saxicola halophila* (*Ibis*, 1859, pp. 59 and 300). This being the case, his name, although given in ignorance of the real state of matters, must stand.

Both Dr. Koenig (*J. f. O.* 1895, p. 376) and Baron Erlanger (*J. f. O.* 1898, p. 231) have entered at some length into the question of this interesting discovery, and the former has given some good plates of the species, showing plainly the difference between the adult male and female, and a very old female. The peculiarly silky texture of this Chat's plumage, alluded to by Canon Tristram, is well shown in these plates.

Seeböhm, when describing the female of *S. lugens* (*Cat. B. Brit. Mus.* v, p. 371) as quite different from the male in plumage, must have had before him specimens which were not from Egypt but probably from North-west Africa. Loche ("Expl. Scient. Alg. Ois." i, p. 207) appears to have noticed the difference between the sexes of the present species, but did not distinguish *S. halophila* from *S. lugens*. Mr. C. Dixon also seems to have noticed, and called attention to the difference between the sexes of the two species (*Ibis*, 1882, p. 562). Mr. Dresser's plate of immature so-called *S. erythrea* (*Birds Eur.* ii, pl. 29) shows the types of Canon Tristram's *S. halophila*. It is a pity Mr. Dresser did not avail himself of the opportunity afforded him, when publishing the Supplement to his "Birds of Europe," to correct certain errors regarding some of the Chats which appeared in his above great work.

With regard to the range of *S. halophila*, so far as it is at present known, it extends throughout the Algerian and Tunisian Sahara, and

in corresponding semi-desert districts in Tripoli, and Cyrenaica, in the last named of which countries Mr. Dodson met with the species as far east as the Wed-Agarib, and the Wed-Domaran. How much further eastward its range extends, or where it meets *S. lugens*—if, indeed the two species meet at all—seems at present to be unknown, but presumably the present species does not occur in Egypt.

From Marocco *S. halophila* appears so far to be unrecorded. In Algeria it is by no means uncommon in certain districts, and I have frequently observed the species a few miles to the east of Biskra, but it is very local in its distribution.

In the Tunisian Regency this Chat, although nowhere particularly abundant, is to be found in several districts south of the Atlas Mountains. North of that range the species does not seem to occur, and the semi-desert regions of the south are undoubtedly the true habitat of *S. halophila*. Here it frequents the most barren and desolate spots, choosing for preference the neighbourhood of marl cliffs and gravel hillocks, in the fissures and crevices of which suitable nesting sites abound. I have obtained specimens of the species near Gafsa, and at Ras-el-Aioum, Metlaoui, and Tozer in the south-west of the Regency. From Douirat and one or two other places in the far south I also have examples. The district, however, in which I found this Chat most abundant was undoubtedly Metlaoui, where the country is of the most arid and inhospitable description, rolling hillocks of hard white gravel, with occasional patches of scanty scrub vegetation, stretching away for miles in a southerly direction, while almost immediately to the north rise the rugged and precipitous cliffs of the Seldja range of mountains. Until quite recently this neighbourhood was rarely visited by Europeans, but Metlaoui now bids fair to become an important commercial centre, owing to the abundance of phosphates lately discovered in the locality; and a railway already exists there, constructed expressly for the purpose of transporting the valuable product to its port of exportation at Sfax.

In its habits, as well as in the localities it frequents, *S. halophila* resembles *S. leucopyga* to a great extent, being found not only in the open country, far from any human dwelling, but also in the immediate vicinity of towns and villages, and at times even within their walls. Mr. Aplin actually secured a pair of these birds at Douirat, in a very busy part of the town. He had noticed the birds entering and leaving a hole as if nesting there, but on probing the hole, which was very

small and deep, with a stick, failed to find any indication of a nest, and concluded therefore that the birds were only contemplating breeding.

The species is generally to be found in pairs, although the males, owing to their more conspicuous plumage, are more often noticed than the females. When perching on a wall or bank, the male bird dips and makes play with its tail, after the manner of some other species, and if approached quietly and not too near, will allow itself to be watched for a considerable length of time, though in its turn watching the intruder carefully at the same time.

The flight of the species seem to be fairly powerful, but is not, as a rule, prolonged for any great distance.

Its food consists, probably, almost entirely of insects, coleoptera, no doubt, entering largely into its diet.

The song of this species, which is generally uttered by the bird when perching on a rock or stone, is rather subdued and very sweet, but at times it becomes chattering.

S. halophila apparently always nests in holes in the sides of cliffs or banks, and deep down into the soil. I have no nest or eggs of the species in my collection from Tunisia, but, according to Dr. Koenig, the nest is rather a loosely constructed flat structure, composed chiefly of grasses and plant material, and lined with hair, while the eggs, five to six in number, are of a fine unglossed blue-green, spotted with reddish-brown, chiefly in a zone at the blunt end. Average measurements, 20 × 15 mm. March and April seem to be the principal months for the nesting of the species, and by the middle of the latter month I have met with fully-grown young birds just able to fly. The parent birds show great solicitude for their young, and when with them may be more easily approached and observed.

SAXICOLA LEUCOPYGA (C. L. Brehm).

WHITE-RUMPED CHAT.

Vitiflora leucopyga, Brehm, *Vogelfang*, p. 225 (1855).

Saxicola leucopyga, Seebohm, *Cat. Birds Brit. Mus.* v, p. 374.

Dromolæa monacha, Loche, *Expl. Sci. Alg. Ois.* i, p. 199 (1867).

D. nigra, Loche, *Expl. Sci. Alg. Ois.* i, p. 200 (1867).

D. leucopyga, Erlanger, *J. f. O.* 1899, p. 240.

Description.—**Adult male**, spring, from Tamerza, South Tunisia.

Crown, nape, rump, upper and under tail-coverts and crissum pure white; the tail also pure white, with the exception of the terminal half of the two central rectrices, which is black; the remainder of plumage, above and below, jet black, the wings less intense in colour.

Iris dark brown; bill and feet black.

Total length 6.25 inches, wing 4, culmen .70, tarsus 1.

Immature female, winter, from Kebili, South Tunisia. Nearly the entire plumage, above and below, black; the wings with a brown tinge, rump, upper and under tail-coverts and crissum pure white; the central pair of rectrices dark brown on the terminal half, and white on the basal half, the remaining tail-feathers white, with dark brown spots near their tips.

Soft parts as in the male.

Total length 6 inches, wing 3.75, culmen .65, tarsus 1.

Regarding the present species, considerable confusion existed at one time, owing to the difference in plumage between the adult and young birds, the two being looked upon as distinct species, and separated accordingly; the former under the name of *Saxicola leucocephala* (A. E. Brehm), and the latter under that of *Saxicola leucopyga* (C. L. Brehm). What greatly contributed towards this confusion, and indeed may be held mainly responsible for it, was the fact of birds of this species breeding in immature plumage, the additional fact of pairs being found, as a rule, with the two sexes in the same plumage, tending still further to confirm naturalists in their error. Mating in the case of the present species no doubt takes place, as a rule, between individuals of the same age, and consequently in the same stage of plumage, but that this is not invariably the case has been proved by pairs having occasionally been found with the sexes in different dress, one with a white and the other with a black head. Dr. Koenig seems to have met with such pairs in Egypt, and Mr. E. Cavendish Taylor also once shot two of these birds, which were very probably mated, together near Cairo, one with a white, and the other with a black head.

Captain Shelley (*Ibis*, 1871, p. 53) also mentions having found young birds of this species, with black heads, in company with their undoubted parents, with white heads.

There would appear, therefore, to be no longer any reason to question the identity of *S. leucopyga* with *S. leucocephala*, and the former being the older name, must stand, the latter becoming merely a synonym.

The adult birds of both sexes have pure white crowns, immature birds black crowns, the white crown being probably not attained until after the first breeding season. While in a state of transition birds may be found with black and white feathers intermingled on the crown.

In a large series of specimens of this Chat in my collection from Tripoli examples may be found in the various stages of plumage. Comparing the measurements of these, I find the average length of wing of the white-crowned males to be 4.10 inches, that of females 3.80 inches, while the average wing-length of the black-crowned birds is 4 inches in the case of males and 3.75 inches in that of females.

The range of *S. leucopyga* appears to extend throughout the desert regions of North Africa, Palestine, and Arabia, and in some parts of these countries the species is abundant, and the commonest of all the Chats. It is also said to occur in West Africa at Sierra Leone. From Morocco I have no specimens of the species, nor any note of its occurrence there, but it probably inhabits the more inland desert parts of that country, as it occurs abundantly in the Algerian and Tunisian Sahara. In Tripoli and Cyrenaica the species is quite one of the commonest of the Chats, and my collection from these countries contains examples of it obtained in various districts. In North-east Africa the species is most abundant in Nubia.

As a straggler, *S. leucopyga* has once been recorded as occurring in Europe, a specimen of it, with the white head, having been obtained by Mr. C. A. Wright in Malta (*Ibis*, 1874, p. 223). This bird was shot on April 18th, 1872, by Signor Vitali, on some rocky ground called Tal Cappuccini, on the south side of the grand harbour of Valetta, and after having been set up by Signor Francesco Ellul, came into Mr. Wright's possession, and was eventually presented by him to the Royal Florence Museum of Vertebrates, where it exists at present, under the Catalogue No. 1,759.

In Tunisia, *S. leucopyga* is to be found only in the more southern districts, but where it occurs it is by no means uncommon. It does not appear to stray north of the Chott Djerid, nor have I any note of its occurrence in the Regency further north than Kebili on the south-east, and Tamerza on the south-west.

Baron Erlanger appears to have found the species not uncommon on the Djebel Dekamis, and in the neighbourhood of Gar-el-Areif, both situated in the far south of Tunisia.

In Algeria this Chat has been met with by several travellers, and to Canon Tristram, Mr. Gurney, and Dr. Koenig we are indebted for interesting notes regarding the species.

Loche's names of *D. monacha* and *D. nigra* also no doubt refer to this bird, in fact specimens of it exist in the Turati collection of the Milan Museum, which are wrongly labelled as *D. monacha*. Of the occurrence of this latter species in North-west Africa there appears to be no authentic record. According to the above authors, *S. leucopyga* is abundant in the Algerian Sahara, being found not only on the slopes of the desert mountains and in the rocky "Oueds," or dry watercourses, but also in the immediate vicinity of villages and isolated "Bordjs," or stone-built dwellings. In its habits it resembles the Black Chat (*S. leucura*) to a certain extent, but is less shy and solitary than that bird, frequenting the neighbourhood of man without fear, and often actually entering the courtyards of habitations and perching on the flat roofs of houses. It is, indeed, a bold and fearless bird as a rule, although always on the alert, and at times, when apprehensive of danger, even wary and cautious.

Its food, like that of most Chats in these desert regions, consists principally of coleoptera and other insects, but it has been known to eat the seeds of the pomegranate, and it also probably feeds on scraps of other food, which it picks up in the neighbourhood of habitations. The song of this Chat is said to be short, but very pleasing. Mr. Dodson, who had constant opportunity of hearing it when travelling in Tripoli, considers some of its notes like those of the Skylark: he adds that he heard only the black-headed birds singing, and never those with white heads.

Regarding the nidification of *S. leucopyga* our knowledge is still somewhat limited. I myself have no nest or eggs of the species, nor do I know of any existing in collections. In his article on *D. monacha* ("Expl. Scient. Alg. Ois." i, p. 200), Loche says the species nests in the holes and crevices of rocks, building a loosely constructed nest composed of leaves, rootlets and other plant materials, with a lining of wool, hair, or feathers. The eggs, he says, number four at the most, and are white, slightly more tinged with blue than the eggs of *S. leucura*, and spotted with very small spots of a reddish-brown, collected in a wreath at the larger end, their measurements being 22×17 mm.

Dr. Koenig also gives some particulars regarding the nesting of this

species and its fledglings, although he was not fortunate enough to find its eggs (*J. f. O.* 1895, p. 396). According to him, two eggs appear to form the usual complement, and of these, often one egg only is hatched. This, however, is contrary to what usually obtains among birds of this family, and, to say the least, seems unnatural. Henglin ("Orn. N. O. Afr." i, p. 359) gives three or four as the usual number of a brood of this Chat, and says the colour of bits of eggshells found by him was a uniform pale green. Dr. Koenig says the nests he found of the species were placed very low down in holes and clefts of rocks.

SAXICOLA LEUCURA (Gmelin).

BLACK CHAT.

Turdus leucurus, *Gmelin, Syst. Nat.* i, p. 820 (1788).

Saxicola leucura, *Seebohm, Cat. Birds Brit. Mus.* v, p. 375; *Whitaker, Ibis*, 1894, p. 87.

S. cachinnans, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Dromolæa leucura, *Loche, Expl. Sci. Alg. Ois.* i, p. 197 (1867); *Koenig, J. f. O.* 1893, p. 21; *Erlanger, J. f. O.* 1899, p. 237.

Description.—**Adult male**, spring, from Kasrin, Central Tunisia.

Entire body, with the exception of the upper and lower tail-coverts, of a rich smoke-black; wings dark brown; tail-coverts pure white; the two central rectrices white on the basal third, otherwise black; the remaining rectrices white, broadly tipped with black.

Iris very dark brown; bill and feet black.

Total length 7 inches, wing 3·80, culmen ·70, tarsus 1.

Adult female, spring, from Kasrin, Central Tunisia.

General colour smoke-brown, otherwise like the male. Soft parts as in the male; measurements slightly less.

This Chat is apparently closely allied to the Rock-Thrushes, and seems to form a connecting link between the two genera *Monticola* and *Saxicola*. It is a question, indeed, whether it and the preceding species should not be generically separated from the other Chats under the name of *Dromolæa*.

S. leucura is, I think, the most universally distributed Chat resident in Tunisia, occurring generally throughout the Regency,

although more abundantly perhaps south of the Atlas Mountains than north of that range. In the central districts the species is very plentiful, every mountain gorge or rocky ravine harbouring at least a pair of these birds, but I have also met with it on the arid mountains of the south near Gafsa, and have either specimens, or notes of its occurrence, from various localities south of the Chott Djerid, so that it is evident the species has a wide range in the Regency.

In Algeria the Black Chat is common on the southern slopes of the Atlas, and from Marocco I have numerous examples of the species, obtained principally in the Atlas districts, some at the considerable altitude of five or six thousand feet above sea-level.

The Black Chat occurs in Tripoli, and in some districts is not uncommon, but I have no note of its occurrence in Cyrenaica. In Egypt the species does not seem to occur.

North of the Mediterranean *S. leucura* occurs in South-western Europe, where it is not uncommon in South Spain, chiefly as a migrant. In the South of France, and in Italy, the species, although rarer, also occurs, principally, if not entirely, as a migrant. *S. leucura* is eminently a mountain or rock-loving bird, and is not to be met with in open country or at any distance from rocky ground; the more barren and forbidding this may be in appearance, the more suited does it seem to be to the tastes of this species. Here in the darker and more solitary mountain recesses one may be almost certain of meeting with the Black Chat, and as the bird is fond of perching conspicuously on the top of a rock or boulder, one cannot fail to notice it, particularly as it is of a restless nature, and dips and bows incessantly, as if courting attention. It is a shy and wary bird, however, and not easy to approach; although, as a rule, during the nesting season it appears to become less suspicious and may then be approached and observed at close quarters. The male bird, during that season, is most assiduous in his courtship, and it is a pretty sight to see a pair of these birds chasing each other from rock to rock, and darting in and out among the clefts and caverns of the mountain-side, their outspread black and white tails forming a conspicuous feature in the picture. The song of the Black Chat is short, but rich and pleasing, and in the stillness of the mountain ravines may be heard at a considerable distance. The bird sometimes sings on the wing. The flight of this species is short, as a rule, and apparently not powerful. Its food is chiefly of an insect nature.

The nesting time of *S. leucura* varies considerably, not only according to the locality, but also according to the climatic conditions of the season, and in the south of Tunisia I have sometimes met with young birds of about six weeks old at the beginning of April. As a rule, though, nesting commences about the beginning of March in the south and the middle or end of that month in the north. The site selected by the Black Chat for its nest is generally a cleft or crevice in the rock, but often merely a hole under a tussock of grass or other plant on the mountain-side is utilised. The nest, which is not as a rule placed deep down in the hole, is rather a bulky structure, composed of coarse grass, and neatly and plentifully lined with hair and wool. The eggs, of which the normal complement is four or five, appear to vary in colouring, being sometimes of a delicate white, at others of a light greenish colour, spotted sparsely with lake-brown shell-markings and reddish surface-spots, generally forming a zone at the blunt end. Average measurements 24×17 mm.

This Chat seems to be in the habit of protecting the entrance to its nest by erecting a wall of small stones, but I have found nests without any such barriers, which, after all, could not afford any real protection against reptiles or other natural enemies of the bird, and I think it more probable that the wall may be constructed as a protection against the inclemencies of the weather.

PRATINCOLA RUBETRA, (Linnæus).

WHIN-CHAT.

Motacilla rubetra, *Linn. Syst. Nat.* i. p. 332 (1766).

Pratincola rubetra, *Sharpe, Cat. Birds Brit. Mus.* iv. 179; *Loche, Expl. Sci. Aly. Ois.* p. 211 (1867); *Koenig, J. f. O.* 1888, p. 206; *id. J. f. O.* 1892, p. 413; *Whitaker, Ibis*, 1895, p. 94; *Erlanger, J. f. O.* 1899, p. 218.

Saxicola (Fruticicola) rubetra, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Pratincola rubetra spatzi, *Erlanger, J. f. O.* 1900, p. 101.

Description.—**Adult male**, spring, from Feriana, Central Tunisia.

Entire upper parts mottled, the feathers being buff, with clearly defined black centres, rather greyer on the crown and nape, and brighter on the back and rump; a conspicuous white stripe extending from the bill over

the eye, and for some distance behind it; upper wing-coverts showing a black and white pattern, formed by a small white alar patch on the outer lesser coverts, followed by black on the greater coverts, and then by white again on the inside of the latter; the two centre rectrices white at the base, otherwise dark brown; the remaining rectrices white on the basal half, and dark brown on the terminal half; lores, ear-coverts and moustachial stripe blackish; chin and sides of neck white; throat, breast and flanks rufous-buff; abdomen white; crissum and under tail-coverts pale rufous-buff.

Iris, bill and feet dark brown.

Total length 5 inches, wing 3, culmen .45, tarsus .85.

Adult female, spring, from Feriana, Central Tunisia.

Upper parts presenting a mottled appearance, as in the male, but much duller in colour generally, and lacking the black and white markings on the sides of head and on the wings; the under parts also duller and without any white.

Soft parts and measurements as in the male.

The Whin-Chat is abundant in Tunisia as a migrant, being chiefly noticeable during the spring passage. Many of the birds also winter in the oases of the south of the Regency, although probably few, if any, spend the colder months north of the Atlas. There appears to be every reason to believe that the Whin-Chat breeds in limited numbers in Tunisia, the species being met with in the country late in May, during which month I have obtained specimens of it in some of the high plateaux districts. From Tripoli also I have examples of this bird, which were obtained as late as May 18th, at Sebka, an oasis situated as far south as 27° N. lat.

The Whin-Chat is generally to be met with, either singly or in pairs, in open country, and on plains where a bush vegetation prevails; it is also frequently to be found on the outskirts of gardens and plantations, and in South Tunisia is abundant in spring on the borders of olive groves and palm oases.

In its habits it resembles the bush-frequenting *Saxicoline* to a great extent, and is an active, restless little bird, constantly on the move, and rarely remains long in one spot. Even when perching it is never quiet, its tail being constantly in motion. Its food seems to consist mainly of insects, and in Tunisia is composed chiefly of coleoptera and flies of different kinds. The song of this species, although very short, is considered to be pleasing. Its call note, which is more often heard, is a sharp "ticking" note, repeated two or three times.

Pied varieties of this bird are not uncommon, and are occasionally to be met with in Tunisia.

Baron v. Erlanger (*J. f. O.* 1900, p. 101) separates the Tunisian Whin-Chat from typical *P. rubetra* on the ground of its being of a constantly lighter colour, but I cannot find sufficient reason for this differentiation.

PRATINCOLA RUBICOLA (Linnæus).

STONE-CHAT.

Motacilla rubicola, *Linn. Syst. Nat.* i, p. 332 (1766).

Pratincola rubicola, *Sharpe, Cat. Birds Brit. Mus.* iv, p. 185; *Loche, Expl. Sci. Alg. Ois.* i, p. 213 (1867); *Koenig, J. f. O.* 1888, p. 206; *id. J. f. O.* 1892, p. 413; *Whitaker, Ibis*, 1895, p. 94; *Erlanger, J. f. O.* 1899, p. 219.

Saxicola rubicola, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Description.—**Adult male**, spring, from Hamman-Lif, North Tunisia.

Entire head, above and below, as well as the nape, back and scapulars, black, the feathers of the nape and back slightly fringed with buff; wings blackish-brown, with a conspicuous white alar patch on the inner coverts; rump and upper tail-coverts white, striated with brown; tail blackish-brown, the two exterior feathers with a fringe of buff on outer webs; sides of the neck pure white; breast rich rufous-buff, becoming paler on the abdomen.

Iris dark brown; bill and feet black.

Total length 5 inches, wing 2.65, culmen .40, tarsus .95.

Adult female, spring, from Hamman-Lif, North Tunisia.

Plumage generally much browner and duller than in the male, with a total absence of white on the rump, and only a slight indication of it on the sides of the neck, although the white alar patch is fairly conspicuous. Soft parts and measurements as in the male.

The Stone-Chat is a common and resident species throughout a considerable portion of Tunisia, being found chiefly on the "maquis"-covered hill-slopes and bushy plains of the northern and central districts of the Regency. In some parts of South Tunisia the species also appears to be abundant during the winter months. In Algeria and Marocco, as in Tunisia, the Stone-Chat is a common and resident species. Adult male specimens from Marocco, in full spring attire,

are very intensely coloured, the upper parts, in some individuals, being perfectly black, and without any light edgings to the feathers.

In its habits the present species greatly resembles the Whin-Chat, although it is perhaps more of a bush-loving bird, and as a rule affects wilder and more hilly country. Like the Whin-Chat it is generally to be found singly or in pairs, and is fond of perching conspicuously on the top of a bush or stone wall, from which a good outlook can be obtained. A wooden post is a favourite perch of this bird, whence its Italian name of "Saltinpalò." The food of the Stone-Chat appears to be entirely of an insect nature. Its song is short, but fairly agreeable, and its call note, or more properly alarm note, is a short "chat" repeated once or twice.

The nest of this species, which is generally placed at the foot of some bush and well hidden from view, is built of grasses, and plentifully lined with hair. The eggs, of which five form the usual complement, are of a bluish-green colour, with small dark red spots, often forming a zone at the blunt end. I have a nest of this species containing a Cuckoo's egg, in addition to the five eggs of its rightful owner.

The Stone-Chat in Tunisia nests rather early in the season, and young birds, fully fledged, may be met with by the end of April.

DIPLOOTOCUS MOUSSIERY (Olphe-Galliard).

MOUSSIERY'S REDSTART.

Erithacus moussieri, *Olphe-Galliard, Ann. Soc. d'Agric. &c. Lyon*, iv, p. 101, pl. 2 (1852).

Pinarochroa moussieri, *Sharpe, Cat. Birds Brit. Mus.* vii, p. 20; *Erlanger, J. f. O.* 1899, p. 220.

Ruticilla moussieri, *Malherbe, Faune Orn. de l'Alg.* p. 14 (1855); *Loche, Expl. Sci. Alg. Ois.* i, p. 219 (1867); *Whitaker, Ibis*, 1894, p. 88.

Erythacus moussieri, *Koenig, J. f. O.* 1888, p. 206.

Pratincola moussieri, *Koenig, J. f. O.* 1892, p. 414.

Diplootocus moussieri, *Hartert, Nov. Zool.* ix, p. 324 (1902).

Description.—**Adult male**, spring, from El-Oubira, Central Tunisia.

A frontal line extending over the base of the bill, as well as the lores, ear-coverts, sides of neck, crown, nape, back, scapulars and the greater part of the wings black; a broad band across the forehead, extending over the

eyes and ending in a large patch on each side of the nape, as also a large and conspicuous alar patch on the secondaries pure white; rump, tail, excepting the two central feathers, which are dark brown, and entire underparts a rich orange-colour, rather paler on the abdomen and crissum.

Iris dark hazel; bill and feet black.

Total length 5 inches, wing 2·60, culmen ·45, tarsus ·95.

Adult female, spring, from Djebel Ressay, North Tunisia.

Above brownish-grey, rump and tail orange, except the two central rectrices, which are pale brown; underparts pale brownish-grey, tinged with orange, and becoming whitish on the abdomen and crissum. Soft parts as in the male, measurements slightly less.

Observations.—The females vary a good deal in the colouring of the underparts, some being greyer and others more orange-coloured. The latter are probably older birds, and when in this plumage resemble the females of *R. phœnicurus*, although their smaller size is sufficient to distinguish them from that species. There is also a certain amount of seasonal variation, particularly noticeable in the plumage of the male birds, which in winter have the dark feathers of the upper parts margined with brown, and are generally less brilliantly coloured than in spring and summer.

The young of this species are spotted like young Robins, the tail only being as in the adult bird.

Following Mr. Hartert (*Nor. Zool.* ix, p. 324), I place this species in a new genus, as it cannot rightly be referred to any previously existing one. Of the four genera, to one or other of which this species has hitherto been referred by authors, *Ruticilla* is no doubt the one most nearly allied to *Diplootocus*, but the latter differs from that genus in its shape generally, and particularly in having the wing more rounded, with, proportionately, much longer secondaries. From *Pratincola* it differs still more markedly than it does from *Ruticilla*, the general colouring and pattern of its plumage being totally unlike those of the Bush-Chats, but closely resembling those of *Ruticilla*, and the female, at first sight, looks like a diminutive example of the female of *R. phœnicurus*. The shape of the bill is also quite different from that of *Pratincola*, and more like that of the Redstarts. The habits of the present species are not quite like those of the Redstarts, and its nest, instead of being placed in the hole of a tree or bank, as in the case of those birds, is usually built on the ground at the foot of a bush or plant. The colouring of the eggs is more like that of the Redstarts.

From *Erithacus* and *Pinarochroa*, the two other genera to which



Pratincola moussieri

the present species has been referred, *Diplootocus* differs still more than it does from the preceding ones.

Under the circumstances, therefore, I see no way out of the difficulty other than that of placing it in a new genus, and adopting Mr. Hartert's somewhat uneuphonious name of *Diplootocus*, derived from the Greek διπλοῦς φυτόκος, and referring to the differently coloured eggs which the species lays.

This richly coloured and attractive little bird, which is to be met with throughout the Atlas districts generally, appears to be peculiar to the north-west portion of the African continent. A male specimen of the species which is in the Florence Royal Natural History Museum appears to have been obtained in the neighbourhood of Nice on November 22nd, 1890, and Colonel Irby, writing on the Ornithology of the Straits of Gibraltar, mentions having seen a bird near Tarifa, which he felt sure belonged to the present species. Gätke also records the capture of a specimen in Heligoland in 1842. With these exceptions, however, *D. moussieri*, does not seem to have been recorded from any other country except North-west Africa.

D. moussieri, although a resident species, appears to be migratory to a certain extent within its own habitat, and in winter is to be found in some of the oases and more bushy steppe-country of the South. In spring, however, it leaves these districts for the Atlas and mountainous country further north, which may be called the true home of the species. Canon Tristram met with the bird in winter-time near Ouaregla and in the M'zab country, and I have numerous notes of its occurrence during that season in South Tunisia. In the spring I have found the species abundant throughout the Tunisian Atlas region and in the districts further north.

In Algeria it is common in spring and summer throughout the Aurès range and other mountainous districts.

From Marocco I have a large series of examples, many of them obtained in the Atlas at considerable elevations, other specimens being from Eceru and Ras-el-Ain, coast districts lying south of Mogador. Mr. Meade-Waldo also appears to have found the species common in the Maroccan Atlas, at altitudes as high as 9,000 feet, and likewise in the neighbourhood of Mogador (*Ibis*, 1903, p. 206). I have no note of its occurrence in Tripoli.

D. moussieri, as a rule, frequents the bush-covered slopes of hill-sides and uncultivated country, where the vegetation is of the

"maquis" description common to the Atlas regions, thuja, juniper, rosemary and lavender being among the most conspicuous plants, all flourishing in a luxuriant tangle, and occasionally intermixed with a forest growth of Aleppo-pines. The species, however, may often be found at considerable altitudes, and in the districts it frequents, it is probably to be met with as high as vegetation occurs. On the Dj-Semama in Central Tunisia I found it nesting at about 5,000 feet above sea-level. *D. moussieri* is generally to be found in pairs, and in certain favoured localities several pairs may be met with within a very limited area. It is a shy, timid little bird, and does its best to hide on the approach of a person or on the first sign of any danger, although the bright plumage of the male and the natural restlessness of the bird render detection comparatively easy. The males are more often to be seen than the females, owing partly to their conspicuous plumage, and partly to their more inquisitive or watchful habits inducing them to perch on the outside of a bush, while the females keep more to the inside and lower parts. The species has a soft and rather pretty little song, and its call or alarm note may often be heard. The Arab name for this bird, "Zinzuek," is said to be derived from the note or cry it utters. The food of this species is probably almost entirely composed of insects. The nesting of *D. moussieri* commences early in April, and by the middle of that month eggs may be found. The nest is generally placed on the ground, at the foot of a bush or tuft of grass, and occasionally in a shrub close to the ground. It is rather a bulky structure, composed exteriorly of fine twigs and dry grasses, with a lining of hair and feathers. The eggs, usually four or five in number, are, as a rule, of a very pale bluish-white, and spotless, but they seem to be subject to considerable variation, being sometimes of a greenish-blue, and at others almost pure white. Their average measurements are 18 × 14 mm. The parent birds, when nesting, seem to be more shy than at any other time, and I recollect on one occasion waiting vainly for nearly an hour for one or both of a pair to return to their nest, near which I was hidden, as I thought, well out of sight.

The accompanying plate shows a pair of this species, in spring plumage, from Central Tunisia.

RUTICILLA PHÆNICURUS (Linnaeus).

REDSTART.

Motacilla phœnicurus, *Linn. Syst. Nat.* i, p. 335 (1766).

Ruticilla phœnicurus, *Scebohm, Cat. Birds Brit. Mus.* v, p. 336 ;
Erlanger, J. f. O. 1899, p. 217.

Ruticilla phœnicura, *Malherbe, Faune Ornith. de l'Alg.* p. 14 (1855) ;
Loche, Expl. Sci. Alg. Ois. i, p. 215 (1867) ; *Koenig, J. f. O.* 1888, p.
203 ; *id. J. f. O.* 1892, p. 404 ; *Whitaker, Ibis*, 1894, p. 88.

Description—**Adult male**, spring, from Gafsa, South Tunisia.

Forehead and superciliaries white ; crown, nape, back, scapulars and upper wing-coverts bluish-grey ; lower back, rump, upper tail-coverts and tail, excepting the two central rectrices, a rich rusty orange colour ; the two central rectrices dull brown ; wings brown ; lores, a line extending over the base of the bill, eye region, ear-coverts and throat black ; breast and flanks bright orange ; abdomen whitish ; under tail-coverts pale rufous.

Iris dark brown ; bill black ; feet dark brown.

Total length 5·75 inches, wing 3·20, culmen ·45, tarsus ·85.

Adult female, spring, from Gafsa, South Tunisia.

Upper plumage much browner and duller than in the male, and lacking the white forehead, and black on the head ; chin greyish-white ; breast and rest of underparts greyish, tinged with orange ; tail of a duller rust-colour than in the male.

Iris dark brown ; bill and feet brown.

Measurements rather less than in the male.

The common Redstart occurs throughout Tunisia generally as a migrant, being particularly abundant during the spring passage, and a certain number of individuals also winter in the oases and more southern districts.

Although I have no positive knowledge of the fact, I think it not improbable that a few of these birds may breed in the Regency. I certainly have a note of a Redstart having been met with by Mr. Aplin near El-Kef on May 2nd, a late date for such an early migrant to be found still in the country, were it not nesting there.

During the height of the spring migration the Tunisian oases and gardens swarm with Redstarts, and numbers of the birds are then snared by the Arab boys, together with Nightingales and other Warblers.

When actually on migration the Redstart may sometimes be found in small parties, but as a rule it is to be met with either

singly or in pairs. It is a bright, active bird, constantly in evidence, as it flits from bush to bush along a pathway or woodside, and one cannot fail to recognise it by its conspicuously marked tail, the bright colouring of which has given rise to the bird's trivial name in most languages. Shy and restless to a degree, the Redstart seems to be in perpetual motion, and even when perching cannot keep still, but dips its body and flicks its tail up and down incessantly. The food of this species seems to be almost entirely of an insect nature, and the bird exhibits great dexterity in catching flies on the wing. It is rather a silent bird, but its short song is considered to be fairly pleasing.

RUTICILLA TITYS (Scopoli).

BLACK REDSTART.

Sylvia tithys, *Scop. Ann.* i, p. 157 (1769); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Ruticilla tithys, *Seebohm, Cat. Birds Brit. Mus.* v, p. 339; *Loche, Expl. Sci. Alg. Ois.* i, p. 217 (1867); *Koenig, J. f. O.* 1888, p. 203; *id. J. f. O.* 1892, p. 404; *Whitaker, Ibis*, 1894, p. 88; *Erlanger, J. f. O.* 1899, p. 216.

Description.—**Adult male**, spring, from El-Guettar, South Tunisia.

Crown, nape, back, scapulars and upper wing-coverts bluish-slate; wings greyish-brown, the secondaries broadly margined with white on the outer webs; rump, upper tail-coverts and tail, with the exception of the two central feathers, rich rust colour, the two central rectrices brown; lores, frontal band, eye-region, ear-coverts, throat, neck and breast black; flanks and sides of the body pale slate; centre of abdomen whitish; under tail-coverts orange.

Iris dark brown; bill and feet black.

Total length 5.75 inches, wing 3.30, culmen .45, tarsus .90.

Adult female, spring, from North Tunisia.

Plumage much greyer than in the male, the black being replaced by grey-brown, and the breast and underparts being grey throughout.

Iris dark brown; bill and feet brown.

Measurements slightly less than in the male.

The Black Redstart occurs in Tunisia in winter and spring, and is not uncommon in some parts of the Regency, although never so abundant during the latter season as the preceding species. In the

vicinity of the town of Tunis the species may often be met with, and in Central Tunisia it is by no means uncommon in the neighbourhood of Kasrin, and other parts where rocky ground and Roman ruins are plentiful. The species, indeed, seems to have a predilection for stonework and masonry in general, and ruins, from the fact of their being generally situated in quiet and deserted localities, are much frequented by these birds. In Rome the Black Redstart may often be seen among the ruins of the Forum and Colosseum. Buildings of any kind, however, attract the species, which, although naturally rather shy and suspicious, at times becomes remarkably tame and confiding, and in some Continental towns, where birds are unmolested, it may constantly be observed in the immediate vicinity of dwellings.

Although resembling the common Redstart in some of its habits and tastes, the present species differs from that bird essentially in the decided preference it evinces for stonework and rocky ground, and although occasionally to be found perching on bushes, it is much more often to be seen on rocks or on the ground. When on passage the species may sometimes be found in small flocks, but as a rule it is to be met with singly or in pairs.

The song of the Black Redstart is pleasing, and much fuller than that of the preceding species.

Its food consists chiefly of worms and insects. I know of no instance of *R. titys* breeding in Tunisia, but it is said to nest in Algeria, and may possibly also do so in the Regency. In Marocco Mr. Meade-Waldo appears to have met with this species on the highest elevations of the Atlas in summer-time (*Ibis*, 1903, p. 206).

Under the name of *Ruticilla nigra* Professor Giglioli has recently described as belonging to a new species a pair of Redstarts, which were obtained in November, 1902, at Loceri, near Lanusei, in the island of Sardinia (*Bull. B. O. C.* xiii, p. 79). The plumage of these birds, a male and female, is almost entirely of a deep sooty-black colour, the tail-feathers and upper tail-coverts alone showing traces of the rusty or orange-brown so characteristic of the genus *Ruticilla*. Like Professor Giglioli, with whom I happened to be at the time these specimens arrived from Sardinia, I at first thought that they were examples of *R. titys* dyed black, but such proves not to have been the case. Intensely developed melanism might perhaps account for the peculiar phase of plumage, and in this case, being highly abnormal examples, the difference pointed out by Professor Giglioli as

being noticeable in the sternum of *R. nigra* as compared with that of *R. titys*, apparently its nearest ally, as also the slight difference in the respective measurements of the two species, would not necessarily be surprising. Whatever may be its explanation, however, the case is a singularly interesting one.

The specimens in question are preserved in the Royal Zoological Museum at Florence under the Nos. 3,906 and 3,907 of the Bird series.

Subfamily SYLVIINÆ.

CYANECULA SUECICA (Linnæus).

ORANGE-SPOTTED BLUETHROAT.

Motacilla suecica, *Linn. Syst. Nat.* i, p. 336 (1766).

Cyanecula suecica, *Brehm, Vög. Deutschl.* p. 350 (1831); *Koenig, J. f. O.* 1888, p. 205; *id. J. f. O.* 1892, p. 412.

Erithacus cœruleculus, *Seeböhm, Cat. Birds Brit. Mus.* v, p. 308.

Description.—**Adult male**, from Europe.

Upper parts brown, darkest on the crown and lores; forehead and a stripe over the eyes dull white; wings, median rectrices and terminal half of the other rectrices dark brown, the basal portion of the latter being bright rufous; chin, throat and pectoral gorget glossy ultramarine-blue, with a central patch bright rufous; below the blue gorget successive narrow bands of black, white and rufous; abdomen dull white, flanks and sides light brown; axillaries and under tail-coverts pale rufous.

Iris, bill and feet brown.

Total length 5·75 inches, wing 3·10, culmen ·50, tarsus 1·10.

The female generally has the whole of the underparts tawny-white, with the exception of the breast, which has a dark brown band across it, but very adult birds show some blue and rufous feathers there also.

Observations.—The size of the rufous breast patch varies in individuals. Occasionally specimens are met with having the rufous patch surrounded by a white ring.

Both the Orange-spotted and the White-spotted Bluethroat apparently occur in Tunisia, but the former is probably extremely rare there and of merely accidental occurrence. The latter, although

by no means common, is the form which is most frequently met with in the Regency and generally throughout North-west Africa. Between the two species there is apparently no difference in structure, and the only difference in plumage is the colour of the spot in the centre of the blue throat-patch, and were it not that the two forms seem to have very distinct breeding areas, one might hesitate to separate them. Although the distribution of the Bluethroats has not yet been quite clearly defined, it would seem that *C. suecica* is more of a northern and eastern species, with its breeding habitat in Northern Europe and Asia, while *C. wolfi* is more of a southern and western species, breeding in Central and South-western Europe. In winter both forms are to be met with on migration in North Africa, *C. suecica* being more abundant in the east and *C. wolfi* in the west of the Continent.

The only authentic record of the occurrence of the Orange-spotted Bluethroat in Tunisia appears to be Dr. Koenig's statement of his having secured a male specimen in the neighbourhood of Gabès, on May 18th, 1887 (*J. f. O.* 1888, p. 205).

In its habits the Bluethroat is said to closely resemble the Robin, but is more partial to marshy localities where reeds and similar aquatic plants flourish. In such spots the bird, although by no means shy, is more or less hidden, and is therefore not so often seen as it otherwise might be, particularly as it keeps to a great extent on the ground, taking, indeed, most of its food there. This seems to consist almost entirely of insects and worms. The species is said to be a good songster, having some powerful and varied notes, which are to be heard mostly in the early morning and late evening.

CYANECULA WOLFI, C. L. Brehm.

WHITE-SPOTTED BLUETHROAT.

- Cyanecula wolfi*, C. L. Brehm, *Beitr. zur Vögelk.* ii, p. 173 (1822).
Erithacus cyaneculus, Seebohm, *Cat. Birds Brit. Mus.* v, p. 311.
Sylvia (Cyanecula) suecica, Malherbe, *Cat. Rais. d'Ois. Alg.* p. 11 (1846).
Cyanecula suecica, Loche, *Expl. Sci. Alg. Ois.* i, p. 222 (1867).
C. leucocyana, Koenig, *J. f. O.* 1888, p. 205; *id.* *J. f. O.* 1892, p. 412.
C. cyanecula, Erlanger, *J. f. O.* 1899, p. 215.

Description.—**Adult male**, spring, from Morocco.

Differs from *C. suecica* merely in having the spot in the centre of the blue throat-patch silvery-white instead of bright rufous.

Female resembles that of *C. suecica*.

Observations.—Specimens are occasionally met with without any white spot in the centre of the blue throat, but these are probably merely immature individuals.

The White-spotted Bluethroat occurs in Tunisia and other parts of North-west Africa as a winter migrant, but is not common anywhere in the country, though more plentiful in some years than in others. Dr. Koenig and Baron v. Erlanger have both met with the species in the Regency, and the latter mentions having seen it frequently in October and November in the neighbourhood of the Oued Gabès (*J. f. O.* 1899, p. 215).

Dr. Koenig also met with it near Gabès in spring as late as May 18th, on which occasion he obtained specimens and saw many others (*J. f. O.* 1888, p. 205).

In Algeria and Morocco, from both of which countries I have specimens, the species occurs in limited numbers in winter and on passage, as it does in Tunisia.

In its general habits and in its song the present form appears not to differ from *C. suecica*.

ERITHACUS RUBECULA (Linnæus).

ROBIN.

Motacilla rubecula, *Linn. Syst. Nat.* i, p. 337 (1766).

Erythaca rubecula, *Swainson, Fauna Amer., Birds*, p. 488 (1831).

Erithacus rubecula, *Seebohm, Cat. Birds Brit. Mus.* v, p. 299; *Koenig, J. f. O.* 1892, p. 413; *Erlanger, J. f. O.* 1899, p. 213.

Sylvia (Erythacus) rubecula, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Rubecula familiaris, *Loche, Expl. Sei. Alg. Ois.* i, p. 224 (1867).

Dandalus rubecula, *Koenig, J. f. O.* 1888, p. 206.

Description.—**Adult male**, winter, from Ghardimaou, North Tunisia.

Above olive-brown; forehead, lores, entire throat and breast bright

orange, bordered with bluish-grey on the sides of the neck and breast; abdomen white; flanks and thighs olive-brown; vent and under tail-coverts whitish, tinged with brown.

Iris dark hazel; bill and feet dark brown.

Total length 5·50 inches, wing 2·75, culmen ·45, tarsus ·95.

Adult female similar to the male.

The Robin occurs chiefly as a winter migrant in Tunisia, being more abundant north of the Atlas and along the coastline than in the southern and more inland districts; indeed, I do not remember ever to have met with it in the central and south-western parts of the Regency. The range of the species, however, extends to the extreme south of Tunisia, and I have specimens, or notes of its occurrence, from Tatahouine, Oglet-Ksar, and Tamerzed.

In Algeria and Marocco, as in Tunisia, the Robin occurs chiefly as a winter migrant, but in no part of North-west Africa does the species appear ever to be found in such large numbers as it is in some parts of Southern Europe during the autumn and winter months. In most of these South European countries, unfortunately, our familiar little songster is not accorded the same protection that it receives in England, and vast numbers of Robins are annually snared for the foreign markets.

The spring passage of this species commences in Tunisia rather early, and by the beginning of March the bulk of the birds have departed for their summer quarters. A few individuals remain and breed in the forests and wooded hilly districts of the north of the Regency, and I have notes of nests and young broods being met with near Ghardimaou and El-Fedja during the months of May and June.

The nest of this species is generally placed in a bank, or in a hole in some wall or hollow tree, and is loosely constructed of dry grasses and leaves, lined with hair and feathers. The eggs, usually five in number, are whitish, with pale reddish spots and markings.

The Robin's habits are too well known to need description here, but I may observe that the species, like many others, when on migration becomes far more shy and less confiding than when at home. During the greater part of the year insects and worms form its chief diet, but it will eat almost anything in winter, when its natural food is difficult to obtain.

Very pale varieties of the Robin are not uncommon, and my collection contains examples of such light-coloured birds.

ÆDON LUSCINIA (Linnæus).

NIGHTINGALE.

Motacilla luscinia, *Linn. Syst. Nat.* i, p. 328 (1766).

Ædon luscinia, *Forst. Syn. Cat. Brit. Birds*, p. 53 (1817); *Erlanger, J. f. O.* 1899, p. 213.

Erithacus luscinia, *Seebohm, Cat. Birds Brit. Mus.* v, p. 294.

Luscinia philomela, *Malherbe, Cat. Rais. d'Ois Alg.* p. 10 (1846).

Philomela luscinia, *Loche, Expl. Sci. Alg. Ois.* i, p. 227 (1867).

Luscinia minor, *Koenig, J. f. O.* 1888, p. 205; *id. J. f. O.* 1892, p. 412.

Daulias luscinia, *Whitaker, Ibis*, 1895, p. 94.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Above rich russet-brown, becoming more rufous on the rump and tail; below whitish-grey, darker on the sides and flanks, and lighter on the chin and abdomen; vent and under tail-coverts pale buff.

Iris dark hazel; bill brown; feet purplish-brown.

Total length 6·50 inches, wing 3·35, culmen ·55, tarsus 1·05.

Female similar to the male.

The Nightingale is abundant during the spring migration throughout the wooded parts of Northern and Central Tunisia, and in the oases of the south of the Regency. In Algeria and Marocco the species is also plentiful in spring, and from the latter country I have examples obtained in the neighbourhood of the city of Marocco during the month of May, when the birds were probably nesting. From Tripoli I have specimens obtained in April. In some of the Tunisian oases, and among the tamarisk thickets bordering the southern Oueds, Nightingales are among the commonest birds to be seen during the spring passage, and my morning strolls among the magnificent palms and luxuriant orchards of the extensive Gafsa oasis used to be rendered doubly pleasant by the wealth of bird-music to be heard on every side. Unfortunately, many of these delightful songsters fall victims to the Arab urchins, who trap the too confiding birds by means of an ingenious contrivance made of palm leaf wicker-work, with a bait placed below it. Numerous were the Nightingales and other birds I used to release from these snares, much to the astonishment of the natives, who failed to comprehend so irrational a proceeding and such tender-heartedness on the part of one who had come professedly for the purpose of collecting birds.

Like most of the Warblers, the Nightingale frequents localities where a bush vegetation, with a tolerably thick undergrowth, prevails, lofty trees being rarely resorted to, and evergreen forests and plantations more or less shunned. Deciduous-leaved woods and copses are favourite haunts of the species, although the bird being far from shy, gardens and the neighbourhood of human dwellings are quite as much affected by it as the more secluded retreats. By no means a restless bird, it will remain quietly in one spot for a considerable length of time, unless disturbed, when it flits off to some other bush or low tree at no great distance. Its food, which is taken chiefly on the ground, consists almost exclusively of worms and insects. In captivity, however, the bird thrives well on meal paste, with a little chopped meat or liver mixed with it.

In many European countries the Nightingale is greatly prized as a cage-bird, and when brought up from the nest becomes remarkably tame, and may live for several years in confinement. Birds caught when full-grown, however, never seem to bear imprisonment well, and rarely live long under such circumstances.

Besides its well-known melodious song, the Nightingale has some harsh, grating notes, which are more often heard after the breeding season is over. Its call note seems to be a low *churr*. When on passage the Nightingale does not generally sing at night, but in the daytime, the early morning being the time when its song is chiefly to be heard. Occasionally, when half a dozen or more of the birds are singing at the same time around one, the music is somewhat overpowering, and becomes quite a case of "embarras de richesses."

The Nightingale probably breeds in certain numbers south of the Atlas, but not so abundantly as it does further north, where the country is more wooded and better watered. In the oak forests of Ghardimaou Mr. Aplin found nests and young birds of this species in May and June. Nesting in these districts seems to commence about the end of April, and by the end of May one may meet with young birds fully fledged and on the wing. The nest of this species is usually placed at the foot of a bush, or on a bank, and is roughly constructed of small roots, grasses, and dry leaves. The eggs, generally four or five in number, are of a uniform olive-brown colour, their average measurements being 21×15 mm.

AGROBATES GALACTODES (Temminck).

RUFIOUS WARBLER.

Sylvia galactodes, *Temm. Man. d'Orn.* i, p. 182 (1820); *Seebohm, Cat. Birds Brit. Mus.* v, p. 34; *Erlanger, J. f. O.* 1899, p. 273.

Agrobates galactodes, *Swainson, Class. of Birds*, ii, p. 241 (1837).

Sylvia rubiginosa, *Malherbe, Cat. Rais. d'Ois. de l'Alg.*, p. 10 (1846).

Aëdon galactodes, *Loche, Expl. Sci. Alg. Ois.* i, p. 279 (1867); *Koenig, J. f. O.* 1888, p. 203; *id. J. f. O.* 1892, p. 405; *Whitaker, Ibis*, 1895, p. 95.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Above rich rufous, brighter on the rump and tail-coverts; quills brown, margined with rufous, the secondaries and wing-coverts broadly margined with buff and grey; tail rounded and conspicuously marked, the two central feathers bright rufous, the others bright rufous throughout the greater part of their length, with a subterminal broad blackish band, and tipped with pure white, the white tip measuring about half an inch on the outer rectrices, and gradually decreasing till it becomes entirely lost on the centre feathers; a broad stripe over the eye buffy-white; lores and a short stripe below the eye dark brown; underparts buffy-white, with a rufous-grey tinge on the sides and flanks.

Iris brown; bill brown; feet flesh colour.

Total length 7 inches, wing 3·50, culmen ·70, tarsus 1·05.

Female similar to the male.

The genus *Agrobates* seems to bear but slight resemblance to that of *Acrocephalus*, with which it has been united by many authors, and, following one or two good authorities, I have placed it nearer the genus *Sylvia*, to which it appears to be more closely related. By some ornithologists it has been considered as approaching the *Crateropodidæ*, and not without reason, as in many respects it certainly resembles some members of that family, but on the whole it is, perhaps, more nearly related to the *Sylviidæ*.

The range of the Rufous Warbler extends throughout North Africa, Palestine, Spain and Portugal. In Italy, as well as in England, it has occurred occasionally as a straggler, and the Florence Museum possesses specimens of it obtained in the Peninsula. In the more eastern countries of South Europe, and in Asia, the closely-allied species, *A. familiaris*, takes the place of the present species, occasionally straying westward as far as Italy. Canon Tristram (*Ibis*, 1882, p. 409)

gives some interesting notes regarding the geographical ranges of the two species, and alludes particularly to the sharp line of demarcation existing between them in Syria and Palestine, *A. galactodes* being exceedingly abundant south of the Lebanon, throughout the whole of Palestine, and entirely absent in the country north of those mountains; while *A. familiaris* abounds in the latter districts, and is wanting in Palestine. This no doubt refers to the breeding habitat of the species, as on migration *A. familiaris* presumably passes through Palestine.

In Tunisia, as well as in Algeria and Marocco, *A. galactodes* occurs abundantly as a summer migrant, arriving, as a rule, rather late in the spring, and leaving again in the early autumn. According to Canon Tristram, this species winters in the Algerian Sahara, but I have no note of its occurrence anywhere in the Regency during the colder months, and its winter quarters are evidently further south than Tunisia. During this season it has been met with in Abyssinia. From Tripoli I have examples of the species, but all obtained in spring and summer, and I cannot say whether it winters there also.

In the southern oases of Tunisia the Rufous Warbler generally makes its first appearance at the end of March or beginning of April, but it does not hurry northwards as quickly as most of the summer migrants do, and in the central and northern districts of the Regency the bird is not to be seen in any numbers until after the middle of April. By the end of that month, however, the species is abundant throughout the country generally, and I have sometimes counted as many as six or eight of these birds on the ground together, within a foot or two of each other. It is a pretty sight to see them on such occasions, as they dart to and fro, sporting with one another, and displaying conspicuously their handsomely marked fanlike tails.

The Rufous Warbler evinces a marked partiality for dry, sandy localities, and dusty roads bordered with cactus and aloes. The prickly-pear plantations, abundant in many parts of the Regency, are much frequented by these birds, but where these plants do not occur, one may meet with the species among thickets of tamarisk (*T. africana*), or other bushes, or even on a "maquis"-covered hillside, provided there are shrubs of a certain height. Wet or marshy ground seems to be shunned by this Warbler, and when found among tamarisks, it is generally seen among those standing high and dry, and not among those actually bordering streams. Although a bush-loving bird, it seems to be equally fond of the ground, and probably

obtains its food entirely there, its diet consisting chiefly of beetles and worms. Rather shy than otherwise, this Warbler would probably often escape notice, were it not for its extreme restlessness and bright plumage. Its fine song, too, cannot fail to attract attention, and excite the curiosity of the listener to discover the sweet songster. The song of this Warbler is composed of some particularly melodious notes and is most varied, being at times very powerful, and at others soft and murmuring. It is rather difficult to give any proper rendering of it, but the syllables "wheet-a-wheet," repeated two or three times rather loudly, and then followed by a soft "twee-twee, twee, twee," may perhaps convey an idea of it.

A. galactodes breeds throughout Northern and Central Tunisia, and probably also in some of the southern oases. Its nest is generally placed in a cactus clump, but occasionally in some other thick bush, and as a rule at a height of from one to six feet from the ground. It is loosely built of grasses and rootlets, plentifully lined with wool and hair, and very often has a piece of snake-skin in it, though with what object this is placed there by the bird it is difficult to say. Possibly it may be for no other reason than that which leads some other birds to introduce bits of rag or similar soft materials into their nests, but on the other hand, it is quite possible that the snake's skin may possess some scent or other property which serves to keep off some of the bird's natural enemies.

The eggs are generally four or five in number and of a greenish-white colour, spotted and streaked with reddish-brown and grey markings. Average measurements 22×16 mm.

Canon Tristram states (*Ibis*, 1867, p. 81) that the eggs of this species which he collected in Palestine differ considerably in their markings from those which he took in Algeria, the distinction being perfectly constant, as shown by a comparison of large series of both. This is an interesting fact, pointing as it does to the influence of environment, and possibly also of climate, on egg-coloration. The birds themselves found in the two countries appear to be identical in every way.

SYLVIA CINEREA, Latham.

WHITETHROAT.

Sylvia cinerea, *Lath. Ind. Orn.* ii, p. 514 (1790); *Seebohm, Cat. Birds Brit. Mus.* v. p. 8; *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855); *Loche, Expl. Sci. Alg. Ois.* i. p. 240 (1867); *Koenig, J. f. O.* 1888, p. 195; *id. J. f. O.* 1892, p. 397; *Whitaker, Ibis*, 1895, p. 94.

S. sylvia, *Erlanger, J. f. O.* 1899, p. 264.

Description.—**Adult male**, spring, from Ras-el-Aioum, South Tunisia.

Forehead, crown, lores and ear-coverts pale slate-grey; nape, back, rump and upper tail-coverts greyish-brown; wings dark brown, the secondaries and coverts broadly fringed with rufous-buff; tail dark brown, the exterior feathers white, with a little brown on the inner webs, the next adjoining rectrices tipped with white; chin and throat white, shading into pale vinous on the breast and greyish-buff on the flanks; under tail-coverts whitish, tinged with buff.

Iris yellowish-brown; bill grey; feet light brown.

Total length 5·50 inches, wing 2·80, culmen ·45, tarsus ·80.

Adult female resembles the male to a great extent, but is browner and duller in its colouration.

The Whitethroat is very common as a migrant throughout Tunisia, and is also resident in the Regency to a certain extent, breeding there, and occurring in winter-time in the southern oases.

The species apparently occurs throughout the whole of North Africa, from Marocco to Egypt, although perhaps not common in the latter country. From Tripoli and Cyrenaica I have examples of it obtained during the summer.

During the spring migration the Whitethroat is remarkably abundant on some of the bush-covered plains of the Central Tunisian districts, particularly should the wind happen to be favourable for the passage of the birds. On such occasions one may see numbers of these Warblers in the company of others, such as *S. subalpina* and *S. conspicillata*, flitting from bush to bush, and enlivening with their presence the somewhat monotonous landscape. Olive groves are much resorted to by these and other Warblers, no doubt for the sake of the numerous small insects which infest the gnarled trunks and the foliage of these trees.

The food of the Whitethroat consists chiefly of insects and their larvæ, but berries and fruit seem also to be eaten at times.

Its song, if such it can be called, is poor, and composed of merely a few harsh notes. Its alarm note is more often to be heard, particularly during the breeding season, when, on its nest being approached, the bird becomes very clamorous, and shows great resentment at the intrusion. Far from being shy, the Whitethroat often seems actually to court observation, rising from a bush into the air and hovering over it immediately in front of one. Occasionally, however, it skulks among thick bushes, and is then not easily detected.

The cup-shaped nest of this species, usually to be found in or at the root of a low bush, is a neat structure, composed of fine grasses, and lined with hair. The eggs, four to six in number, are of a greenish-white colour, spotted and marked with grey and light brown, chiefly at the blunt end. Average measurements 17×13 mm.

SYLVIA CURRUCA (Linnaeus).

LESSER WHITETHROAT.

Motacilla curruca, *Linn. Syst. Nat.* i, p. 329 (1766).

Sylvia curruca, *Scop. Ann.* i, p. 155 (1769); *Seebohm, Cat. Birds Brit. Mus.* v, p. 16; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 239 (1867); *Koenig, J. f. O.*, 1888, pp. 190, 195; *id. J. f. O.* 1892, pp. 389, 397; *Whitaker, Ibis*, 1895, p. 94.

Description.—**Adult male**, from Algeria.

Forehead and crown slate-grey, darker on the lores and ear-coverts; rest of upper parts greyish-brown; quills blackish-brown, most of the feathers slightly margined with grey; tail blackish-brown, the two outermost feathers with the outer web white; chin and throat white; rest of the underparts white, tinged with vinous.

Total length 4.50 inches, wing 2.50, culmen .40, tarsus .75.

Iris white; bill blackish; feet lead colour.

Adult female resembles the male, but is duller in colouring.

The Lesser Whitethroat, although more or less rare in the Regency, apparently occurs there occasionally, and according to Malherbe, Loche, Canon Tristram, and Mr. C. Dixon, is also met with in Algeria. A specimen of it obtained by Loche in Algeria, which I have examined, exists in the Turati Collection of the Milan Museum, under the No. 17,566. I know of no instance of the

occurrence of the species in Marocco, but it occurs in Spain, and Mr. Howard Saunders mentions having seen an individual of it in the Western Pyrenees. He also states that a few pass the winter to the east of Malaga, and that in some years the species is fairly common on migration about Valencia and Murcia (*Man. Br. Birds*, 2nd ed., p. 44). In Eastern Europe, however, the species is far commoner, and going still further eastward into Asia closely allied forms of the bird are to be met with.

In Egypt and North-east Africa this species is common on migration.

In its general habits the Lesser Whitethroat resembles the common Whitethroat to a great extent. I am unaware of its nesting anywhere in North-west Africa.

SYLVIA SUBALPINA, Bonelli.

SUBALPINE WARBLER.

Sylvia subalpina, Bonelli, *vide Temm, Man. d'Orn.*, i, p. 214 (1820)
Seebohm, Cat. Birds Brit. Mus., v, p. 27; Koenig, *J. f. O.* 1888, p. 196;
id. J. f. O. 1892, p. 398; Whitaker, *Ibis*, 1895, p. 94; Erlanger,
J. f. O. 1899, p. 267.

S. passerina, Malherbe, *Faune Ornith. de l'Alg.*, p. 12 (1855).

Stoparola subalpina, Loche, *Expl. Sci. Alg. Ois.*, i, p. 243 (1867).

Description.—**Adult male**, spring, from Feriana, Central Tunisia.

Forehead, crown, nape, back, scapulars, rump and upper tail-coverts slate-grey, rather darker on the head; wings brown, with light margins to the feathers; tail blackish-brown; exterior rectrices white; lores and ear-coverts slate-brown; a white moustachial stripe; chin and entire throat rich chestnut; upper breast and sides of the body and flanks pale chestnut; abdomen white, tinged with chestnut; under tail-coverts whitish.

Iris bright hazel; eyelid brick-colour; bill dark brown, yellowish at the base of lower mandible; feet yellow-ochre, or yellowish-flesh colour.

Total length 5·20 inches, wing 2·40, culmen ·40, tarsus ·70.

Adult female, above ashy-brown; wings and tail as in the male; below whitish, tinged with buff. Soft parts and measurements as in the male, except that the eyelid is whitish instead of being reddish, and the iris is paler, being sometimes straw-yellow.

Observations.—Some specimens in my collection from Tunis are larger than others, and paler in colouring, having less chestnut on the breast and sides, the underparts of a purer white, and rather more white on the tail-feathers. The wing of these specimens measures as much as 2.55 inches in males. Other specimens, again, are found in which the entire under-surface of the body is of a vinous-rose colour, without any white on the centre of the abdomen. Marocco examples have the throat and breast rather more rusty than Tunisian specimens. In short, there seems to be considerable variation in the coloration of this species, but whether this is partly or entirely due to season or age is not easy to say.

This Warbler is abundant in Tunisia, particularly during the spring migration, when, should the wind be favourable for the passage of the birds, considerable numbers of them may be seen. According to Blanc, the species is also to be found in the Regency in limited numbers during the winter months. It breeds in many parts of the country, both north and south of the Atlas.

In Algeria and Marocco the Subalpine Warbler occurs more or less plentifully, as it does in Tunisia, being found in Marocco at considerable elevations on the Atlas Mountains. In both countries the species is to be found nesting. From Tripoli also I have specimens of this Warbler, obtained during the spring and summer months.

In Tunisia I have found *S. subalpina* most plentiful in the neighbourhood of Sousse, and along the east coast of the Regency, where the extensive olive groves, abundant there, offer food and shelter to the freshly arrived migrants. In such localities, during the first fortnight or so of April, numbers of the present species, and other soft-billed migrants, may be seen flitting from tree to tree, and feeding on the small insects which swarm in these groves. Later on, however, when the breeding season has set in, more bushy spots are resorted to by the birds for nesting purposes.

In its habits and life generally the Subalpine Warbler resembles other bush-frequenting Warblers, being of feeble and wavering flight, but active and agile in threading its way in and out of bushes and thick vegetation. It is not particularly shy, and may often be approached closely. Its food consists chiefly of the smaller insects and their larvæ. It is a silent bird as a rule, but during the nesting season becomes rather more loquacious, and should its nest or young be approached, its soft "chatting" note of remonstrance may often be heard. This is uttered by both sexes, though the male's note is rather louder than that of the female.

The breeding season of this Warbler may be said to extend from the middle of April to the middle of June, and second broods are not uncommon. A low bush is usually selected as a site for the nest, which is composed of small root fibres and fine dry grasses, sometimes lined with a little horse-hair or vegetable down. The usual complement of eggs is four; the ground colour varies from white slightly tinged with green, to white slightly tinged with rose, and is spotted and freckled all over, but principally at the larger end, with violet and brown markings. Measurements 17×13 mm. I remember once finding a nest of this species, containing four young birds, in the garden of a hotel at Taormina, much frequented by visitors. The old birds were unremitting in their attentions to their young brood, and apparently did not greatly object to the presence of the numerous hotel guests, although their nest was close to a path along which people constantly passed.

As above mentioned, this species varies somewhat in the coloration of its plumage, and also slightly in size, and should perhaps be subdivided into two, if not three, forms, one of these being referable to Heckel's *Sylvia leucopogon* (Meyer, Taschenbuch, 1882, p. 91). As, however, there seems to be a good deal of variation in the plumage of this bird dependent on season and age, a large amount of material, and a most careful study of the same, are necessary before one can come to any satisfactory settlement of the question, pending which I prefer to retain the Tunisian Subalpine Warbler under Bonelli's name.

I may here observe that Bonelli's type of *S. subalpina* is unfortunately not available for comparison. I had quite expected to find it in the Turin Zoological Museum, and indeed it once existed there, as Count Salvadori and I ascertained by reference to the old registers of the Museum. There it is recorded that the type was a skin obtained in Piedmont, but being in poor condition it was not preserved, and another specimen from Sardinia was substituted in its place. The Sardinian skin, however, is no longer to be found either, and Count Salvadori had made a note to that effect when going over the Museum registers some years previously.

SYLVIA CONSPICILLATA, Marmora.

SPECTACLED WARBLER.

Sylvia conspicillata, *Marm. fide Temm. Man. d'Orn.* i, p. 210 (1820); *Scebohm, Cat. Birds Brit. Mus.* v. p. 22; *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855); *Koenig, J. f. O.* 1888, p. 195; *id. J. f. O.* 1892, p. 397; *Whitaker, Ibis*, 1895, p. 95; *Erlanger, J. f. O.* 1899, p. 265.
Stoparola conspicillata, *Loche, Expl. Sci. Alg. Ois.* i, p. 242 (1867).

Description.—**Adult male**, spring, from El-Oubira, Central Tunisia.

Above slate-grey, the back and scapulars browner; secondaries and wing-coverts conspicuously margined with light cinnamon; the two exterior rectrices white, the next adjoining pair tipped with white, the remainder brownish-black; lores and ear-coverts very dark slate; chin and sides of the throat pure white; lower throat pale slate; breast and remainder of underparts pale vinous, becoming whitish on the middle of the abdomen and crissum.

Iris bright hazel, eyelid fringed with small white feathers; bill brownish-grey, yellowish at the base of the lower mandible; feet yellowish.

Total length 4 inches, wing 2.25, culmen .40, tarsus .70.

Adult female, winter, from Tatahouine, South Tunisia.

Above uniform sandy-brown; wings and tail as in the male; below whitish, with a buff instead of a vinous tinge.

Soft parts and measurements as in the male.

Observation.—There is a considerable difference between the summer and the winter plumage of this species, the latter being a good deal browner, and generally duller than the former.

This little Warbler is of general distribution throughout the Tunisian Regency, where it is resident and breeds. The species is, however, also to some extent migratory, and during the spring months seems to be more abundant than at other seasons.

In Algeria *S. conspicillata* is by no means uncommon, and I have numerous examples of it from South Morocco. According to Favier, however, the species is not common about Tangier, where it is only to be seen in the spring, on its passage northward.

Col. Irby includes this Warbler in his list of birds to be found in South Spain (*Orn. Straits Gib.* p. 87). In Italy the Spectacled Warbler occurs occasionally, and in Sicily it is by no means uncommon during the spring and summer months, nesting in the higher mountainous districts of the island. I have no specimens from, or notes of its

occurrence, in Tripoli and Cyrenaica, although I should imagine the species occurs in some parts of the Vilayet, whatever may be the case further east. Capt. Shelley includes it in his list of the birds of Egypt, on the authority of Canon Tristram, although he had not himself met with the species there.

On most of the semi-desert plains of Central Tunisia, as well as in the salt-marsh country further south, *S. conspicillata* may be found most abundantly during the spring months. In the vicinity of the town of Tunis, and at Hamman-Lif, I have also found it plentiful, and Blanc the naturalist informs me that a favourite breeding haunt of the species is among the Mimosa bushes in the gardens at the last-mentioned place. Bushes of any kind, however, are resorted to by this Warbler for breeding purposes, and in South Tunisia the white broom, and many of the low-growing salsolaceous plants, are often selected for that object. In its mode of life and in its general habits it greatly resembles the Whitethroats, to which, indeed, it is most closely related. In the south of the Regency *S. conspicillata* commences nesting operations about the middle or end of March, but in the north the date is considerably later, and nests with eggs may be found even in June. The nest, which is usually placed in or at the foot of a low bush, is cup-shaped and bears considerable resemblance to that of the Whitethroat. The eggs, four or five in number, are of a greenish-white colour, freckled all over, but chiefly at the blunt end, with minute spots of greenish-grey or greenish-brown. Average measurements 16×12 mm.

SYLVIA NANA DESERTI (Loche).

WESTERN DESERT-WARBLER.

Stoparola desertii, Loche, *Rev. et Mag. de Zool.* 1858, p. 394, pl. xi, fig. i, *id. Expl. Sci. Alg. Ois.* i. p. 245 (1867).

Sylvia nana deserti, *Erlanger, J. f. O.* 1899, p. 269.

Description.—**Adult male**, July, from Oumsinerma, Tripoli.

Upper plumage sandy-isabelline, paler on the crown and mantle, and more rufescent on the lower back and upper tail-coverts; quills grey, margined with rufescent-isabelline; central rectrices rufous-isabelline; outer pair of rectrices white, the remainder blackish-brown, margined

with rufous; underparts silvery-white, washed on the sides and flanks with light buff.

Iris light yellow; bill light brown above and yellowish below; feet light yellow.

Total length 4 inches, wing 2·20, culmen ·35, tarsus ·75.

Observation.—The plumage of the only two specimens of this Warbler in my collection is exceedingly pale, but is probably faded, the birds having been obtained in the month of July.

This little Desert-Warbler appears to be the western representative of *S. nana* (Hemp. and Ehr.), differing from that species in the more rufescent-isabelline colour of its plumage, and in its slightly smaller size. It is no doubt a good geographical form, and fully entitled to subspecific distinction, being, indeed, one of the many illustrations we have of the tendency shown by birds, as well as by other members of the fauna and flora of the Sahara region, to assume rufous or isabelline hues, and forming another example of Nature's providential disposition for the preservation of species by protective colouring.

The species occurs in the more southern and desert districts of the Tunisian and Algerian Sahara, as also in Tripoli, from whence I have specimens in my collection, obtained by Mr. Dodson at Oumsinerna, in the extreme east of the Vilayet.

Loche seems to have been the first to distinguish the form, meeting with it in Southern Algeria, and describing it as a new species under the name of *Stoparola desertii* (*Rev. et Mag. de Zool.*, 1858, p. 394, pl. 11, fig. 1).

The Turati Collection of the Milan Museum possesses a specimen of this Warbler, which was obtained by Loche in the Algerian Sahara, and is probably the type of his *S. desertii*.

More recently the species has been met with by Dr. Koenig near Dzelfana, El-Alia and El-Mouilah in the Algerian Sahara, and by Baron v. Erlanger on the Djebel Dekanis, Gelb-el-Assued and Bou-Kartuf in the Tunisian Sahara. To both these gentlemen, as well as to Loche, we are indebted for interesting notes regarding the species.

The Western Desert-Warbler appears to be somewhat local in its distribution, and is nowhere really abundant. It affects sandy

country as a rule, where but little vegetation is to be found, and that merely of a dwarf or scrub description. Owing to its small size, and to its shyness, as well as to the fact that its colour harmonises so well with that of the soil and surroundings of the districts it inhabits, this little bird may easily escape notice, and is probably often passed by, although within a few feet of one. Like *Scotocerca sahara*, it seems to be fond of diving into the middle of a desert-bush, in order to hide itself. While travelling in Tripoli Mr. Dodson was only fortunate enough to meet with the species on a single occasion, when he came across five individuals together, probably a family party, as it was in the month of July. As a rule the birds are more often to be found in pairs. The food of this little Warbler appears to consist chiefly of insects and their larvæ. Its flight is short and jerky. Both Loche and Dr. Koenig speak of its song as being very soft and pleasing, and the latter says that the little songster is in the habit of rising into the air when singing, and then dropping down again into the bush from which it rose. Loche considers that its song bears some resemblance to that of *S. conspicillata*. Its call-note appears to be rather sharp and piercing.

Dr. Koenig informs us that the nest of this species differs totally from the ordinary type of Warbler's nest, and is more like that of the Reed-Warbler, being very deep and purse-shaped, with an aperture at the top. It is placed in a desert-bush, and is composed principally of grasses and other plant-material, well lined with animal wool and vegetable down. Dr. Koenig found several nests, but only one with eggs in it. This he took in the neighbourhood of Dzelfana on April 13th. The two eggs it contained had a greenish-white ground colour, spotted with olive-green surface spots, and pale lilac shell-marks chiefly at the larger end. They both measured 14×11 mm.

A specimen of this species which was obtained by Signor Odoardo Ferragni of Cremona, in the vicinity of that town on November 7th, 1883, is preserved in the Florence Museum under the Catalogue No. 2,252. So far as I am aware, this is the only recorded instance of the occurrence of this desert-species in Europe.

SYLVIA MELANOCEPHALA (Gmelin).

SARDINIAN WARBLER.

Motacilla melanocephala, *Gmelin, Syst. Nat.* i, p. 970 (1788).

Sylvia melanocephala, *Seeböhm, Cat. Birds Brit. Mus.* v, p. 29; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Whitaker, Ibis*, 1895, p. 95.

Pyroptalma melanocephala, *Loche, Expl. Sci. Alg. Ois.* i, p. 246 (1867); *Koenig, J. f. O.* 1888, p. 200; *id. J. f. O.* 1892, p. 403; *Erlanger, J. f. O.* 1899, p. 260.

Description.—**Adult male**, spring, from Kebilli, South Tunisia.

Forehead, crown, lores and ear-coverts jet-black; the remainder of the upper plumage dark slate, with the exception of the quills which are brown, the secondaries being fringed with pale grey; tail, which is rather long and rounded, blackish-slate, the outer feathers with the outer web and tip white, the next adjoining pair also tipped with white; chin and throat pure white, the remainder of the underparts white, washed with slate.

Iris red, eyelid brick-red; bill black, becoming grey below; feet light brown.

Total length 5·30 inches, wing 2·35, culmen ·45, tarsus ·80.

Adult female, spring, from Kebilli, South Tunisia.

Forehead and crown brownish-slate; the remainder of upper plumage brown; tail pattern as in the male; chin and throat white; remainder of the underparts white, tinged with buff-brown.

Soft parts as in the male; measurements slightly less.

Observations.—The colour of the iris in this species appears to vary, according to age, from orange-yellow to deep red, but is generally of the latter colour in fully adult males.

This Warbler is common in many parts of the Regency, occurring as a resident and breeding species in the northern and Atlas districts, but apparently only as a winter migrant in the south, where its range does not usually extend to the more inland oases. I have a note of its occurrence, however, at Douirat, which is fairly far inland.

In Marocco the Sardinian Warbler is very common, and I have numerous examples of it, obtained in different parts of the Empire, both north and south. These seem to be rather darker in colouring than the generality of specimens found further east.

From Tripoli also I have specimens of this species.

In Central Tunisia I have found this Warbler not uncommon, and in the neighbourhood of Kasrin the species seemed to be breeding in April. In Northern Tunisia it is abundant in the vicinity of Hamman-Lif, and other localities near the town of Tunis, as well as at Bizerta, and on the slopes of the Djebel Eshkul, near that town, in all of which districts the species was nesting at the end of April.

In its habits the Sardinian Warbler resembles the members of the genus *Melizophilus* to a great extent, being essentially a bush-frequenting species, and rarely to be seen in trees. Its jerky, undulating flight also is like that of *Melizophilus*, and altogether it appears to bear much affinity to this group.

It is extremely sedentary as a rule, and if undisturbed will remain in the same garden, or shrubbery, all the year round, the sexes keeping in pairs throughout the year, and being most devoted to each other. During the nesting season the male bird takes part in the incubation of the eggs, and on these being hatched, he evinces the greatest solicitude for the welfare of the young brood, even after they leave the nest. His chiding alarm notes, however, often draw attention to the young birds when they would otherwise pass unobserved, and both parents at times take part in vehemently protesting against an invasion of their privacy.

The song proper of the Sardinian Warbler is sweet and pleasing, though not very varied. It may often be heard in spring-time, if care be taken in approaching the songster quietly.

The food of this species consists chiefly of insects and worms, varied to a slight extent by berries and fruit.

Nesting commences early in the spring, and by the middle or end of March nests, with their full complement of eggs, may be found. The "maquis"-covered hill-slopes so abundant in Tunisia are favourite breeding haunts of this species, the nest being generally placed in the fork of a bush, about four or five feet from the ground, and composed of fine rootlets and bents, lined with hair. The shape of the nest is cup-like, and rather deep, and the eggs, usually four or five in number, are of a greenish-white colour, closely spotted all over with grey and brown. Average measurements 17×14 mm. According to some authors the eggs of this species vary considerably, but I cannot say that such is my experience, although, of course, there is a certain amount of variation.

I have alluded to the nest of this bird being generally placed about

four or five feet from the ground, but occasionally it may be found at twice that height or even more. At times, on the contrary, it is low down, and I once found a nest of this species in a small Asparagus-fern in a greenhouse in my garden in Palermo. The parent birds used to pass in and out through an open window of the greenhouse, and seemed perfectly at home there.

Like many other species, this Warbler, when disturbed on its nest, will fly off, feigning disablement, in order to entice the intruder away from its home, and its acting on such occasions is remarkably clever.

I may here observe that in Sicily *S. melanocephala* is the commonest Warbler to be met with, and, with the exception perhaps of the Blackcap, is the only strictly resident Warbler to be found in the island. Every garden of any size at Palermo, and other places in Sicily, can show several pairs of these birds, and such of the mountains as have a "maquis" growth are also much frequented by the species.

Loche includes *S. rueppelli* in his list of Algerian birds, but any occurrence of this eastern species so far west must have been purely accidental, and exceptional.

SYLVIA ORPHEA, Temminck.

ORPHEAN WARBLER.

Sylvia orphea, *Temm. Man. d'Orn.* p. 107 (1815); *Whitaker, Ibis*, 1895, p. 95.

S. orpheus, *Seebohm, Cat. Birds Brit. Mus.* v, p. 14.

S. orphæa, *Malherbe, Faune Ornith. de l'Alg.* p. 12 (1855); *Koenig, J. f. O.* 1888, p. 196; *id. J. f. O.* 1892, p. 401; *Erlanger, J. f. O.* 1899, p. 258.

Curruca orphea, *Loche, Expl. Sci. Alg. Ois.* i, p. 238 (1867).

Description.—**Adult male**, spring, from Hamman-Lif, North Tunisia.

Forehead, crown, lores and ear-coverts dull smoke-black; rest of the upper plumage ashen-grey, becoming brown on the wings; tail dark brown, outer rectrices white, except for a narrow brown band on the inner webs, the adjoining two pairs on either side slightly tipped with white; entire under plumage white, tinged on the sides, flanks and crissum with vinous-grey.

Iris pale lemon-yellow; bill and feet lead colour.

Total length 6 inches, wing 3·20, culmen ·50, tarsus ·95.

Adult female resembles the male, but is duller in colour generally, and without the black crown, this part being dark ashen-grey.

The Orphean Warbler is very abundant in the wooded parts of Tunisia as a summer migrant, arriving about the end of March or beginning of April, breeding in the Regency, and leaving again in the autumn. In the Gafsa oasis I found the species particularly plentiful throughout the month of April, and in the neighbourhood of Sousa in Central Tunisia it is very common among the olive groves, which abound there. Olive groves, indeed, seem to have a special attraction for this, as well as for some other species of Warbler, and in the height of the periods of migration, are the resort of numbers of these small birds, which may be seen flitting from tree to tree, and feeding on the ants and other small insects which infest the gnarled trunks and rough branches of the olive tree. Throughout the wooded districts of the country north of the Atlas the species is also common during the spring and summer.

From Tripoli I have examples of the Orphean Warbler obtained during the month of April, and from Marocco some obtained in June. This species apparently breeds in both these countries.

In its general habits the present species resembles the Blackcap, but is less shy, allowing one to approach within a short distance of it. The food of the Orphean Warbler consists of worms and insects, varied perhaps to a slight extent by fruit and berries. Its song, though hardly such as to merit the bird's high-sounding name, possesses some fairly rich and melodious notes.

In South Tunisia this Warbler commences nesting operations soon after its arrival in April; north of the Atlas the breeding season is somewhat later. The nest is generally to be found in a low bush, and is built of fine grasses, lined with a little hair or wool. The eggs, which are usually three or four in number, are sometimes greenish-white, at others cream-coloured, marked and spotted with pale lake and brown. Average measurements 20×15 mm.

SYLVIA ATRICAPILLA (Linnæus).

BLACKCAP.

Motacilla atricapilla, *Linn. Syst. Nat.* i, p. 332 (1766).

Sylvia atricapilla, *Seebohm, Cat. Birds Brit. Mus.* v, p. 23; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Koenig, J. f. O.* 1888, p. 200; *id. J. f. O.* 1892, p. 402; *Whitaker, Ibis*, 1894, p. 88; *Erlanger, J. f. O.* 1899, p. 262.

Curruca atricapilla, *Loche, Expl. Sci. Alg. Ois.* i, p. 233 (1867).

Description.—**Adult male**, spring, from Kebilli, South Tunisia.

Forehead and crown jet-black; lores, ear-coverts, cheeks and nape bluish-grey; remainder of the upper plumage olive-brown; underparts pale bluish-grey, becoming whitish on chin, abdomen and crissum, and brownish on the flanks.

Iris dark brown; bill dark greyish-brown; feet lead colour.

Total length 5.50 inches, wing 2.95, culmen .45, tarsus .85.

Adult female, spring, from Kebilli, South Tunisia.

Forehead and crown bright chestnut-brown; remainder of the upper plumage olive-brown; underparts greyish, tinged with olive-brown on the sides, and whitish on the abdomen.

Soft parts and measurements as in the male.

Observations.—Young males before the first moult resemble more or less the female of this species, and instances are said to occur of the brown head being retained by the male even until the following summer. Such cases, however, can only be very exceptional, the black head being assumed, as a rule, before the breeding season. The length of the wing in this species varies considerably in individuals. The colour of the legs and feet also varies, and examples occur with these parts dark brown instead of lead colour.

The Blackcap appears to be both resident and migratory in Tunisia, occurring abundantly during the periods of migration in spring and autumn, and more sparingly in summer and winter. During the latter season it is to be found in the southern oases, and I have notes of its occurrence at Gabes, Tatahouine, and other places in the south of the Regency. Baron Erlanger says he never came across any females of this species in Tunisia in winter time, and concluded, therefore, that they went further south. Mr. Aplin, however, when at Tatahouine about the middle of February saw a female Blackcap which had just been obtained in that neighbourhood.

During the spring passage this species is very common in all the southern oases, as well as in the gardens and orchards of the north of the Regency. The species is eminently a garden bird, and were its own vernacular name not so appropriate, it might well lay claim to that of the Garden-Warbler, whose song is certainly inferior to that of the Blackcap. As a songster, indeed, *S. atricapilla* has but few superiors, or even rivals, and in Mediterranean countries it has the additional charm of being one of the earliest birds to sing, its rich mellow notes being sometimes heard long before the winter is over.

In addition to the usual insect diet common to most Warblers, the present species feeds largely upon fruit and berries of different kinds, and it is no uncommon occurrence to find Blackcaps with the plumage of their head and underparts tinged with the pollen of some plant upon which they may have been feeding. The berries of the Tree-privet (*Ligustrum japonicum*), abundant in many Mediterranean gardens, are greedily devoured by Blackcaps, and numbers of the birds may often be seen together busily engaged in feeding upon this fruit. The decaying seed-pods of various species of *Yucca* also seem to have a particular attraction for these Warblers, as well as the bright berries of the Pepper-tree (*Schinus molle*).

I have never taken a nest of the Blackcap in Tunisia myself, but Blanc tells me that it breeds in the north of the Regency, and Mr. Aplin certainly met with the species near Ghardimaou after the middle of May, when it was presumably nesting. The nest, which is generally placed in a low tree or bush, is composed almost entirely of dry bents, with a little horse-hair. The eggs, four or five in number, are of a pale brown, clouded and spotted with a darker shade of brown. Their average measurements are 18×15 mm. Occasionally eggs are found with a pink hue.

In Madeira and the Azores a variety of the Blackcap occurs in which the black colouring of the head in the male bird extends to the shoulders and under the throat. This form has been described as distinct from typical *S. atricapilla* under the name of *Curruca heinekeni*, Jardine (*Edin. Journ. Nat. and Geogr. Sci.* i, p. 243). Females of this variety are also met with, but are much rarer than the males. There is an example from Madeira in the British Museum collection.

Another insular form has recently been described as subspecifically distinct from *S. atricapilla* by Prof. Arrigoni, who finds that the

Blackcap of Sardinia differs from the ordinary form in being generally darker, both above and below, the rufous head of the female being also darker. This bird has been named *Sylvia atricapilla Pauluccii* (Avicula, 1902, p. 103). Not having seen any specimens from Sardinia. I cannot give any opinion as to the validity of this form.

“Sports” or “varieties” of the Blackcap are occasionally met with, and I have a specimen in my collection which is of a silvery-grey all over, excepting the black head.

SYLVIA HORTENSIS, Bechstein.

GARDEN-WARBLER.

Motacilla hortensis, *Bechst. Gemeinn. Naturg. Deutschl.* iv, p. 550 (1795).

Sylvia hortensis, *Bechst. Orn. Taschenb.* p. 169 (1802); *Seeborn, Cat. Birds Brit. Mus.* v, p. 10; *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855); *Whitaker, Ibis*, 1896, p. 91.

Curruca hortensis, *Loche, Expl. Sci. Alg. Ois.* i, p. 236 (1867); *Koenig, J. f. O.* 1892, p. 389.

Sylvia salicaria, *Whitaker, Ibis*, 1898, p. 597; *Erlanger, J. f. O.* 1899, p. 263.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Above uniform olive-brown, with a buff superciliary stripe; below pale buff, becoming whiter on the middle of the abdomen and crissum.

Iris dark hazel; bill and feet grey.

Total length 5·50 inches, wing 3·20, culmen ·45, tarsus ·80.

Female almost similar to male.

The Garden-Warbler, although not particularly common in Tunisia, occurs there in certain numbers as a spring and autumn migrant, and also breeds in some parts of the Regency. I have specimens of it obtained during the month of May from both the north and south of the Atlas Mountains. From Marocco, as also from Tripoli, I have examples obtained as late as the middle of May, which would lead one to suppose that it breeds in both those countries.

As its name implies, the Garden-Warbler frequents gardens and plantations where there are plenty of bushes and thick cover, and is rather shy and unsociable in its habits. Its song, although vastly inferior to that of the Blackcap, is mellow and has some sweet notes.

It feeds on insects and their larvæ, and also to a great extent upon fruit and berries. During the bird's autumnal passage through Italy ripe figs are largely eaten by it, whence its Italian name of "Beccafico," although this name is applied to other species as well. In some parts of Sicily numbers of these birds are captured at night, as they are roosting on the lower branches of the fig-trees. The method employed on such occasions seems very simple; a sharp-eyed boy, armed merely with a lantern, walks along quietly under the trees, and with his hand seizes the poor birds, which are either asleep, or so dazed by the light suddenly turned on them, that they are incapable of taking flight.

The species is said to bear confinement well and to become very tame in captivity.

Its nest, which is generally to be found in a low bush, is composed of fine grasses and root-fibres, lined with hair, and its eggs, four or five in number, are whitish, marbled and spotted with violet and brown markings. Average measurements 18×15 mm.

MELIZOPHILUS UNDATUS (Boddaert).

DARTFORD WARBLER.

Motacilla undata, *Bodd. Table Pl. Enl.* p. 40 (1783).

Sylvia provincialis, *Seebohm, Cat. Birds Brit. Mus.* v, p. 31.

Melizophilus provincialis, *Loche, Expl. Sci. Alg. Ois.* i, p. 249 (1867); *Koenig, J. f. O.* 1888, pp. 130, 202; *id. J. f. O.* 1892, p. 404.

Description.—**Adult male**, autumn, from Italy.

General colour of upper parts greyish-brown, rather more slate on the crown and browner on the back, quills brownish-slate; tail, which is long and rounded, also brownish-slate, the outer rectrices fringed with white; underparts mostly chestnut-red, the middle of the abdomen white; the throat spotted with white; and the under tail-coverts grey.

Iris bright hazel; bill dark brown, yellowish at the base of the lower mandible; feet yellowish-brown.

Total length 5 inches, wing 2.10, culmen .40, tarsus .75.

Adult female resembles the male, but is rather duller in plumage, and slightly smaller.

According to the naturalist Blanc, this species is not uncommon in some parts of Tunisia during the periods of migration, being found

occasionally near the town of Tunis itself, as well as on the small island of Djerba off the south-east coast. Dr. Koenig also seems to think that it may occur on the small island of Curiat, near Monastir. Although I cannot positively affirm having met with the Dartford Warbler myself in the Regency, I remember on one occasion seeing a bird which appeared to be of that species at Hamman-Lif near the town of Tunis, and there seems to be no reason to doubt the fact of its occurrence in the country, particularly as it occurs not unfrequently in Algeria and Marocco, from which countries specimens are to be seen in the Museum of the Jardin des Plantes in Paris, and that of Milan. Canon Tristram and Loche both record its occurrence in Algeria, and Mr. T. Drake and Favier its occurrence in Marocco. Loche, indeed, states that it is resident in Algeria, and Favier that it is resident in Marocco. Whether it is so in Tunisia I cannot say, but I have no knowledge of the species nesting anywhere in the Regency.

Like *M. sardus*, the Dartford Warbler appears to be very local in its distribution, and seems to have a partiality for some of the smaller Mediterranean islands, no doubt on account of the absence of cultivation, and the consequent growth of wild plants of the "maquis" description, so dear to the members of this group of Warblers. Most of the Italian islands include *M. undatus* in their Ornis, but the species appears to be abundant only where this vegetation flourishes luxuriantly. On the island of Pantelleria, not far distant from the Tunisian coast, both *M. sardus* and *M. undatus* are fairly plentiful, according to Doderlein.

In its habits the present species is active and restless, flitting from one bush to another, or creeping in and out among the thickest scrub plants, without stopping for a moment. Its flight is jerky and undulating. Insects and grubs form its principal food.

Its song is short but rather pleasing, its alarm note rather harsh and grating, while its call note is said to resemble the syllables *pit-it-chou*, whence its French vernacular name, *Pitchou*.

MELIZOPHILUS SARDUS (Marmora).

MARMORA'S WARBLER.

Sylvia sarda, *Marm. fide Temm. Man. d'Orn.* i, p. 204 (1820); *Seebohm, Cat. Birds Brit. Mus.* v, p. 33.

Pyrophthalma sarda, *Loche, Expl. Sci. Alg. Ois.* i, p. 247 (1867);

Melizophilus sardus, *Koenig, J. f. O.* 1888, p. 201; *id. J. f. O.* 1892, p. 404.

Description.—**Adult male**, spring, from Tatahouine, South Tunisia.

Above dull slate colour, darker on the crown; wings and tail dark brown, slightly margined with greyish-brown, the outer rectrices with whitish; under-parts slate-grey, becoming paler on the abdomen.

Iris yellow, eyelid reddish; bill brown, the lower mandible yellowish at the base; feet yellowish.

Total length 4.75 inches, wing 2.20, culmen .40, tarsus .80.

Adult female, winter, from Gabès, South Tunisia. Like the male, but rather paler, and with a slight vinous tinge on the underparts. Soft parts as in the male; measurements slightly less.

This species, although more or less local in its distribution, is not uncommon in some parts of Tunisia, particularly on the east coast, and in the southern districts during winter. At that season Mr. Aplin frequently met with the species on the bushy hill-slopes and among the rocky gorges, covered with "maquis" vegetation, and obtained specimens of it at or near Gabès, Oum-Ali, and Tatahouine. I have also seen specimens of it obtained at Gafsa.

Dr. Koenig found this Warbler common in spring on the small island of Curiat, off the east coast of Tunis (*J. f. O.* 1892, p. 404). In the more western districts of the Regency I have never met with this species, although it is no doubt to be found there occasionally, as it occurs in Algeria. An example of this species, obtained by Loche in the Algerian Sahara, is preserved in the Turati Collection at Milan under the No. 17,575, and I have seen another specimen, a male, which was obtained by Mr. H. F. Witherby at Biskra on March 8th, 1904.

From Spain the species appears to be unrecorded, although apparently it has been obtained in Portugal (*J. f. O.* 1872, p. 148), and both Mr. Howard Saunders and A. von Homeyer mention its occurrence in the Balearic Islands. In the island of Sardinia, and probably also in Corsica, this Warbler is common and resident. In Sicily, although

nowhere abundant, Marmora's Warbler is to be met with occasionally, and in some districts on the south coast it may possibly be resident. On the Italian mainland, however, the species is distinctly rare, for it has only been procured on one or two occasions from Liguria. Further eastwards it appears to have been met with occasionally in some parts of Greece, as well as, perhaps, in Turkey and Palestine, and according to von Henglin (*Orn. N. O. Afr.* p. 303), the species also occurs in spring in Egypt. In conclusion, it would appear that Marmora's Warbler is decidedly local in its distribution, and were it not for its occurrence in Portugal, the species might be considered as a strictly Mediterranean form, occurring most commonly in the islands of that basin where a "maquis" vegetation flourishes.

In its general habits, food and nidification the present species greatly resembles the Dartford Warbler. Its song, however, appears to be more like that of *S. melanocephala*, and its alarm note is particularly harsh and grating, like that of the latter bird.

Although I have no positive information as to the nesting of *M. sardus* in Tunisia, I am inclined to think that the species breeds in the Regency, and Dr. Koenig seems to have been of the same opinion when he met with this warbler in March on the island of Curiat.

MELIZOPHILUS DESERTICOLUS (Tristram).

TRISTRAM'S WARBLER.

Sylvia deserticola, *Tristram, Ibis*, 1859, pp. 58, 417; *Seebohm, Cat. Birds Brit. Mus.* v, p. 32, pl. iii.; *Whitaker, Ibis*, 1896, p. 91; *id. Ibis*, 1898, p. 132.

Melizophilus deserticolus, *Erlanger, J. f. O.* 1899, p. 271.

Description.—**Adult male**, spring, from El-Oubira, Central Tunisia.

Crown and entire upper plumage dark slate, shaded with brown on the back and rump; wings dark brown, the feathers broadly fringed with rufous-buff; tail-feathers dark brown, with lighter fringes, the outer pair with the outer webs and the terminal portion of the inner webs white; a faint moustachial stripe and a few feathers on the chin white; the remainder of the underparts chestnut colour, becoming paler on the abdomen and crissum.



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Meizophilus deserticolus.

Iris bright hazel, eyelid reddish-brown, with a circle of minute white feathers round it; bill brown, becoming yellowish at the base of lower mandible; feet yellowish.

Total length 4.50 inches, wing 2.10, culmen .40, tarsus .75.

Adult female, spring, very like the male, but rather duller and browner in colouring.

The winter plumage of both sexes is duller and less clear than the summer one.

Observations.—Some specimens show no white on the chin. As compared with the Dartford Warbler, there is but little difference in the relative length of the wing, but the tail of the present species is shorter than that of *M. undatus*, and the total length is less.

This species has no doubt rightly been placed by Mr. Dresser and other ornithologists in the genus *Melizophilus*. Its long, rounded tail, well shown in the accompanying plate, at once indicates that it belongs to this genus and not to *Sylvia*, and its habits and mode of nesting are distinctly Melizophiline. The species is, indeed, closely allied to the Dartford Warbler, but is a rather smaller and more brightly coloured bird. I may here observe that probably some of the notices of the occurrence of the Dartford Warbler in North-west Africa are incorrect, and really apply to the present species. Apparently Loche met with *M. deserticolus* in the Algerian Sahara in its winter plumage, but did not recognise the species in that dress, or even refer it to *M. undatus*, for a specimen of *M. deserticolus* obtained by him at Guerrara, which is preserved in the Milan Museum under the No. 17,574, is labelled as *S. subalpina*.

M. deserticolus was first discovered and described under the name *Sylvia deserticola* by Canon Tristram, who appears to have met with it in the Algerian Sahara in the winter season (*Ibis*, 1859, p. 58). Several years afterwards Mr. C. Dixon, and later still Dr. Koenig, found the species in its breeding home in the Atlas, and to both these authors we are indebted for some valuable and interesting notes regarding this Warbler, which, so far as is at present known, is peculiar to the Atlas region. Throughout this region, in Tunisia, Algeria, and Marocco, the species is, however, not uncommon, and may be met with, during the breeding season, at considerable altitudes. Mr. Meade-Waldo mentions having found it abundant in the Maroccan Atlas at elevations up to 9,000 feet above sea-level (*Ibis*, 1903, p. 206).

I have no note of the occurrence of *M. deserticolus* in Tripoli, but this is not surprising, considering the desert character of that country, with its lack of wooded mountains and, above all, of the "maquis" vegetation so attractive to this and allied Warblers.

Like Moussier's Redstart, Tristram's Warbler seems to shift its quarters to a certain extent, its habitat throughout the spring and summer months being undoubtedly the Atlas region, while in winter it frequents the oases and bushy districts of the Algerian and Tunisian Sahara. Whether it deserts the Atlas region entirely in winter I do not know, but apparently it occurs in the Saharan districts only during that season, and never in summer. By the end of March it is certainly to be found in its breeding quarters, and the first specimens I obtained were procured at that season in the hilly country lying between Feriana and El-Oubira. Throughout that district *M. deserticolus* is by no means uncommon, and I collected several examples of it in full breeding plumage during the month of April, and met with young birds able to fly in the early part of May. On the Djebel Selloum, near Kasrin, *M. deserticolus* also occurs, although not so abundantly as further west.

Like its congeners, *M. undatus* and *M. sardus*, Tristram's Warbler loves a "maquis" growth, and this it finds in abundance on the slopes and hillsides of the Atlas. Many of these districts are thickly clothed with a bush vegetation, among the most characteristic plants of which may be mentioned the juniper, thuja, dwarf ilex oak, rosemary, lavender, and different species of broom. The Aleppo pine (*P. halepensis*) also flourishes here in some places, forming tolerably thick woods, while in others it is merely represented by a few trees cropping up here and there among the undergrowth.

In its habits *M. deserticolus*, as already mentioned, greatly resembles the Dartford Warbler, and is a bright, active little bird, frequenting as a rule thick bushes, but owing to its restlessness, and perhaps to its inquisitiveness, being constantly in evidence. It is fond of perching conspicuously on the top of a shrub, from which it pours forth its short but sweet and pleasing song. This is also uttered at times by the bird when on the wing, as it hovers for a few seconds over a bush, where, perhaps, its nest is concealed.

Its flight is rather feeble and wavering. The food of the species, like that of its congeners, consists chiefly of small worms, caterpillars and insects of various kinds.

M. deserticolus commences nesting operations soon after settling down in its summer quarters, and by the end of April nests may be found with their full complement of eggs, the number of which appears to be four. As the nest and eggs of this species are probably rare in collections, I think it advisable to give the following detailed description, taken from my diary, of two nests and clutches obtained by me in Tunisia :—

(a) Nest and eggs of *M. deserticolus* taken at Bou-Chebka, May 7th, 1898. The nest, which was placed in a low rosemary-bush (*Rosmarinus officinalis*), measures 10 cm. in diameter externally and 5 cm. internally, and is cup-shaped; it is composed externally of coarse grass-bents, and internally of finer bents, with a lining of the soft, dry flower of *Aerva javanica* (Desf.). The eggs, four in number and of a medium oval shape, are of a greenish-white, plentifully spotted, particularly at the larger end, with dark brown markings and blotches, forming a zone. Average measurements 16 × 13 mm.

(b) Nest and eggs of *M. deserticolus* taken at El-Oubira, May 9th, 1898. This nest, which was also found in a rosemary-bush, is very similar in size and composition to that described above, but is much more thickly lined with the dry woolly flower of *A. javanica*, and has also a little horse-hair lining. The eggs, four in number, differ from those already mentioned in being less spotted with dark-brown, and without any zone at the larger end; they are also rather smaller, their average dimensions being 15 × 12 mm.

The dry flower of *Aerva javanica* (Desf.), one of the *Amarantacea*, is admirably adapted for the lining of a nest, being exceedingly soft and woolly in texture. In appearance it is peculiar, resembling a small white woolly caterpillar.

Subfamily PHYLLOSCOPINÆ.

REGULUS CRISTATUS, Koch.

GOLDEN-CRESTED WREN.

Regulus cristatus, Koch, *Baier. Zool.* p. 199 (1816); *Gadow, Cat. Birds Brit. Mus.* viii, p. 80; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 302 (1867); *Koenig, J. f. O.* 1888, p. 175; *id. J. f. O.* 1892, p. 374.

Description.—**Adult male**, autumn, from Italy.

Forehead and lores greyish, a dark brown streak above the forehead, merging into a black stripe on each side of the crown, on the centre of which is a brilliant orange-coloured crest surrounded by bright yellow; upper plumage generally olive-green, greyer on the nape, and brighter on the rump; wings and tail greyish-brown, the secondaries and wing-coverts tipped with white, and a black bar across the upper part of the former; underparts greyish-white, tinged with greenish on sides and flanks.

Iris dark brown; bill dark brown; feet light brown, toes and claws yellowish.

Total length 3·65 inches, wing 2·10, culmen ·35, tarsus ·65.

Adult female duller in colour, and with the crest light yellow.

Soft parts as in the male; measurements slightly less.

The Gold-crest is said to be met with in Tunisia. Malherbe and Loche both record it as occurring in Algeria, and a specimen of it obtained by Loche in that country certainly exists in the Turati Collection of the Milan Museum under the No. 17,630. Although recent travellers in North-west Africa do not appear to have met with the species, but only with the Fire-crest, it seems, nevertheless, probable that the Gold-crest also occurs throughout the country north of the Atlas, if not as a resident, or even as a regular winter migrant, at any rate as an occasional or accidental visitor in severe winters. In Sicily and Malta, so near the African continent, the species occurs regularly as a winter migrant, and in the former of these islands it is said to be partially resident.

In its habits, note and food the Golden-crested Wren differs but little from the following species, although it is perhaps less shy than that bird.

REGULUS IGNICAPILLUS (C. L. Brehm).

FIRE-CRESTED WREN.

Sylvia ignicapilla, Brehm. in Temm. *Man. d'Orn.* i, p. 232 (1820).

Regulus ignicapillus, Meyer, *Taschenb. Deutsch. Vögelk.* iii, p. 109 (1822); *Gadow. Cat. Birds Brit. Mus.* viii, p. 83; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 13 (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 304 (1867); *Koenig, J. f. O.* 1888, p. 175; *id. J. f. O.* 1892, p. 374; *Erlanger, J. f. O.* 1899, p. 283.

Description.—**Adult male**, winter, from Ain Draham, North Tunisia.

Frontal streak, extending from the eye over the base of the bill, greyish-buff; superciliary stripes, extending backwards to the nape, white; above the greyish-buff frontal streak there is a black stripe, extending backwards over the superciliaries, as far as the nape; in the centre of the crown a flame-coloured crest, becoming yellow on the sides; nape, back and rump bright golden-green; quills and tail grey-brown; lores and a streak just below and behind the eye blackish; below this another whitish line; ear-coverts and sides of the head bluish-grey; underparts whitish, tinged with grey and green.

Iris almost black; bill dark brown; feet pale brown; toes yellowish.

Total length 3.50 inches, wing 2, culmen .30, tarsus .70.

Adult female resembles the male, except in the crest, which is pale yellow and not flame-coloured.

I have several specimens of the Fire-crested Wren, obtained in winter, in the oak forests of Ain Draham and Fernana in the north of the Regency, and apparently the species is not uncommon in some parts of North Tunis, although not to be found south of the Atlas. It also seems to be a resident and breeding species in those localities where it occurs. *R. ignicapillus* is not uncommon in North Algeria, and is probably also to be found in North Morocco, although I have no examples of it in my collection from that country. In Madeira the present species is replaced by *R. maderensis*, a closely allied but perfectly distinct form. In the Canaries another form occurs, *R. teneriffæ*, Seeböhm, which apparently differs but slightly from *R. cristatus*.

In its general habits and mode of nesting the Fire-crested Wren resembles the Gold-crest, but the eggs of the two species are distinguishable one from the other. In winter these tiny birds are generally to be met with in small parties, flitting about from bush to bush

in wooded country, and being exceedingly restless and constantly on the move, they do not easily escape notice. Their call note is a simple "zeet-zeet." Their song in spring is said to be soft and pleasing. The nest of *R. ignicapillus*, as above mentioned, resembles that of *R. cristatus*, being generally built of moss, plentifully lined with feathers, and placed at the extremity of a branch. The eggs, however, of which as many as ten are sometimes laid, differ from those of *R. cristatus* in being redder, the ground colour being pinkish-white minutely spotted with reddish-brown.

PHYLLOSCOPUS RUFUS (Bechstein).

CHIFFCHAFF.

Sylvia rufa, *Bechstein, Orn. Taschenb.*, i, p. 188 (*nec Bodd.*), 1802; *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855).

Phylloscopus rufus, *Seebohm, Cat. Birds Brit. Mus.* v, p. 60; *Whitaker, Ibis*, 1895, p. 95; *Erlanger, J. f. O.* 1899, p. 258.

Phyllopneuste rufa, *Loche, Expl. Sci. Alg. Ois.* i, p. 253 (1867); *Koenig, J. f. O.* 1888, p. 192; *id. J. f. O.* 1892, p. 390.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Above olive-green, darker on the crown, and lighter on the rump; quills and tail pale brown; superciliary stripe yellowish, becoming lighter over the ear-coverts; underparts whitish, tinged with yellowish-green; under wing-coverts and axillaries bright yellow.

Iris dark hazel; bill and feet dark greyish-brown.

Total length 4 inches, wing 2·30, culmen ·35, tarsus ·70.

Adult female resembles the male, but is slightly smaller.

Observations.—The Chiffchaff may be distinguished from the Willow-Wren by its smaller size, slightly duller coloration, darker coloured feet, and more rounded wing, the formula of which also differs from that of the Willow-Wren, its second primary quill being shorter than the sixth, and about equal to the seventh.

The Chiffchaff is a common winter migrant in Tunisia, arriving in the late autumn, and leaving again on the approach of spring. I know of no instance of this little Warbler breeding in the Regency, but as the species breeds in some parts of Southern Europe, it may possibly

do so in some of the Atlas districts, where the climate and surroundings would appear to be suited to the bird's requirements. The species occurs in Algeria and Marocco in autumn, winter and spring. The Chiffchaff is to be met with in most of the wooded and cultivated districts of Northern and Central Tunisia, and also in the oases of the south. Gardens and orchards are much frequented by these little birds, which may constantly be observed, in small parties of three or four individuals, busily engaged in searching for aphides and small insects. Lakes and ponds are also favourite resorts of this and the following species, on account of the numerous gnats and small flies generally plentiful in such spots. Winged insects are captured flying, and it is a pretty sight to see the birds hawking for their prey, after the manner of the *Muscicapidæ*. A strand of wire stretched across a pond or other piece of water is a great attraction, forming an excellent point of vantage from which the birds can pounce down upon their prey, and at times quite a large number of them may be seen congregating together in such a spot. The *Phylloscopinæ*, however, also take their food on the ground, and may often be seen picking up small insects on pathways. Although restless and constantly on the move, the Chiffchaff is by no means shy and may easily be approached. Its peculiar song resembling the words "chiff chaff," repeated many times in succession, has given rise to the bird's English name.

PHYLLOSCOPUS TROCHILUS (Linnæus).

WILLOW-WREN.

Motacilla trochilus, *Linn. Syst. Nat.* i, p. 338 (1766).

Phylloscopus trochilus, *Boie, Isis*, 1826, p. 972; *Seebohm, Cat. Birds Brit. Mus.* v, p. 56; *Whitaker, Ibis*, 1895, p. 95; *Erlanger, J. f. O.* 1899, p. 257.

Sylvia (Ficedula) trochilus, *Malherbe, Faune Ornith. de l'Alg.* p. 13, (1855).

Phyllopeuste trochilus, *Loche, Expl. Sci. Alg. Ois.* i, p. 252 (1867); *Koenig, J. f. O.* 1888, p. 192; *id. J. f. O.* 1892, p. 390.

Description.—**Adult male**, spring, from Oum-Ali, South Tunisia.

Above olive-green, slightly darker on the crown, and paler on the rump; quills and tail-feathers brown, margined with yellowish-green; a superciliary

stripe lemon-coloured, becoming paler over the ear-coverts; underparts yellowish-white; under wing-coverts and axillaries bright lemon.

Iris dark hazel; bill and feet light brown.

Total length 4·50 inches, wing 2·70, culmen ·45, tarsus ·80.

Adult female resembles the male, but is slightly smaller.

Observations.—The Willow-Wren may be distinguished from the Chiffchaff by its larger size, rather brighter coloration, lighter coloured feet, and more pointed wing, the second primary quill being shorter than the fifth and, as a rule, slightly longer than the sixth.

Like the preceding species, the Willow-Wren is a winter migrant in Tunisia, but more particularly in the south of the Regency, as probably few, if any, of the species pass the colder months north of the Atlas. It arrives in the late autumn, and leaves again in the early spring, and I am unaware of any instance of its breeding in the Regency. I have, however, a specimen of this Warbler from Tripoli, which was obtained at Ziegen, a considerable way inland from the coast, as late as May 16th.

In North Tunisia the Willow-Wren is mostly to be seen during the periods of migration, but in the oases of the south it is at times most abundant during the winter months. From Kef, in North Tunisia, I have specimens obtained in November, but the species was far less numerous there at that season than *P. rufus*.

In its mode of living and in its habits generally the present species does not differ greatly from the Chiffchaff, showing a partiality for gardens and orchards, and being constantly and actively engaged in hunting for insects and their larvæ. The stomachs of those obtained by me generally contained the remains of small flies. The notes of the Willow-Wren are, however, far superior to those of the Chiffchaff, and its well-known song, descending the scale in a long succession of liquid notes, is one of the most charming sounds of spring.

PHYLLOSCOPUS SIBILATRIX (Bechstein).

WOOD-WREN.

Motacilla sibilatrix, *Bechst. Naturforscher*, xxvii, p. 47 (1793).

Phylloscopus sibilatrix, *Blyth, Cat. Birds Mus. As. Soc.* p. 184 (1849);
Seeböhm, Cat. Birds Brit. Mus. v, p. 54; *Whitaker, Ibis*, 1895, p. 95.

Sylvia (Ficedula) sibilatrix, *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855).

Phyllopneuste sibilatrix, *Loche, Expl. Sci. Alg. Ois.* i, p. 250 (1867);
Koenig, J. f. O. 1888, p. 192; *id. J. f. O.* 1892, p. 390.

P. sibilatrix flavescens, *Erlanger, J. f. O.* 1899, p. 254.

Description.—**Adult male**, spring, from Ain-Moularés, South Tunisia.

Above yellowish-green, lighter on the rump; quills and tail greyish-brown, margined with yellowish-green, a lemon-yellow stripe extending from base of bill backward over the eye; lores and a short stripe behind the eye grey; cheeks, throat and sides of the breast pale lemon-yellow; rest of the underparts white; under wing-coverts and axillaries lemon-yellow.

Iris dark brown; bill brown; feet pale brown, with a yellowish tinge.

Total length 5 inches, wing 3, culmen .45, tarsus .70.

Adult female resembles the male, but is slightly smaller.

The Wood-Wren is abundant in Tunisia during the periods of migration, particularly during the spring passage, and, according to the naturalist Blanc, it also passes the winter in some parts of the south. With regard to its breeding in the Regency I have no positive information, but judging from the fact that the species is met with during the month of May, it seems not unlikely that it does nest in that country. From Tripoli I have specimens of the Wood-Wren obtained in April and May, and even as late as the 15th of the latter month, when one would suppose the bird to be breeding. Loche also, writing of this species, gives one to understand that it nests in Algeria. In this latter country, as well as in Marocco, the species is not uncommon during the periods of migration.

In most of its habits the present species resembles the two preceding, and is generally found frequenting woods and gardens where the vegetation is fairly lofty and aphides and smaller winged insects are plentiful. The call note is a plaintive whistle, "dee-ur," and the peculiar shivering song has no doubt, given rise to the bird's specific name.

Although I have no nest or eggs of the Wood-Wren from Tunisia,

as the bird possibly breeds there, I may here say that the *Phylloscopinae*, as a rule, nest on the ground, building semi-domed nests, composed chiefly of dry grasses and mosses, at times lined with feathers and a little hair, but often, as in the case of the present species, without any lining whatever. They lay from four to seven eggs with a white or whitish ground colour, spotted with reddish-violet and grey.

Baron v. Erlanger (*J. f. O.* 1899, p. 254) has separated the Wood-Wren found in Tunisia from typical *P. sibilatrix* (Bech.), under the name of *P. sibilatrix flavescens*, on the grounds of its being more brightly coloured. These grounds, however, do not seem to be sufficient for such distinction, as specimens equally brightly coloured may be met with in Northern Europe. Mr. Hartert and Mr. Meade-Waldo, however, both seem to have noticed a difference between the song of the Wood-Wren found in Marocco and that of our common European bird, and if not merely a seasonal modification of notes, this would, of course, be a strong argument in favour of separation.

Mr. Ogilvie-Grant, writing on "Birds obtained at Madeira" (*Ibis*, 1890, p. 440), also alludes to the song of the Wood-Wrens he heard in the neighbourhood of Funchal being different from that of any he had ever heard at home, but he states that the four specimens which he then obtained undoubtedly belonged to *P. sibilatrix*.

PHYLLOSCOPUS BONELLI (Vieillot).

BONELLI'S WARBLER.

Sylvia bonelli, *Vieill. Nouv. Dict.* xxviii, p. 91 (1819).

Phylloscopus bonellii, *Tristram, Ibis*, 1859, p. 418; *Seebohm, Cat. Birds Brit. Mus.* v, p. 59; *Erlanger, J. f. O.* 1899, p. 256.

Sylvia (Ficedula) nattererii, *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855).

Phyllopneuste bonelli, *Loche, Expl. Sci. Alg. Ois.* i, p. 255 (1867).

Phylloscopus bonelli, *Whitaker, Ibis*, 1895, p. 95.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Above pale greyish-green, yellower on the rump; quills and tail-feathers greyish-brown, margined with yellowish-green; a whitish superciliary stripe; underparts whitish, with a tinge of greyish-green on the flanks; under wing-coverts and axillaries pale lemon-colour.

Iris dark brown ; bill and feet light brown.

Total length 4·50 inches, wing 2·70, culmen ·40, tarsus ·70.

Adult female resembles the male, but is slightly smaller.

Observations.—The plumage of this species varies a good deal in colour, being sometimes greyer, at others greener.

Dr. Koenig says he finds considerable difference in colour between the male and female birds (*J. f. O.* 1895, p. 259).

Bonelli's Warbler is abundant throughout the more wooded parts of Tunisia as a summer migrant, arriving in spring and returning southwards in the autumn. A certain number of the species may possibly also winter in the southern oases of the Regency, although I have no positive knowledge of their doing so. Canon Tristram (*Ibis*, 1859, p. 418) says that this Warbler is abundant in the oases of Algeria during the winter months, and Dr. Koenig met with it in the same locality, migrating northwards in March and April. In the mountainous and wooded parts of Algeria Bonelli's Warbler seems to be plentiful during the breeding season, and from the Atlas districts of Marocco, where in many parts it is the commonest Warbler to be met with, I have examples of the species obtained in the month of May at altitudes of over 5,000 feet above sea-level.

This species seems to visit high altitudes more than the other *Phylloscopi*, and in the upper Engadine I have found it common at elevations of about 6,000 feet.

Bonelli's Warbler undoubtedly breeds in North Tunisia, although I never took a nest of the species there myself. Mr. Aplin, however, met with it constantly in the oak-woods of Ghardimaou and El-Fedja during the nesting season, and Baron Erlanger found young birds of the species in July in the woods near Souk-el-Arba (*J. f. O.* 1899, p. 256). In its general habits this Warbler appears to resemble *P. sibilatrix*, but its song, according to some observant ornithologists, differs from that of the common Wood-Wren in being more melancholy or pathetic.

Its breeding habits are said to resemble those of the Wood-Wren, its nest being built of fine grasses, without any lining, and placed on the ground. Its eggs, however, are said to be rather smaller than those of *P. sibilatrix*.

Subfamily ACROCEPHALINÆ.

HYPOLAIS POLYGLOTTA (Vieillot).

MELODIOUS WARBLER.

Sylvia polyglotta, *Vieill. Nouv. Dict.* xi, p. 200 (1817).

Hypolais polyglotta, *Gerbe, Rev. Zool.* 1844, p. 440; *Seebohm, Cat. Birds Brit. Mus.* v, p. 79; *Loche, Expl. Sci. Alg. Ois.* i, p. 275 (1867); *Koenig, J. f. O.* 1888, p. 190; *id. J. f. O.* 1892, p. 289; *Whitaker, Ibis*, 1896, p. 92; *Erlanger, J. f. O.* 1899, p. 294.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Above olive-green; wings and tail-feathers pale brown, very narrowly margined with grey; lores, superciliaries and entire underparts pale lemon-yellow; bastard primary longer than the primary-coverts.

Iris brown; bill yellowish-brown, becoming pale orange on lower mandible; feet pale brown.

Total length 4·50 inches, wing 2·50, culmen ·55, tarsus ·75.

Adult female similar to the male.

Observations.—This species may be distinguished from the Icterine Warbler by its smaller size, and by its bastard primary being longer than the primary coverts.

Like some other birds, such as the Chats, which have an eastern and a western representative species in the Western Palearctic Region, *H. polyglotta* and *H. icterina* both occur in the Tunisian Regency, which appears to be the meeting point of the two forms. The present species is perhaps the commoner of the two in the Regency, although *H. icterina* is by no means scarce there either. In Algeria *H. polyglotta* appears to be more or less abundant, while I have no note of the occurrence of *H. icterina* in that country. From Marocco, as might naturally be expected, the latter species is unrecorded, while *H. polyglotta* is plentiful there. In Europe the Melodious Warbler is common in Spain and Portugal, as also in the south and west of France, becoming rarer further eastward, although in some parts of Italy it is by no means uncommon. *H. polyglotta* is abundant in many parts of Tunisia during the spring and summer months, and breeds in the oases of the south as well as in the woods of the north of the Regency. Mr. Aplin found the species not at all uncommon in May and June among the wild olive groves, and on the bush-clad

hillsides near Ghardimaou, and in the same districts as *H. icterina*, although generally at rather higher altitudes than the latter species. In the neighbourhood of the town of Tunis *H. polyglotta* is also often to be met with in spring and summer. Apparently none of the members of this genus winter in the Regency, but go further south.

H. polyglotta frequents gardens and orchards, as well as the less cultivated hillsides and wilder country districts, and is particularly fond of the banks of streams, and of the vicinity of water in general. Its diet appears to be almost entirely composed of insects. The song of this species is very rich and varied, and its specific name of *polyglotta*, as well as its English appellation of melodious, are most appropriate.

The species seems to be rather a late breeder, and does not nest, as a rule, until May and June. Its nest, which resembles that of the Icterine Warbler, is generally to be found in the fork of a low tree or bush, and is a neat, cup-shaped structure, composed chiefly of fine grasses, lined with the seed-down of some plant, and with a little hair. The eggs, usually four in number, are very oval in shape, and of a pinkish colour, sparsely spotted with dark brown. Average measurements 18 × 13 mm.

HYPOLAIS ICTERINA (Vieillot).

ICTERINE WARBLER.

Sylvia icterina, Vieill. *Nouv. Dict.* xi, p. 194 (1817).

Hypolais icterina, Gerbe, *Rev. Zool.* 1844, p. 440; Seebohm, *Cat. Birds Brit. Mus.* v, p. 77; Koenig, *J. f. O.* 1892, p. 390; Whitaker, *Ibis*, 1896, p. 92.

Hypolais salicaria, Loche, *Expl. Sci. Alg. Ois.* i, p. 273 (1867).

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Above olive-green; wings and tail brown, margined with grey; lores, superciliaries and entire underparts pale lemon-yellow; bastard primary shorter than the primary coverts.

Iris brown; bill yellowish-brown, becoming yellowish-orange on lower mandible; feet pale brown.

Total length 5·25 inches, wing 3·15, culmen ·60, tarsus ·80.

Adult female similar to the male.

Observations.—This species can be distinguished from the Melodious Warbler by its larger size, and by its bastard primary being shorter than the primary coverts.

As mentioned in the preceding article on *H. polyglotta*, the present species also occurs in Tunisia, although perhaps rather less plentifully than that Warbler, and is generally to be found at a lower altitude. The Icterine Warbler is, however, far from uncommon in certain districts of the Regency during the spring months, and particularly in the wooded districts north of the Atlas, such as the neighbourhood of Ghardimaou and the valley of the Medjerdah, where Mr. Aplin met with the species in considerable numbers, frequenting the shrubs and bushes bordering the river of that name.

As already stated, the range of the Icterine Warbler in North-west Africa does not, apparently, extend further west than Tunisia, at any rate, I have no note of its occurrence in either Algeria or Morocco. In Europe the western range of the species seems to extend to the eastern provinces of France, and, as a straggler, it has even occurred in the British Islands.

In its general habits the Icterine Warbler resembles the Melodious Warbler, being fond of wooded localities, or gardens and orchards, where water is near at hand. Like that bird also, it is shy and retiring in its habits, and were it not for its fine song, might often pass unobserved. Its song, however, although generally considered as inferior to that of the Melodious Warbler, has some rich notes, and cannot fail to attract attention. Its food consists almost entirely of insects. Like allied species, this Warbler is generally to be met either singly, or in pairs. Although I have no information on the point, I think it probable that the Icterine Warbler breeds in Tunisia, its nest and eggs presumably differing but little from those of the preceding species.

HYPOLAIS PALLIDA OPACA (Lichtenstein).

WESTERN OLIVACEOUS WARBLER.

Sylvia opaca, *Licht. fide Cab. Mus. Hein.* i, p. 36 (1850).

Hypolais opaca, *Cab. Mus. Hein.* i, p. 36 (1850); *Seeböhm, Cat. Birds Brit. Mus.* v, p. 83; *Koenig, J. f. O.* 1892, p. 390.

Hypolais pallida, *Malherbe, Faune Ornith. de l'Alg.* p. 13 (1855); *Whitaker, Ibis*, 1895, p. 95.

Chloropeta pallida, *Loche, Expl. Sci. Alg. Ois.* i, p. 271 (1867).

Hypolais pallida opaca, *Erlanger, J. f. O.* 1899, p. 251.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Above pale olive-brown, with a faint yellowish tinge on the back and rump; a faint buffy-white stripe running from the base of the bill over the eye; entire underparts dull white, faintly washed with buff, and grey on the sides and flanks.

Iris brown; bill yellowish-brown, becoming yellow on the lower mandible; feet pale brown.

Total length 5·50 inches, wing 2·80, culmen ·65, tarsus ·90.

Adult female similar to the male.

The present species, which was included in my list of Tunisian birds (*Ibis*, 1895, p. 95) under the name of *H. pallida* (H. and E.), should no doubt be referred to *H. pallida opaca* (Licht.), a western form of *Hypolais*, closely allied to *H. pallida*, but differing from it sufficiently perhaps to merit subspecific rank. The chief point of difference between the two appears to be that of size, *H. p. opaca*, the western form, being somewhat larger than *H. pallida*, the wing measurement of the former averaging 2·80 inches while that of the latter averages only 2·60 inches. The bill of *H. p. opaca* also is said to be somewhat broader than that of *H. pallida*, and its bastard primary rather longer than that of the latter species, but I do not find these characters reliable.

H. p. opaca is very common in Tunisia as a summer migrant, arriving, as a rule, after the middle of April and leaving again in the early autumn. I know of no instance of its wintering anywhere in the Regency. The species, throughout the spring and summer months, is to be met with throughout Tunisia generally, both north and south of the Atlas, wherever the environment happens to be suitable. Well-watered localities are mostly frequented by these birds, and the southern oases and tamarisk-bordered Oueds harbour

large numbers of them throughout the spring months. Gardens and orchards are also visited by the species in the more populated districts.

In Central Tunisia I found *H. p. opaca* remarkably abundant on the tamarisk-clothed banks of the River Hattoub near Kasrin, and in Northern Tunisia on the borders of the Medjerdah river. In the immediate vicinity of the town of Tunis it is also not uncommon.

In Algeria and Marocco the species appears to be as common as it is in the Regency.

In the localities it frequents, and in its habits generally, as well as in its song, this Warbler seems to be more Acrocephaline than the preceding members of the group. Like the Aquatic Warblers, it is rarely to be found far from water, and seldom ascends to any great elevation. Although frequenting thickets and more or less dense shrubbery, the species is not shy, and owing to its somewhat restless habits it may constantly be seen and observed at close quarters. It seems to feed entirely on insects. The song of *H. p. opaca* is not to be compared with that of either of the two preceding species, and is altogether more Acrocephaline in its character.

The species breeds both north and south of the Atlas, and by the beginning of May nests with eggs may be found. Like other members of the group, it places its nest in the fork of a tree or high bush. The nest is a compact, cup-shaped structure, composed of fine rootlets, and lined plentifully with vegetable-down, or with wool and hair. The eggs, generally four or five in number, are of a pale dove, or vinous-grey colour, spotted and very slightly streaked with dark brown. Average measurements 18 × 14 mm.

ACROCEPHALUS STREPERUS (Vieillot).

REED-WARBLER.

Sylvia strepera, Vieill. *Nouv. Dict.* xi, p. 182 (1817).

Acrocephalus streperus, Newton's ed. *Yarr. Birds*, i, p. 369 (1873);
Scebohm, Cat. Birds Brit. Mus. v, p. 102.

Calamoherpe arundinacea, Loche, *Expl. Sci. Alg. Ois.* i, p. 258 (1867).

Description.—**Adult male**, spring, from near Tunis, North Tunisia.

Above a warm olive-brown, brighter on the rump and upper tail-coverts ;

superciliary stripe, extending from the base of the bill to behind the eye, buff; chin and throat white, becoming suffused with buff on the breast and rest of the underparts, flanks darker.

Iris dark brown; bill and feet brown.

Total length 5 inches, wing 2·65, culmen ·60, tarsus ·90.

Adult female similar to the male, but rather smaller.

The Reed-Warbler is apparently not very common in Tunisia, and I have but three examples of it in my collection, two of which were obtained near the town of Tunis, and the third near Gafsa in the south. I have only met with the species in spring, and whether it is merely a summer migrant in Tunisia, or whether it also winters there, I cannot say. Regarding the nesting of the Reed-Warbler in the Regency I have no information of a positive nature, but I am inclined to think that individuals of the species remain and breed there, as from South Marocco I have examples obtained as late as the month of May, and Loche states that it breeds in Algeria. In the south of Spain it is a common breeding species.

The Reed-Warbler is rather skulking in its habits, and is not often to be found far from the neighbourhood of the thick reeds and other water-plants which form its home. Its song, which is varied, and fairly powerful, may often be heard proceeding from a reed-bed, although the songster is hidden from view. Like other aquatic Warblers, it is mainly insectivorous, and its food consists largely of water-insects and their larvæ.

ACROCEPHALUS PALUSTRIS, Bechstein.

MARSH-WARBLER.

Sylvia palustris, *Bechst. Orn. Taschenb.* i, p. 186 (1802).

Acrocephalus palustris, *Naum. Nat. Land. u. Wass. Vög. nördl. Deutschl. Nachtr. Heft.* iv, p. 202 (1811); *Seebohm, Cat. Birds Brit. Mus.* v, p. 101; *Koenig. J. f. O.* 1892, p. 215.

Calamoherpe palustris, *Loche, Expl. Sci. Atg. Ois.* i, p. 259 (1867).

Description.—**Adult male**, from neighbourhood of Tunis, North Tunisia. Above greyish olive-brown, greyer on the crown, and brighter on the back, rump and upper tail-coverts; a superciliary stripe pale buff; chin and

throat white, becoming very pale buff on the breast and rest of the underparts; flanks darker.

Iris dark brown; bill brown, paler on lower mandible; feet pale brown.

Total length 5 inches, wing 2·75, culmen ·60, tarsus ·90.

Adult female resembles the male, but is slightly smaller.

The present species must be more or less rare in Tunisia, as I have never met with it myself, and have only one or two specimens of the bird, which were obtained by Blanc in the neighbourhood of the town of Tunis. The species, however, probably occurs sparingly in suitable localities throughout North Tunisia as a regular winter migrant.

Loche says that it is to be found in Algeria, inhabiting the higher and more inaccessible parts of the Chiffa Mountains, where it is, however, rarely to be seen owing to its shyness. He adds, however, that its song may often be heard, and that its notes are varied and pleasing. Specimens of this and of the preceding species obtained by Loche in Algeria exist in the Milan Museum.

The Marsh-Warbler differs from the Reed-Warbler in being far less aquatic and less skulking in its habits. It is, indeed, often found at a considerable distance from water and marshy spots, and breeds in bushes, and never apparently among reeds.

Its song is also considered to be superior to that of the Reed-Warbler and others of the genus, and is more like that of the species of *Hypolais*. Its food is no doubt similar to that of its congeners.

ACROCEPHALUS ARUNDINACEUS (Linnæus).

GREAT REED-WARBLER.

Turdus arundinaceus, *Linn. Syst. Nat.* i, p. 296 (1766).

Acrocephalus arundinaceus, *Gray, List. Gen. Birds*, p. 28 (1841).

Acrocephalus turdoides, *Seebohm, Cat. Birds Brit. Mus.* v, p. 95;
Whitaker, Ibis, 1895, p. 95.

Calamoherpe turdoides, *Loche, Expl. Sci. Alg. Ois.* i, p. 256 (1867);
Koenig, J. f. O. 1888, p. 192; *id. J. f. O.* 1892, p. 391.

Description.—**Adult male**, spring, from Oued Hattoub, Central Tunisia. Above olive-brown, brighter on the rump and upper tail-coverts; super-

ciliary stripe, extending from the base of bill to behind the eye, buff; lores and ear-coverts olive-brown; chin and throat white, shading into buff on the breast and abdomen, and bright yellowish-buff on the flanks, crissum and under tail-coverts.

Iris dark brown; bill dark brown; inside of bill orange-yellow; feet pale brown.

Total length 7.50 inches, wing 4, culmen .75, tarsus 1.20.

Adult female similar to the male, but slightly smaller.

Although I have only occasionally met with this species in Tunisia, I believe it to be by no means uncommon there as a summer migrant, arriving in April and leaving again in the autumn. Among the tamarisk thickets bordering the banks of the Oued Hattoub near Kasrin, in Central Tunisia, I found the species in certain numbers and in North Tunisia it seems to occur generally wherever high reed-beds and similar aquatic vegetation are to be found. In Algeria, according to Loche and other authors, the species is very common, and it seems to be found in Marocco also. Owing to its large size and noisy song this bird does not easily escape notice, although it keeps more or less to the thicker clumps, and does not often venture into the open country. Its notes are rather harsh and unmusical, and may be heard at all hours of the day. Its food consists chiefly of aquatic insects. It is rather pugnacious, and does not brook the presence of other smaller birds in its immediate vicinity, driving them away should they venture to intrude on its territory.

The nest of the species, like that of some other members of the genus, is artistically built of rush-leaves and filaments neatly interwoven, and attached to the stems of aquatic plants two or three feet above the level of the water. The eggs, four or five in number, are of a pale bluish-green, with grey and brown spots. Average measurements 23×19 mm.

The present species is very distinct from its eastern ally, *A. stentoreus*, the latter having a much longer bill and a much shorter wing.

ACROCEPHALUS AQUATICUS (Gmelin).

AQUATIC WARBLER.

Motacilla aquatica, *Gmelin, Syst. Nat.* i, p. 953 (1788).

Acrocephalus aquaticus, *Newton's ed. Yarr. Birds*, i, p. 380 (1873);
Seebohm, Cat. Birds Brit. Mus. v, p. 89.

Calamodyta aquatica, *Loche, Evpl. Sci. Alg. Ois.* i, p. 263 (1867);
Koenig, J. f. O. 1892, p. 392.

Description.—**Adult male**, spring, from Medjerdah River, North Tunisia. Forehead rufous-buff; lores and ear-coverts greyish-brown; crown blackish, with a broad median and superciliary stripes yellowish-buff; nape and back greyish-buff, broadly striped with black; rump rufous-buff, slightly striped with black; wings and tail brown, margined with tawny-buff; underparts pale yellowish-buff, lighter on the chin and darker on the flanks.

Iris dark brown; bill dark brown; feet yellowish-brown.

Total length 4.50 inches, wing 2.45, culmen .35, tarsus .75.

Adult female similar to the male.

The Aquatic Warbler appears to be rather uncommon in Tunisia, but I have obtained examples of it from the banks of the Medjerdah River, and the species probably occurs throughout the better watered districts of the Regency generally as a summer migrant. Owing to its resemblance to the Sedge-Warbler the present species has no doubt often been confused with that bird, and examples of it may have escaped notice. A comparison of the two, however, will at once show how they differ, the central buff stripe on the crown of the present species, and its somewhat smaller size, being very distinctive characters.

In its habits it resembles the Sedge-Warbler to a considerable extent, being of a shy and skulking nature, and seeking seclusion in dense aquatic vegetation, through which it threads its way with the utmost facility. Its song is considered by authorities to be inferior to that of the Sedge-Warbler. Its diet consists chiefly of insects and worms.

The Aquatic Warbler probably breeds in suitable localities in the Regency. Both Canon Tristram and Mr. O. Salvin appear to have met with it nesting in Algeria, where the species is not uncommon. Mr. C. F. Tyrwhitt-Drake obtained it in Marocco in spring. From Tripoli I have no note of its occurrence. The nest of this species,

like that of the Sedge-Warbler, is placed in a low bush or among herbage, and is composed of fine grasses, neatly woven together, and lined with a little hair or vegetable-down. The eggs, four or five in number, resemble those of the above species, but are slightly smaller.

ACROCEPHALUS SCHÆNOBÆNUS (Linnæus).

SEDGE-WARBLER.

Motacilla schænobænus, *Linn. Syst. Nat.* i, p. 329 (1766).

Acrocephalus schænobænus, *Newton's ed. Yarr. Birds*, i, p. 376 (1873).

Acrocephalus phragmitis, *Scebohm, Cat. Birds Brit. Mus.* v, p. 91;

Whitaker, Ibis, 1896, p. 93.

Calamodyta phragmitis, *Loche, Expl. Sci. Alg. Ois.* i, p. 262 (1867);

Koenig, J. f. O. 1888, p. 192; *id. J. f. O.* 1892, p. 391.

Description.—**Adult male**, spring, from Source Trois Palmiers, Central Tunisia.

Forehead and crown blackish-brown, slightly striated with olive-brown; broad superciliary stripe pale buff; lores and ear-coverts brown; nape and back olive-brown, the latter having the feathers with black centres; rump and upper tail-coverts yellowish-brown; wings and tail brown, the secondaries and upper wing-coverts broadly margined with greyish-buff; entire underparts buffy-white, becoming rather darker on the flanks.

Iris hazel; bill and feet greenish-brown.

Total length 5 inches, wing 2·65, culmen ·55, tarsus ·80.

Adult female similar to the male, but rather duller in colouring.

The Sedge-Warbler is not uncommon in Tunisia, particularly during the spring migration, and from the fact of its occurring throughout the month of May in many parts of the north of the Regency there can be but little doubt that it breeds there. The species seems to occur in suitable localities throughout North-west Africa generally, during the spring, and Loche alludes to its nesting in Algeria. From Tripoli I have examples of it which were obtained at Ziegen on the 15th of May.

In North Tunisia I obtained the species in the neighbourhood of Ghardimaou and on the Medjerdah River during the month of May, and at El-Madjen el-Abbès and on the banks of the Gafsa River respectively in Central and Southern Tunisia I found it plentiful in April.

In its habits and life generally the Sedge-Warbler resembles the Reed-Warbler to a great extent, although it is perhaps rather more active and restless, and is consequently more often observed than that bird and some of the other aquatic Warblers. Like most of its congeners, however, the present species is fond of hiding, and frequents the thickest clumps of reeds and sedges, where it more surely escapes notice. Amongst such vegetation it is in its element, and seems to have no difficulty in creeping through places which appear to be almost impenetrable. Occasionally, though rarely, the species is to be found at some distance from any water, but this is very exceptional. It is rather a noisy bird, and its song may sometimes be heard late in the evening, or even at night. About sunset, however, is the hour when it sings most lustily. Its notes, although powerful for so small a bird, are not considered by good authorities to be very musical or pleasing to the ear. The food of the species consists chiefly of water-insects and worms. Its nest, which is placed in a bush or among rank herbage, is built chiefly of fine grasses with a little lining of hair, and its eggs, four or five in number, are of a buff-colour, streaked and spotted with dark brown. Average measurements 16·50 × 12·50 mm.

LOCUSTELLA NÆVIA (Boddaert).

GRASSHOPPER-WARBLER.

Motacilla nævia, *Bodd. Tabl. des Pl. Enl.* p. 35, No. 581 (1783).

Locustella nævia, *Degl. Orn. Eur.* i, p. 589 (1849); *Koenig, J. f. O.* 1888, p. 190; *Erlanger, J. f. O.* 1898, p. 384.

Locustella locustella, *Seebohm, Cat. Birds Brit. Mus.* v, p. 115; *Koenig, J. f. O.* 1892, p. 389.

Description.—**Adult**, spring, from Europe.

Upper parts olive-brown, spotted with blackish-brown; quills and tail-feathers dark brown, unspotted, the latter much rounded; underparts whitish, purer on the chin and abdomen, and tinged with yellow elsewhere; under tail-coverts very long, and with a brown shaft stripe.

Total length 5 inches, wing 2·40, culmen ·55, tarsus ·75.

Sexes alike.

Mr. Salvin, when travelling in the Eastern Atlas, met with the Grasshopper-Warbler, and the species has been obtained in Algeria,

close to the Tunisian frontier, as well as in Marocco. Specimens of the bird, obtained by Loche near Lake Fezzara, and Harrach, exist in the Turati Collection of the Milan Museum. According to Loche (*Expl. Scient. Alg. Ois. i*, p. 277) the species is not often met with in Algeria, and it is probably more or less rare throughout North-west Africa generally. In Marocco it has been obtained by Mr. Tyrwhitt-Drake (*Ibis*, 1867, p. 427), and the bird is no doubt to be found there in limited numbers during the winter, as it appears to be not uncommon at that season in South Spain. In Italy, on the other hand, the species is rather rare, being, in fact, unrecorded from the south of the Peninsula and some of the Italian islands.

The Grasshopper - Warbler is generally to be found in wet or humid localities, where the vegetation is rank and luxuriant; occasionally, however, it may be met with in dry spots, provided always there are bushes near at hand. It is of sly and retiring habits, and is more often heard than seen, particularly during the early morning or late evening hours. Its song, which has given rise to the bird's trivial English name, is supposed to resemble the chirping of the grasshopper or cricket, and by some it has been likened to the grinding of a mill-stone. Its food consists chiefly of insects and their larvæ.

LOCUSTELLA LUSCINIOIDES (Savi).

SAVI'S WARBLER.

Sylvia luscinioides, Savi, *Nuov. Giorn. Letter.* vii, p. 341 (1824);

Malherbe, Faune Orn. de l'Alg. p. 13 (1855); *Koenig, J. f. O.* 1838, p. 190.

Locustella luscinioides, Gould, *Birds of Europe*, ii, pl. 104 (1837);

Scebohm, Cat. Birds Brit. Mus. v, p. 112.

Lusciniola savii, Loche, *Expl. Sci. Alg. Ois. i*, p. 265 (1867); *Koenig*

J. f. O. 1892, p. 389.

Description.—**Adult male**, spring, from Italy.

Entire upper plumage dull reddish-brown; a faint buff superciliary stripe; under plumage pale rufescent-brown, becoming whitish on the throat and middle of the abdomen; tail-feathers, which are twelve in number, indistinctly barred.

Iris, bill and feet brown.

Total length 5.50 inches, wing 2.75, culmen .60, tarsus .85.

Sexes alike.

Savi's Warbler has been met with not unfrequently both in Algeria and Marocco, and there can be no doubt that it also occurs in Tunisia, in fact, the species has been found so close to the Algerio-Tunisian frontier, that no one could deny its claim to be included in the Ornis. of the Regency. The Milan Museum possesses several specimens of the species, which were obtained by Loche in Algeria. Mr. O. Salvin, too, found it abundant at Zana in the Eastern Atlas region, and gives a description of a nest of the species, which apparently breeds freely in the marshes of that district. Canon Tristram also met with it frequently in the Algerian Sahara, frequenting the sedges bordering the Sebkas. Mr. Drake records the species as occurring in Marocco.

In its distribution Savi's Warbler seems to be somewhat irregular and local, being abundant in one district and entirely wanting in another not far distant, which apparently offers equal advantages in the way of environment. In Italy and its islands this difference of distribution is very marked.

Essentially a denizen of the marshes, this Warbler is shy and retiring, keeping as much as possible to the dense reed-beds which form its shelter, and rarely taking to flight unless very hard pressed. When nesting this bird appears to be still more reluctant to fly, and according to Colonel Irby (Orn. Strs. Gib. p. 96), it will creep off quietly from its nest like a mouse, or even run across an open space, in preference to using its wings.

Its song, which is uttered by the male bird from the top of some tall reed or other plant, is said to be not unlike that of the Grasshopper-Warbler, its call note being low and churring. Concerning the breeding of this Warbler Mr. Salvin writes as follows: "The peculiar nest of the species, a beautifully compact structure, composed entirely of dead flags, is artfully concealed in the thickest parts, and at Zana can only be found by wading in mud and water up to the middle, and even then it is quite a chance to find one. The eggs from this locality are decidedly smaller than English and Dutch specimens." The number of eggs laid by this species is generally four or five, and their colour is whitish or pale buff, freckled all over, but chiefly at the larger end, with small brown spots.

Loche includes *L. fluviatilis* among the birds of Algeria (Expl. Scient. Alg. Ois. i, p. 266), but says that it is of very accidental occurrence.

CETTIA CETTII (Marmora).

CETTI'S WARBLER.

Sylvia cetti, *Marm. Mem. Acad. Tor.* xxv, p. 254 (1820).

Cettia cetti, *Degl. Orn. Eur.* i, p. 578 (1849); *Seeböhm, Cat. Birds Brit. Mus.* v, p. 135.

Cettia sericea, *Loche, Expl. Sci. Alg. Ois.* i, p. 268 (1867).

Bradypterus cettii, *Koenig, J. f. O.* 1888, p. 193; *id. J. f. O.* 1892, p. 392.

Description.—**Adult male**, spring, from Marocco.

Upper plumage rich rufous-brown, wings and tail darker; lores and a faint superciliary stripe dull white; throat, breast and middle of abdomen dull white; sides and flanks greyish-brown; under tail-coverts reddish-brown tipped with dull white; tail composed of ten feathers.

Iris and bill dark brown; feet light brown.

Total length 5·50 inches, wing 2·35, culmen ·50, tarsus ·90.

Sexes alike.

This Warbler is not uncommon in the better watered and marshy district of North-west Africa, where it is a resident and breeding species. Dr. Koenig obtained a specimen of it in winter just outside the town of Tunis (*J. f. O.* 1888, p. 193). In the Saharan region south of the Atlas the species probably occurs only in winter and does not nest there. Canon Tristram appears to have met with it in the Southern Algerian Sahara during that season. Loche mentions having met with it in various places north of the Atlas, where he found it breeding in June and July. In Marocco Cetti's Warbler is not uncommon in suitable localities, and my collection contains examples of it from the neighbourhood of Fez, Marocco City and Ras-el-Ain, the last-named locality being situated on the coast of South Marocco, in latitude 31° N. The specimens collected at Ras-el-Ain were obtained in June, and were presumably of birds which had bred in the neighbourhood. Mr. Hartert also appears to have found this Warbler not at all uncommon in the Mhoiwla district, and took a nest of the species with two eggs on April 9th (*Nov. Zool.* ix. p. 327).

Cetti's Warbler is essentially an aquatic bird, and is rarely to be found at any distance from water. Owing to its shyness and retiring habits it probably often escapes notice, and is thought to be scarcer

than it really is. Indeed, in some localities where the species is known to be abundant one may often search long and diligently before meeting with the bird, and even then, perhaps, only catch a glimpse of one as it flits from one clump of reeds to another, diving immediately into the thickest part in order to hide itself. I remember on one occasion, when wishing to obtain a specimen of this Warbler on the banks of the River Anapus near Syracuse, experiencing the greatest difficulty in achieving my object, although I knew for a fact that there were several of the birds there. The magnificent Papyrus clumps growing on each side of this small but celebrated river are favourite resorts of Cetti's Warbler in winter, and no doubt throughout the year, as the species is a sedentary one.

The Anapus, or more properly the Cyane (the modern Pisma), a smaller stream flowing into the Anapus, appears now to be the only home, in Europe at any rate, of the Papyrus (*Cyperus papyrus*) in its wild state. In Egypt, from whence this plant is said to have been originally introduced into Sicily, the Papyrus is apparently now no longer to be found. In Palestine, however, it flourishes, or did flourish some years ago, by the shores of the Lake of Galilee, where Canon Tristram found it in 1864, growing luxuriantly close to the Ain-el-Tin, on the north of the Plain of Gennesaret (Linn. Soc. Journ. Botany, vol. ix.).

The song of this Warbler, although clear and powerful, is rather abrupt and somewhat metallic. Some of its notes are considered to resemble those of the Nightingale, but, taken as a whole, its song cannot be compared with that of our sweetest of songsters. This resemblance in some of its notes, and the fact of the bird singing sometimes by night as well as by day, as also, no doubt, its somewhat similar plumage-colouring, have given rise to the species' Italian name of Water or Marsh Nightingale. The Arabs of Marocco also apparently confound the two species together.

The food of this Warbler consists chiefly, if not entirely, of insects and their larvæ.

The nest of Cetti's Warbler, according to Colonel Irby (Orn. Strs. Gib. p. 93), is either placed in a bush, at a height of two or three feet from the ground, or attached to reeds, like that of the Reed-Warbler. In the former case it is composed chiefly of grass and willow-cotton and entirely lined with hair, in the latter it is built of bits of small sedges, intermingled with willow-cotton, coated

outside with strips of the *Epilobium* and lined inside with fine grass, a little hair and bits of cotton at the top. In all cases the nests are deep and cup-shaped, while the eggs, as a rule from three to five in number, vary from a delicate rose colour to a brownish or brick-red colour, and are unspotted. Average measurements 19×14 mm.

Subfamily DRYMŒCINÆ.

CISTICOLA CISTICOLA (Temminck).

FANTAIL-WARBLER.

Sylvia cisticola, *Temm. Man. d'Orn.* i, p. 228 (1820); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 10 (1846).

Cisticola cisticola, *Sharpe, Cat. Birds Brit. Mus.* vii, p. 259; *Erlanger, J. f. O.* 1899, p. 279.

Cisticola schoenicola, *Loche, Expl. Sci. Alg. Ois.* i, p. 281 (1867); *Koenig, J. f. O.* 1888, p. 193; *id. J. f. O.* 1892, p. 392.

C. cursitans, *Whitaker, Ibis*, 1896, p. 93.

Description.—**Adult female**, winter, from Gabès, South Tunisia.

Upper parts tawny-buff, the feathers with broad blackish shaft-stripes, more pronounced on the crown, back and wings, and less so on the nape; rump bright rusty-buff; upper tail-coverts the same, but with darker centres to the feathers; the central pair of rectrices brownish-buff, with dark brown centres, the remaining tail-feathers dark brown, broadly tipped with white; chin, throat and middle of the abdomen white rest of the underparts buff.

Iris bright hazel; bill brown above and flesh colour below; feet pale flesh colour.

Total length 4 inches, wing 1·85, culmen ·40, tarsus ·70.

Adult male resembles the female in coloration, but is slightly larger.

Two forms of *Cisticola* occur in North-west Africa, the ordinary *C. cisticola* (Temm.) and a darker and somewhat larger form, recently described by me under the name of *Cisticola cisticola mauritanica* (Bull. B. O. C. xiv, p. 20), which will be treated of in the following article.

The former probably occurs south of the Mediterranean chiefly as a winter migrant, though it may also be resident in North-west Africa to a certain extent, while the latter seems to be met with there

throughout the year and is no doubt a resident and local race, the range of which apparently extends over the Atlas region, and to the extreme southern portion of the Iberian Peninsula.

During the winter months *C. cisticola* is to be met with in Tunisia wherever there may be moist or sedgy ground, and occasionally it may also be found in cornfields and more or less dry localities at some distance from water.

Though not exactly shy, this tiny Warbler is rather secretive, and is fond of resorting to uncultivated localities, among the rough grass and tangled vegetation of which it can hide with ease. In such spots it may often be seen hovering over some clump of rushes or long grass, suspended, as it were, in mid-air, and uttering the while its short song, which may be fairly well rendered by the monosyllable "zie" repeated rapidly several times. On the approach of danger the little songster suddenly disappears, dropping down into the thick herbage, from whence it is dislodged with difficulty. Its flight is feeble and wavering, and it is a matter for wonder how this diminutive bird, and some others of seemingly limited powers of flight, are able to accomplish the long journeys they undertake. Small insects form the principal food of the species. Its deep, purse-shaped nest, which is attached to the blades of corn or grass, is a wonderfully artistic piece of work, composed chiefly of fine grasses neatly interwoven, and lined with vegetable-down or other soft materials. Its eggs, four or six in number, are generally white, or rosy-white, and more rarely pale blue, spotted with reddish or pale brown. Average measurements 15 × 12 mm.

CISTICOLA CISTICOLA MAURITANICA, Whitaker.

MOORISH FANTAIL-WARBLER.

Cisticola cisticola mauritanica, Whitaker, *Bull. B. O. C.* 1903, xiv, p. 20.

Description.—**Adult male**, autumn, from Batna, Algeria.

Differs from *C. cisticola* (Temm.) in the darker coloration of the plumage generally, and particularly that of the rump and flanks, which are far less yellow or tawny; the soft parts are also darker, and the measurements larger than in *C. cisticola*.

Iris light brown ; bill blackish above, lighter below ; feet light brown.
Total length 4·40 inches, wing 2·10, culmen ·50, tarsus ·80.

Adult female similar to the male, but slightly smaller.

Observations.—The wing of some examples in my collection measures as much as 2·25 inches.

Specimens of *Cisticola* from Ceylon are very dark coloured, and resemble the birds from North-western Africa.

This form or subspecies of *Cisticola*, appears to differ constantly from typical *C. cisticola* (Temm.), and sufficiently so as to merit separation. It is no doubt a local race, differing from the ordinary form in its darker coloration and somewhat larger size, its wing measurement averaging about two-tenths of an inch more than that of *C. cisticola* (Temm.).

The form occurs throughout Northern and Central Tunisia as a resident and breeding species. It is also to be found in Algeria and Marocco, from both of which countries I have specimens of it. In Southern Spain also it appears to be met with occasionally, though not as commonly as typical *C. cisticola* (Temm.).

In the Tunisian Regency I have found this dark form abundant in the neighbourhood of El-Kef, and at Mateur near Bizerta, and it no doubt occurs more or less plentifully throughout all the country north of the Atlas. From the districts south of those mountains I have no specimens of it, but it may possibly be found there too.

In its habits, note and mode of nesting *C. c. mauritanica* does not seem to differ from *C. cisticola* (Temm.).

SCOTOCERCA SAHARÆ (Loche).

DESERT WREN-WARBLER.

Malurus saharæ, Loche, *Rev. et Mag. de Zool.* 1858, p. 395, pl. xi, fig. 2.

Scotocerca saharæ, Sharpe, *Cat. Birds Brit. Mus.* vii, p. 214 ; Whitaker, *Ibis*, 1895, p. 95 ; Erlanger, *J. f. O.* 1899, p. 277.

Drymoica saharæ, Loche, *Expl. Sci. Alg. Ois.* i, p. 283 (1867) ; Koenig, *J. f. O.* 1892, p. 395.

Description.—**Adult male**, spring, from near Gafsa, South Tunisia.

Above sandy-grey, the crown with greyish-brown striations; wings and tail brown, margined with greyish-isabelline, the latter very long; superciliary streak extending from the base of the bill over the eye pale isabelline; entire underparts whitish, tinged with isabelline-grey on the sides and flanks.

Iris pale yellow; bill and feet yellowish-flesh colour.

Total length 4 inches, wing 1·80, culmen ·35, tarsus ·70.

Adult female similar to the male.

Observations.—The winter plumage of the species is rather darker and less isabelline.

This little bird, the western representative of *S. inquieta* (Cretschm.), may be easily distinguished from that species by its paler isabelline colour and smaller size. It seems to be strictly a desert species, never, so far as I am aware, occurring north of the Atlas Mountains. In most of the South Tunisian districts, however, it is of common occurrence, frequenting both the semi-desert stony plains and the Chott or Sebkha country, where it, and perhaps one or two species of *Saxicola*, are often the only representatives of bird-life during a considerable portion of the year.

In the Regency I have met with the present species in certain numbers on the plains lying to the west of Gafsa, but it seems to be more abundant south of the Chott Djerid, where in some localities it is indeed plentiful.

In the Algerian Sahara I have found *S. saharae* abundant on the stony plains lying to the east of Biskra. From Tripoli and Cyrenaica also I have numerous examples of the species, which were obtained between April and August. From Marocco I have no note of its occurrence, but it may occur in some of the more inland desert districts in the south, where the character of the country probably resembles that of the Algerian and Tunisian Sahara.

S. saharae is a characteristic bird of the semi-desert region where a scrub vegetation prevails, and it is probably rarely, if ever, seen except in that description of country.

Extremely shy and timid, this diminutive Warbler will, on the approach of danger, dive into the middle of a desert bush, seeking to hide itself there and escape notice, and should the bush be a large and thick one, the little bird is not easily dislodged from its retreat.

When suddenly surprised it shows evident signs of anger, as if resenting the intrusion, and it will then utter a comparatively loud and scolding note or alarm cry. The usual song of the species, however, is composed of a few rather shrill and somewhat grating or hissing notes, something like "sit-sit-ecree." The song of the allied species, *Drymocca gracilis*, according to various authorities, is, on the contrary, melodious and powerful for the size of the bird.

In the spring-time *S. saharae* is generally to be found in pairs, but small parties of three and four individuals may often be noticed. It is a most active, or one might more correctly say restless, little bird, constantly on the move, hopping from some bush to the ground and back again, or threading its way in and out among the inner branches of a bush, with its long tail often held well up over its back. At times, on alighting on the ground it will run across the sand mounds from one shrub to another, for it is rather given to running and makes good use of its legs in creeping through bushes, as shown by the development of its thigh muscles. When wounded the bird will often run into the hole of some rodent, and thus make good its escape. Its flight must be fairly powerful, judging from the distance it is able to fly without stopping, and, owing partly to its small size and sandy colouring, the bird will often disappear entirely out of sight. Its food consists of small insects, both winged and wingless. The breeding season of *S. saharae* continues throughout April, May and June, second broods being probably common. Its rather large nest, which is generally placed in the centre of some dwarf desert bush, is round in shape and has a comparatively small aperture at the top. Fine grass-bents and other particles of plants form its outer structure, which is lined with feathers and wool. The eggs, four or five in number, are usually white, spotted, chiefly at the blunt end, with reddish surface spots and a few pale blue shell markings. The eggs, however, vary a good deal, both in marking and in shape. Average measurements 15×11 mm. Dr. Koenig has given a very good plate of the nest and eggs of this species (J. f. O. 1895, tab. xiii.).

Subfamily CRATEROPODINÆ.

ARGYA FULVA (Desfontaines).

ALGERIAN BUSH-BABBLER.

Turdus fulvus, *Desfontaines, Mém. de l'Acad. Roy. Sci.* 1787, p. 498, pl. xi.

Argya fulva, *Dresser, Birds of Europe*, iii, p. 21, pl. 98, fig. 1 (1875);
Sharpe, Cat. Birds Brit. Mus. vii, p. 397; *Whitaker, Ibis*, 1894, p. 88;
Erlanger, J. f. O. 1899, p. 281.

Crateropus acaciæ, *Malherbe, Faune Orn. de l'Alg.* p. 18 (1855).

Crateropus numidicus, *Loche, Expl. Sci. Alg. Ois.* i, p. 286 (1867).

Description.—**Adult male**, spring, from Kairouan, Central Tunisia.

Above tawny or fulvous-isabelline, slightly darker on the crown, the feathers on that part having faint darkish shaft-stripes; wings and tail dusky isabelline-brown, slightly margined with a paler shade; lores greyish; chin and upper throat white; the remainder of the underparts pale rufescent-isabelline, lighter on the middle of the abdomen and on the crissum.

Iris hazel; bill dark brown; feet pale brown.

Total length 10 inches, wing 3·90, culmen ·85, tarsus 1·30.

Adult female, similar to the male.

Young birds have the plumage similar in colour, but downy in texture.

Observations.—There seems to be no difference between the summer and the winter plumage of this species.

The Algerian Bush-Babbler is one of the comparatively few species peculiar to this portion of the African Continent, and is common in Southern and Central Tunisia wherever a bush vegetation prevails, being, as its English name implies, eminently a bush-loving bird. In the north of the Regency I have never met with it myself, and do not think it often occurs there, although the naturalist Blanc tells me he once obtained two examples of the species which had been shot in the immediate vicinity of the town of Tunis. Its true home in Tunisia is undoubtedly south of the Atlas, and more particularly those districts where patches of cultivated land occur, with clumps of wild jujube bushes (*Ziziphus lotus*) and other thorny plants interspersed here and there. In such localities one may be almost certain of meeting with *A. fulva*, and owing to its somewhat conspicuous colouring and size, one can hardly fail to notice it. In

the neighbourhood of Kairouan, and even a little further north in Central Tunis, the species may be met with not unfrequently.

In Algeria the species is to be found in the same description of country as in Tunisia. According to Mr. Tyrwhitt-Drake it occurs in Southern Marocco, and Mr. Meade-Waldo also met with a party of these birds near the city of Marocco. The species, however, does not appear to be so abundant in Marocco as it is in Algeria and Tunisia, probably owing to the character of the country in general being less suited to the bird's requirements. From Tripoli I have specimens of *A. fulva* obtained in the more bushy districts of the Vilayet, where it is not uncommon. These specimens are identical with examples from Tunisia.

During the greater part of the year the Algerian Bush-Babbler is to be found in small parties of half-a-dozen birds or so, but occasionally as many as a dozen may be seen together. In the breeding season pairs may be met with, but even during the spring small flocks are frequently to be found together, and the species is eminently gregarious and sociable in its habits.

Canon Tristram has given a very good description of the peculiar habit this bird has of creeping up one side of the bush and down again on the other side, preparatory to stealing off quietly to another bush, in order to escape detection (*Ibis*, 1859, p. 420). One may often see these birds flying out of a bush, one after the other, in a string and skimming along over the ground. Their flight is rather feeble and not sustained for any great distance. It seems to be performed by a succession of rapid beats of the wings, which are then outspread, and the bird sails along without further effort. It may be frequently seen on the ground and is a great runner. I once had the pleasure of watching, from a short distance, one of these birds taking a bath in a pool, which it evidently enjoyed immensely, judging from its actions and the length of time it remained in the water.

The call note of *A. fulva* is something like "*peeah, peeah, peeah*," and the alarm note a *churring* or grating cry.

Although distinctly wary birds, their restlessness and loquacity often betray their whereabouts, should they not happen to have noticed one's approach from afar. The food of this species consists largely of coleoptera and other insects as well as of berries and seeds. Dates are also eaten, and I have a specimen which was shot in the act of feeding upon this fruit.

The nesting season of *A. fulva* commences early in April and is continued throughout that and the following month. The earliest date on which I have taken a nest of the species, with eggs in it, has been on April 9th. The nest, as a rule, is placed in a thick thorn-bush, and is composed chiefly of bents and dry grasses, lined with some soft substance such as vegetable-down, wool and hair, and often with a piece of rag or cotton stuff, picked up probably near some Arab *douar* or encampment. The eggs, from four to six in number, are of a beautiful glossy blue-green, and unspotted. They vary considerably in size and shape, being sometimes oval and at others almost round. They are rather small for the size of the bird, their average measurements being 24×18 mm.

A. fulva is easily distinguished from its eastern congener, *A. squamiceps*, by its brighter and more rufescent colouring, and by its smaller size.

Family ACCENTORIDÆ.

ACCENTOR MODULARIS (Linnaeus).

HEDGE-SPARROW.

Motacilla modularis, *Linn. Syst. Nat.* i, p. 329 (1766).

Accentor modularis, *Bechst. Orn. Taschenb.* i, p. 191 (1802); *Sharpe, Cat. Birds Brit. Mus.* vii, p. 649; *Koenig, J. f. O.* 1888, p. 175.

Prunella modularis, *Loche, Expl. Sci. Alg. Ois.* i, p. 284 (1867); *Koenig, J. f. O.* 1892, p. 374.

Description.—**Adult male**, winter, from Sicily.

Forehead, crown and nape brownish-slate; back, scapulars and secondaries rufous-brown, broadly streaked with blackish; rump and upper tail-coverts brown; primaries and tail blackish-brown, the former margined with rufous-brown; chin, throat and breast slate, lighter on the chin; middle of the abdomen whitish; sides of the body and flanks rufous-brown, streaked with darker brown; under tail-coverts brown, broadly fringed with white.

Iris and bill dark brown; feet yellowish-brown.

Total length 5·25 inches, wing 2·75, culmen ·45, tarsus ·75.

Sexes alike.

The Hedge-Sparrow, so familiar to us in England, is of compara-

tively rare occurrence in North-west Africa, being found there merely as a straggler or occasional winter visitor.

In Tunisia I have never met with the species, but I am informed that it has been found there occasionally in winter. Loche states that it is to be met with in Algeria, but is of very accidental occurrence (Expl. Scient. Alg. Ois. i, p. 284). In Marocco it apparently also occurs as a winter migrant, and Colonel Irby mentions having seen specimens of it from the African side of the Straits (Orn. Strs. Gib. p. 84).

There seems to be no record of the species having ever nested south of the Mediterranean, or indeed on the northern shores of that sea, although it breeds in the mountain valleys of North Italy. In South Italy and its islands the bird seems to be merely a winter migrant, although by no means uncommon in some parts during the colder months.

The species frequents gardens and hedgerows in the vicinity of human habitations, and being remarkably tame and easy to approach, should be easily identified when met with in countries like North-west Africa, where it is of uncommon occurrence. Its food consists of worms, insects and their larvæ, as well as seeds, and when feeding it may often be seen on the ground. Its song, though short, is particularly sweet and pleasing.

The Alpine Accentor (*A. collaris*), so far as I am aware, is unrecorded from North-west Africa, or indeed from any part of the African Continent. The species, however, appears to be a regular winter visitor to the island of Sicily, and is met with there not unfrequently during the colder months. Doderlein also obtained specimens of it, in two successive autumns, on the small island of Ustica, lying about forty miles to the north of Palermo, when the species was no doubt on its way to Sicily. The same author makes some interesting remarks regarding this annual and apparently regular migration of an Alpine species like *A. collaris* to Sicily (Avif. Mod. et Sic. p. 336).

Family CINCLIDÆ.

CINCLUS MELANOGASTER, C. L. Brehm.

DIPPER.

Cinclus melanogaster, *Brehm, Lehrb. Eur. Vög.* i, p. 289 (1823).

C. cinclus, *Sharpe, Cat. Birds Brit. Mus.* vi, p. 311.

C. aquaticus, *Loche, Expl. Sci. Alg. Ois.* i, p. 305 (1867); *Koenig, J. f. O.* 1888, p. 175; *id. J. f. O.* 1892, p. 374.

C. minor, *Tristram, Ibis*, 1870, p. 497.

Description.—**Adult**, spring, from Sicily.

Top of the head and nape dark brown, shading into dark slate on the upper parts, which are slightly squamated on the back and rump; wings and tail blackish-brown; chin, throat and breast pure white; abdomen rusty blackish-brown; flank and crissum dark slate.

Iris and bill dark brown; feet light brown.

Total length 6 inches, wing 3·40, culmen ·80, tarsus 1·10.

Sexes alike.

Young birds have the upper-plumage more squamated or scaly in appearance, and the under plumage almost entirely white.

According to several authorities the Dipper, or a form of it, occurs in Algeria and Marocco, and although I have no actual note of its occurrence in Tunisia, the species in all probability is to be found there also, inhabiting the more mountainous and better watered districts of the north-west of the Regency. Canon Tristram met with the Dipper in the Atlas Mountains of Algeria, but finding its measurements less than those of typical specimens, distinguished this bird as *C. minor*, stating, however, that "in coloration it exactly coincides with the true *C. aquaticus*" (*Ibis*, 1870, p. 497). The measurements given by him of *C. minor* are as follows: whole length 5·75 inches, wing 2·90, tail 1·90, bill from gape ·65. Loche mentions having obtained two examples of the Dipper in the neighbourhood of Oued-el-Kebir, but states that the species seems to be extremely rare in Algeria, and is presumably only a bird of passage (*Expl. Scient. Alg. Ois.* i, p. 306). An Algerian specimen which I have examined in the Turati Collection of the Milan Museum, numbered 17,631, and which is presumably one of the two examples above referred to, differs in no

way from dark-bellied specimens of European Dippers, *C. melanogaster*, Brehm. Its wing length is 3.75 inches.

In some parts of the Maroccan Atlas the Dipper appears to be far from uncommon and resident. Mr. E. G. Meade-Waldo, in a recent journey in the Great Atlas, met with the bird in the Amsmiz district, and writes as follows concerning it:—

“On the stream (a branch of the Amsmiz River), which we followed up to its source at about 8,500 feet, we found numbers of what was apparently the common Dipper (*Cinclus aquaticus*). I caught a nearly full-fledged young bird, which dived all about the bottom of a pool, and tried to hide under the stones below; this was on July 12th.” And further on, in a list of the birds met with during the same journey, Mr. Meade-Waldo writes:—

“I saw the Dipper on a branch of the upper waters of the Wad-Amsmiz, running down from the east of Tizi-Gourza. It was common and breeding. I saw it up to some 9,000 feet. There appeared to be a pair about every mile. They had young out of the nest but unable to fly, in July” (*Ibis*, 1903, pp. 204 and 205).

Although the physical characters of the greater part of the Tunisian Regency are no doubt but ill adapted to the tastes of a bird like the Dipper, there are nevertheless some parts, particularly in the north-western districts, which offer suitable surroundings, and where there is every reason to believe that a few of these birds may be found, not merely as wanderers, for the species is not a true migrant, but as residents, occurring all the year round.

Eminently a water-loving bird, the Dipper, or Water-Ouzel, is generally to be found frequenting clear-running streams and mountain torrents where it may be seen perching on some rock or stone in mid-stream, or darting rapidly over the surface of the water. In this element itself the bird seems quite at home, being able to dive and swim under water with the utmost facility, and obtaining its food there to a great extent. This consists chiefly of aquatic insects and their larvæ.

In Europe the dome-shaped nest of this species is generally to be found placed in a hole in a bank or under a ledge of rocks, and is constructed chiefly of moss, grass and leaves, closely matted together. The eggs, from four to six in number, are pure white, and measure about 25 × 18 mm.

Various local forms of the Dipper occur, some of which are no

doubt entitled to subspecific, if not to specific, distinction. Mr. Dresser, in his "Manual of Palæarctic Birds," enumerates no less than *ten* different forms! Among these he includes Canon Tristram's *C. minor* from the Atlas. Three forms of the Dipper have been recognised by many ornithologists as occurring in Europe, viz., *C. aquaticus*, Bechst., *C. melanogaster*, C. L. Brehm, and *C. albicollis* (Vieill.), and according to Prof. Giglioli (*Avifauna Italica*, p. 144) all three are to be met with in Italy.

Mr. Hartert has recently distinguished the Sardinian Dipper under the name of *Cinclus cinclus sardus* (Bull. B. O. C. xiv, p. 51).

I have in my collection a single specimen of the Dipper from Sardinia, but have hesitated to separate it from the Scandinavian form.

Family PARIDÆ.

PARUS MAJOR EXCELSUS, Brehm.

MEDITERRANEAN GREAT TITMOUSE.

Parus major, *Linn. Syst. Nat.* i, p. 341 (1766); *Gadow, Cat. Birds Brit. Mus.* viii, p. 19; *Malherbe, Cat. Rais. d' Ois. Alg.* p. 12 (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 296 (1867); *Koenig, J. f. O.* 1888, p. 175; *id. J. f. O.* 1892, p. 374; *Whitaker, Ibis*, 1896, p. 93; *Erlanger, J. f. O.* 1899, p. 285.

P. major excelsus, "*Brehm*," *Buwry, J. f. O.* 1857, p. 194.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Entire head, except the cheeks and ear-coverts, glossy blue-black; cheeks, ear-coverts and a few feathers at top of the nape white; nape and back greenish, being brighter higher up and darker lower down; rump and upper tail-coverts bluish-grey; tail bluish-grey, with the outer webs of the exterior rectrices white; primaries blackish, fringed with bluish-grey; secondaries blackish, fringed with whitish; upper wing-coverts bluish-grey, greater-coverts tipped with white; underparts bright greenish-yellow, with a broad irregular black stripe running down the middle of the breast and abdomen to the crissum.

Iris dark brown; bill black; feet bluish-slate.

Total length 5.50 inches, wing 3, culmen .50, tarsus .80.

Adult female similar to the male, but rather duller in colouring.

The Great Tit of the Mediterranean subregion, which includes the Atlas districts, differs slightly, but apparently constantly, from typical *Parus major*, L., and it should therefore no doubt be recognised as a distinct form, or subspecies, referable to *Parus major excelsus*, Brehm, the type of which was obtained by Buvry in Algeria (J. f. O. 1857, p. 194). The difference, as just stated, is slight, extremely slight in fact, but it appears to be perfectly constant in a large series of specimens. It consists in the brighter coloration of the underparts of the bird, which in the present southern form may be described as bright greenish-yellow, while in the more northern, or typical form it is a dull yellowish-green. Beyond this there appears to be no difference between the two forms, unless it be that in North-west African birds the bill is slightly larger on an average than it is in typical *P. major*, although this slight difference does not seem to be noticeable in most examples from other Mediterranean districts.

Specimens of the Great Tit from Tunisia, Algeria, Marocco, Spain, and Italy all agree in the bright colouring of their underparts, and should therefore, no doubt, all be referred to *P. m. excelsus*. The Great Tit found in Cyprus has been described by Madarász as distinct from *P. major* under the name of *Parus aphrodite*, but specimens in my collection from that island appear to be identical in coloration with West Mediterranean examples, although they are slightly smaller in size. Specimens from Persia and Palestine appear to be rather greyer on the back, and have been distinguished under the name of *P. m. blandfordi*, Praz.

This Titmouse is a common and resident species in most of the forests of North Tunisia, but does not occur, so far as I am aware, in any of the central or southern districts of the Regency.

In Algeria, however, Dr. Koenig met with the species not only in the mountains and wooded regions around Batna, but also in the Oasis of El-Kantara, which is situated on the south side of the Atlas (J. f. O., 1895, p. 122). It is true El-Kantara is only just the other side of the Aurés Mountains, and scarcely in the desert, but it is none the less an oasis, with its palm-trees and accompanying vegetation. In the Biskra oasis I never met with the species. From Marocco I have a good series of specimens of this Tit, most of them obtained in the neighbourhood of Fez and Marocco City, others being from districts higher up in the Great Atlas, and some, including young birds, from the vicinity of Ras-el-Ain, on the coast south of Mogador.

In the oak-woods of Ghardimaou and El Fedja in North Tunisia, where *Q. mirbeckii* and *Q. suber* are the principal forest-trees, as also at Ain-Draham further north, this species is to be found at all seasons, and nests there between the months of April and June. In its choice of habitat and in its habits it differs in no way from birds of the same species found in Europe, frequenting woods and plantations, where in spring it is usually to be seen in pairs, and at other seasons in small parties, roaming about from tree to tree. Its food is mainly of an insect nature, but seeds and berries are also eaten, particularly the hard seeds of firs and other conifers. Fruit gardens and orchards are visited at times, but whether for the sake of the fruit and fruit-buds, or for the grubs which the latter may contain, does not appear to be clearly established. It is an undoubted fact, however, that both the Great Tit and the Blue Tit sometimes eat fruit, and damage considerably more than they actually eat by pecking at it. Young peas also are much eaten by these Tits, which, to get at the pods, will even creep through the meshes of the netting spread over the plants to protect them. The present species will also occasionally attack and kill small, weakly birds and feed, it is said, upon their brains.

The song of this Tit is powerful, but rather metallic. It can be heard from a considerable distance. Its call note is a subdued "zwee." When in parties the birds are sometimes very noisy and quarrelsome. The nest of the species is placed in the hole of a tree or wall, and is rather a voluminous structure, composed chiefly of moss, lined abundantly with wool or hair. I once found a Great Tit's nest, which was composed entirely of donkey's hair, closely felted together. It appears that one of these animals had recently been clipped in the immediate vicinity of the site chosen for the nest. I have no eggs of the Great Tit from Tunisia, but European eggs vary from six to eight in number, and are whitish, speckled with pale red. Average measurements 18×14 mm.

PARUS LEDOUCI, Malherbe.

ALGERIAN COAL-TITMOUSE.

Parus ledoucii, Malherbe, *Cat. Ois. Alg.* in *Mém. de la Soc. d'Hist. Nat. de la Moselle*, 1842, p. 45.

Parus ledouci, Gadow, *Cat. Birds Brit. Mus.* viii, p. 44; Malherbe, *Cat. Rais. d'Ois. Alg.* p. 12 (1846); Loche, *Expl. Sci. Alg. Ois.* i, p. 298, pl. vii. (1867); Koenig, *J. f. O.* 1888, p. 175; *id.* *J. f. O.* 1892, p. 374.

Parus ater ledouci, Erlanger, *J. f. O.* 1899, p. 309.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Entire crown, region over the eye, sides of nape and throat glossy black; ear-coverts, cheeks, sides of the neck and nape lemon-yellow; the remainder of the upper plumage greyish-green, becoming brighter on the rump; wings and tail grey, fringed with greenish; upper wing-coverts tipped with whitish, forming a double alar bar; breast and abdomen lemon-yellow, becoming greyer on the sides and flanks.

Iris dark brown; bill black; feet bluish-slate.

Total length 4 inches, wing 2·50, culmen ·35, tarsus ·70.

Adult female similar to the male, but rather duller in colouring, and slightly smaller.

Observations.—Examples are sometimes met with in which the yellow coloration of the underparts is very pale; this is probably merely due to immaturity. It is also to be found in the Great Tit.

This Titmouse appears to be the representative in Tunisia of the Coal-Tit group. It occurs in most of the forests of the north of the Regency, though less abundantly than either the Great Tit or the Ultramarine Tit, and, as a rule, is to be found at rather a higher elevation than either of these species.

P. ledouci also occurs in the mountainous and more wooded parts of Algeria, and Dr. Koenig found it not at all uncommon on the Djebel Touggour, and throughout the Aurès range. Mr. C. Dixon, too, found the species abundant in the Aurès Mountains, and particularly so in the Cedar range west of Batna, where, he writes, "the trees were literally alive with them." He moreover met with the birds in the lower-lying evergreen oak-woods, as well as in the pine-forests, and gives some interesting details regarding the habits of this species, among other things observing that, unlike other Tits, he saw it repeatedly perched on rocks (*Ibis*, 1882, p. 570).

I have no examples of the species from Marocco, but it may occur there, although Mr. Meade-Waldo has recently discovered a new form of Coal-Tit in that country, to which he has given the name of *Parus atlas* (Bull. B. O. C. xii, p. 27). This new form, which appears to be abundant throughout the moister woods of the Maroccan Atlas, ascending as high as the limit of trees or scrub vegetation, may perhaps entirely replace *P. ledouci* in that country.

In the Tunisian Regency the range of *P. ledouci* seems to be strictly confined to the wooded parts of the north, and I have never heard of its occurrence anywhere south of the Atlas. Mr. Aplin found it fairly common in the higher oak-forests of Ghardimaou and El Fedja, although not in the lower-lying cork-woods, where *P. major* and *P. ultramarinus* are abundant. M. Blanc reports the species as by no means uncommon in the woods of Ain-Draham and at Camp de la Santé, from whence I have numerous specimens.

I never met with this Tit in the Aleppo pine forests of the mountains near Kasrin and El Oubira, where one would expect to find it, as it is not uncommon in the pine-woods of the Aurés range further west.

In many ways the present species seems to resemble our European Coal-Tit, and like other Titmice, is often to be found in the company of its congeners, busily engaged in hunting for food, and when thus employed is by no means shy.

In spring-time, however, it is generally to be found in pairs, and, according to Dr. Koenig, the species is less gregarious than most other Tits, being rarely observed in companies, like *P. ultramarinus* and *P. major*. In many of its habits, however, Dr. Koenig considers that it resembles our European Coal-Tits to a great extent. Its song is soft and pleasing, and its call note sharp and clear. The stomachs of those I obtained contained only the remains of small insects, but the species is said to feed largely upon seeds, particularly those of conifers. I have not myself been fortunate enough to meet with the nest and eggs of *P. ledouci*, and thus far little appears to be known regarding the nesting of the species, the only positive information we possess on the subject being, apparently, that given by Malherbe, when describing the bird as new (Mém. Soc. His. Nat. Moselle, 1842, p. 45). This was to the effect that M. Ledoux, the French officer after whom the species was named, had taken one of these Tits on a nest placed fifteen centimetres deep in the ground in the Forest of Edough, near

Bone. Dr. Koenig is also of opinion that this Tit nests in holes in the ground, having frequently noticed these birds on the ground during the nesting season. Probably the species nests both in the holes of trees and in the ground, like its European congener.

No Marsh-Tit appears to occur in North-west Africa, or indeed anywhere in the African continent.

PARUS ULTRAMARINUS, Bonaparte.

ULTRAMARINE TITMOUSE.

Parus ultramarinus, Bonaparte, *Rev. et Mag. de Zool.* 1841, p. 146 ;

Koenig, J. f. O. 1892, p. 388 ; *Whitaker, Ibis*, 1895, p. 96.

Parus cœruleanus, Malherbe, *Cat. Rais. d'Ois. Alg.* p. 13 (1846).

Cyanistes ultramarinus, Loche, *Expl. Sci. Alg. Ois.* i, p. 300 (1867).

Parus teneriffæ, Koenig, *J. f. O.* 1888, p. 188.

Parus cœruleus ultramarinus, Erlanger, *J. f. O.* 1899, p. 310.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Forehead, superciliary stripes, ear-coverts, cheeks and a line round the hind part of the crown pure white ; crown, lores, a streak behind the eyes, throat and a stripe from this round the hindpart of the neck deep glossy blue ; nape, back, wings and tail bluish, the two central rectrices and the wing-coverts brighter ; the secondaries and greater-coverts tipped with white ; breast and remainder of the underparts greenish-yellow, with some blackish feathers on the centre of the lower breast.

Iris dark brown ; bill black ; feet bluish-slate.

Total length 4·50 inches, wing 2·40, culmen ·35, tarsus ·70.

Adult female similar to the male, but slightly duller in colouring.

This species, which appears to be the North-west African representative of the Blue Titmouse group, is quite the commonest Tit to be found in Tunisia, and has a much more extensive range in the Regency than either of the preceding members of the family. Besides being generally distributed throughout the more northern and better wooded parts of the country, it is also to be met with in Central Tunisia and in some of the southern oases. In the fine oasis of Gafsa I have found this Tit in considerable numbers in spring among the olive-groves and fruit-orchards which are so plentiful there, and I am informed that it also occurs in the oases of Tozer and Nefta,

further west, as well as in the small oasis of El-Guettar to the south-east of Gafsa. It does not seem to occur in other oases in Tunisia, and is, indeed, scarcely a bird which one would expect to meet with in palm oases, being probably only found in them on account of the olive and other fruit trees growing there.

In Algeria *P. ultramarinus* is common throughout the Atlas districts, and I have also found it abundant in the public gardens at Biskra in the desert. In Marocco the species is likewise plentiful, and I have numerous examples of it both from northern and southern districts. Mr. Meade-Waldo met with it in the Maroccan Atlas at elevations of 7,000 feet above sea-level. In its habits the Ultramarine Titmouse resembles *P. cœruleus*, being active and restless, and frequenting woods and gardens, where it is generally to be seen in small parties, busily engaged in foraging for food. It feeds chiefly upon insects and their larvæ, but also eats seeds and berries, and occasionally fruit. It is very pugnacious and quarrelsome, as well as courageous, and anything but shy or timid. Its note most often heard is a grating "zee" repeated two or three times. This species breeds in the holes of old walls and trees, using principally moss and wool in the construction of its nest. The eggs are said to be generally six to eight in number, and of a clear white spotted with reddish-brown, chiefly at the blunt end. Dimensions 15 × 12 mm. Occasionally this Tit breeds in holes in the ground, and Mr. Meade-Waldo met with an interesting case of this in the Canary Islands. The hen bird was taken on her nest and kept a captive while it was dug out, examined and replaced, but on being released she immediately flew straight back into the hole (*Ibis*, 1890, p. 436).

P. ultramarinus has often been confused with *P. tenerifæ*, Lesson, but the two are fairly distinguishable from each other, the former having its secondary quill-feathers and greater wing-coverts tipped with white, while the latter has no white on those feathers, or, to be exact, has no white on the greater wing-coverts, and generally none on the secondaries, faint whitish tips to the latter being exceptional.

P. palmensis, Meade-Waldo, and *P. ombriosus*, Meade-Waldo, two other forms of the Blue Titmouse found in the Canaries, also resemble *P. ultramarinus*, but the former differs in having the abdomen white, and the latter in having the lower part of the back and the rump green.

Family CERTHIIDÆ.

CERTHIA FAMILIARIS BRACHYDACTYLA, Brehm.

TREE-CREEPER.

Certhia familiaris, *Linn. Syst. Nat.* i, p. 184 (1766); *Gadow, Cat. Birds Brit. Mus.* viii, p. 323; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 17 (1846); *Loche, Expl. Sci. Alg. Ois.* i, p. 292 (1867); *Koenig, J. f. O.* 1888, p. 170; *id. J. f. O.* 1892, p. 374; *Whitaker, Ibis*, 1896, p. 93.

Certhia brachydactyla, *Brehm, Vög. Deutschl.* p. 210 (1831); *Erlanger, J. f. O.* 1899, p. 313.

Description.—**Adult male**, spring, from Gbardimaou, North Tunisia.

Above dark brown, striated with dull white, the forehead and crown only very slightly so; lower back, rump and upper tail-coverts rufous-brown; wings dark brown, barred with dull yellow and tipped with white; the tail feathers, which are very stiff and pointed, pale rufescent-brown; superciliaries dull white; chin and throat pure white; rest of underparts dusky-white, becoming grey and yellowish-brown on the sides, flanks and vent.

Iris brown; bill dark brown; feet pale brown.

Total length 5 inches, wing 2·50, culmen ·75, tarsus ·65, hind claw ·35.

Adult female, similar to the male.

Young birds have the plumage yellower and the bill shorter.

The Tree-Creeper is subject to considerable variation, and has been split up by ornithologists into several subspecies. The form found in Tunisia, and probably throughout the whole of North-west Africa, answers best to that which has been distinguished under the name of *C. brachydactyla*, Brehm, and appears to be constant in its differential characters, as shown by the examination of a large series of specimens from various parts of the country. The principal of these characters, as compared with those of what may be taken to be typical *C. familiaris*, Linn., seem to be the generally darker coloration of its upper parts, with a less amount of white striation, particularly on the forehead and crown, less pronounced superciliary stripes, the more dusky colour of the underparts below the throat and breast, and lastly, the rather shorter length of the hind-claw. The other differential characters given by some ornithologists do not appear to be constant.

Bailly's description of his *C. costæ* (*Bull. Soc. Hist. Nat. de Savoie*,

1852, pp. 11-13), does not well apply to the present form, and that name could not therefore be used for it, even supposing Brehm's name were not available.

The Tree-Creeper is not uncommon in the north of the Regency, where it is a resident and breeding species. South of the Atlas I have no note of its occurrence.

In Algeria I have seen the species at El-Kroubs, and Dr. Koenig found it not uncommon in the oak-woods around Lambessa, as also in the cedar-forests on the Djebel Touggour.

In the oak-woods of Ghardimaou and El-Fedja, as also at Ain-Draham in North Tunisia, the Tree-Creeper is to be met with frequently and throughout the year.

In its habits it is shy and rather solitary, though exceedingly restless, and for this latter reason is more often noticed than it otherwise would be, as its plumage is particularly sober and unattractive in its colouring. The bird is generally to be seen alone, creeping rapidly up a tree trunk with a jerky movement, and, as a rule, in a spiral direction, and stopping at intervals to probe the bark in search of the insects and their larvæ which form its principal food. When it reaches the top of the tree trunk it flits off to the foot of another tree and immediately repeats the same tactics. The bird's stiff, pointed and somewhat decurved tail-feathers, and large feet with strongly curved claws, are eminently adapted for climbing.

In winter the Tree-Creeper may sometimes be found in the company of various species of Titmice, but, as already mentioned, it is not of a sociable disposition, and is more often to be seen alone. Its short warbling song uttered in spring is considered to be pleasing, though rather shrill, and its call note is a feeble "*cheep, cheep*," constantly uttered as it climbs.

Mr. Aplin found a nest of the species with young birds in it on May 20th in the oak-forest of El-Fedja, and met with young Tree-Creepers on the wing about a fortnight later. The nest he found was placed in a curl of the bark of an old oak-tree, rotten at the core, and was composed of pieces of stick and a little moss, with a lining of feathers. The bits of stick seemed large for so small a bird to carry.

The eggs of the Tree-Creeper, generally from four to eight in number, are white spotted with reddish-brown, chiefly at the blunt end. Average measurements 16 × 11 mm.

So far as I am aware there is no authentic record of the Wall-Creeper (*Tichodroma muraria*) having ever been met with in North-west Africa, although, according to Rüppell, the species once occurred in Egypt and Abyssinia.

The Nuthatch (*Sitta cæsia*), on the other hand, is recorded by Loche as occurring in Algeria, where it appears to be sedentary, though not common.

Family TROGLODYTIDÆ.

ANORTHURA TROGLODYTES (Linnæus).

WREN.

Motacilla troglodytes, *Linn. Syst. Nat.* i, p. 337 (1766).

Anorthura troglodytes, *Sharpe, Cat. Birds Brit. Mus.* vi, p. 269; *Erlanger, J. f. O.* 1899, p. 276.

Troglodytes vulgaris, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Troglodytes europæus, *Loche, Expl. Sci. Alg. Ois.* i, p. 290 (1867).

Troglodytes parvulus, *Koenig, J. f. O.* 1888, p. 188; *id. J. f. O.* 1892, p. 387; *Whitaker, Ibis*, 1895, p. 96.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Above rufous-brown, rather brighter on the wings, lower back, rump and tail, these parts being finely barred with blackish-brown; superciliary stripes dull white, underparts dull white, washed with rufous-brown.

Iris brown, bill brown, feet pale brown.

Total length 3·50 inches, wing 1·90, culmen ·50, tarsus ·70.

Adult female slightly smaller than the male and duller in colouring.

The Wren is a resident species in the Regency, and is not uncommon in some of the northern districts and in the wooded valleys of the Atlas. South of these mountains I have not met with the species, but it may perhaps occur in some of the southern oases in winter-time. At Zaghouan, and near the town of Tunis itself, it may frequently be met with, as well as in the forests of Ghardimaou and Fernana.

In Algeria and Marocco the Wren occurs in suitable localities. Although not particularly timid or shy of man, owing to its diminu-

tive size and soberly-coloured plumage this little bird often escapes notice and is considered less common than it really is. In Tunisia it is perhaps also less in evidence than it is in most European countries, as there it seems to frequent woods and secluded spots more than gardens and the neighbourhood of human habitations, its usual haunts in our own country, particularly in severe weather. Its flight is feeble and jerky, and never maintained for any distance. Insects and grubs form its principal food, but seeds and berries are also eaten, especially perhaps in winter-time. The Wren's song is pleasing and decidedly powerful for so small a bird, being at times poured forth by the tiny songster with surprising energy and vigour. Its call note is a sharp "click." The nest of this species is a most artistic structure, and is generally placed in the midst of picturesque surroundings, such as ivy or other creepers, on a mossy bank, or against the trunk of some old tree. Walls, or the sides of outbuildings, sometimes furnish a convenient site. The nest itself is decidedly large and dome-shaped, with an aperture on one side. It is constructed chiefly of moss and lichens, with a plentiful lining of feathers. The eggs, usually six or seven in number, are white, and generally finely spotted with red.

In some continental countries one of the common trivial names of the Wren is "The King of Birds." The same title is applied to the species in some doggerel verses quoted in Morris's "British Birds," anent the former persecution of this poor little bird in England on St. Stephen's day. How such cruelty could ever have been practised and allowed in an enlightened country like ours is inconceivable!

Family MOTACILLIDÆ.

MOTACILLA ALBA, Linnæus.

WHITE WAGTAIL.

Motacilla alba, Linn. *Syst. Nat.* i, p. 331 (1766); Sharpe, *Cat. Birds Brit. Mus.* x, p. 464; Loche, *Expl. Sci. Alg. Ois.* ii, p. 3 (1867); Koenig *J. f. O.* 1888, p. 213; *id.* *J. f. O.* 1893, p. 25; Whitaker, *Ibis*, 1896, p. 89; Erlanger, *J. f. O.* 1899, p. 323.

Description.—**Adult male**, early spring, from Tunis, North Tunisia. Forehead, region round eye, ear-coverts and sides of neck pure white;

hind part of crown, nape, throat and upper breast jet-black; back bluish-grey, becoming darker on the rump and upper tail-coverts; quills blackish-brown, the secondaries and upper wing-coverts broadly margined with white; tail black, excepting the two outer pairs of feathers, which are pure white, slightly margined with black on the inner webs; rest of underparts white, washed with grey on the flanks.

Iris very dark brown; bill and feet black.

Total length 7 inches, wing 3·50, culmen ·50, tarsus ·90.

Adult female rather smaller than the male and greyer in colouring, and with but little black on the head and throat.

A winter migrant in Tunisia, this is one of the commonest birds to be met with during that season in the Regency, arriving in autumn and leaving again in spring. Whether any individuals of the species remain to breed in this country, or indeed anywhere in North-west Africa, I cannot say, but there seems to be no authentic record of their doing so. What *Motacilla alba algira* of de Selys-Longchamps may have been it is difficult to say, but according to Bonaparte (Rev. Zool. 1857, p. 61), de Selys' bird resembled *M. yarrelli* (*M. lugubris*) more than *M. alba* in having a very dark back, while it approached *M. lugens*, Pall, or *M. leucoptera*, Vigors, in having the white on the wings very extended.

In Algeria and Marocco *M. alba* is abundant as a winter migrant, but I have no knowledge of the species breeding in either of those countries.

In Tunisia the White Wagtail is to be found plentifully throughout the country wherever water occurs, and particularly so during the periods of migration. I have notes of its occurrence from most parts of the Regency, and its favourite line of passage is apparently along the east coast down to the Tripoli frontier.

In its habits the present species resembles its congener, *M. lugubris*, chiefly frequenting meadows and moist ground, where flies and other winged insects abound. These it catches with wonderful dexterity, its rapid and at the same time graceful movements when thus engaged being well worth watching. On the sea-shore it feeds on small crustacea and marine insects. Its alarm note is a sharp "tizzick." Though essentially a ground bird, I have seen the White Wagtail perching on a bush, and it is also fond of resorting to the roofs of houses and other buildings, particularly in spring, for breeding purposes.

M. lugubris has not come under my notice in Tunisia, although from North Marocco I have specimens of it obtained in the month of March, and it may possibly also occur both in Algeria and in the Regency. In Marocco the two species, *M. lugubris* and *M. alba*, are to be found in the same districts. Although the range of the former species seems to be more or less restricted to the west of the Western Palæarctic region, it has been known to occur in Southern Italy and Malta. No doubt the two species, *M. lugubris*, and *M. alba*, are very closely allied, and in countries where both occur they have been known to interbreed (Saunders, Man. Brit. Birds, p. 115).

Under the name of *M. subpersonata* Mr. Meade-Waldo has recently described a new Wagtail from Marocco (*Bull. B. O. C.* xii, p. 27). This species seems to be most nearly allied to *M. personata*, though easily distinguishable from that bird.

MOTACILLA MELANOPE, Pallas.

GREY WAGTAIL.

Motacilla melanope, *Pall. Reis. Russ. Reichs.*, iii, p. 696 (1776); *Sharpe, Cat. Birds Brit. Mus.* x, p. 497.

Motacilla boarula, *Mulherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Erlanger, J. f. O.* 1899, p. 322.

Fallenura sulphurea, *Loche, Expl. Sci. Alg. Ois.* ii, p. 5 (1867).

Calabates sulphurea, *Koenig, J. f. O.* 1888, p. 213; *id. J. f. O.* 1893, p. 25.

Description.—**Adult male**, spring, from Titula, South Marocco.

Forehead, crown, ear-coverts, nape, back and rump slate-grey, rather darker on the crown and ear-coverts; upper tail-coverts greenish-yellow; outer tail-feathers pure white, the next two pairs also white, with black on their outer webs, the remaining rectrices blackish-brown; quills blackish-brown; the longer secondaries fringed with grey; chin and throat black, with a white stripe running backwards from the base of the bill; rest of the underparts canary-yellow.

Iris dark brown; bill blackish; feet brown.

Total length 7·20 inches, wing 3·30, culmen ·50, tarsus ·75.

Adult female duller in colouring than the male, and generally with less black on the throat.

Observations.—In winter the black throat in both sexes disappears and is replaced by white or whitish-buff.

The Grey Wagtail is a winter migrant in Tunisia, being more often seen during the periods of migration than at any other season. The species, however, can scarcely be considered common in the Regency at any time, and none of the examples I have obtained there are in full breeding plumage. It may possibly sometimes escape notice, being taken for some other species of Wagtail, although at close quarters this would hardly be possible, its very long tail being a sufficiently distinctive character. Mr. Aplin met with the species at Sfax, and M. Blanc says it occurs occasionally near the town of Tunis. The species occurs in Algeria, but appears to be more abundant in Morocco, where it is common throughout the Atlas districts, and probably breeds, as I have specimens which were obtained at the very end of the month of May. It may also nest in Tunisia, although I have no knowledge of its doing so. In many parts of South Europe the species is known to breed.

In many of its habits the Grey Wagtail resembles others of the family, but it frequents hilly districts and the neighbourhood of running water far more than most of its allies, and is rarely to be found otherwise than singly or in pairs. It is not a sociable bird, nor is it particularly shy, and at times it will frequent the neighbourhood of dwellings with the utmost self-assurance. It feeds chiefly on insects and worms. Its note is a simple "zi-zi" repeated once or twice.

MOTACILLA FLAVA, Linnæus.

BLUE-HEADED WAGTAIL.

Motacilla flava, *Linn. Syst. Nat.* i, p. 331 (1766); *Sharpe Cat. Birds Brit. Mus.* x, p. 516, pl. vi, figs. 3-5; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Whitaker, Ibis*, 1895, p. 96.

Budytes flava, *Loche, Expl. Sci. Alg. Ois.* ii, p. 7 (1867); *Koenig, J. f. O.* 1888, p. 213; *id. J. f. O.* 1893, p. 25.

Budytes flavus flavus, *Erlanger, J. f. O.* 1899, p. 320.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Forehead, crown, nape and sides of the neck bluish-slate; lores and ear-coverts rather darker slate; a white superciliary stripe running from

the base of the bill to behind the eye; back olive-green; rump and upper tail-coverts slightly brighter green, the latter with blackish centres to the feathers; quills dark brown, secondaries and wing-coverts broadly margined with yellowish-white and buff; the two outer pairs of tail-feathers white, with a diagonal blackish margin on part of inner web, the remaining tail-feathers blackish-brown; chin and a line below the lores white; throat and entire under surface of body bright canary-yellow, slightly tinged with dull green on sides.

Iris, bill and feet very dark brown.

Total length 6·25 inches, wing 3·35, culmen ·55, tarsus 1.

Adult female rather duller in colour than the male and slightly smaller.

Young birds have the upper parts olive-brown, the rump and upper tail-coverts greener, the underparts buffy-white, tinged with pale yellow on abdomen and crissum, and the fore-neck with a collar of brown spots.

Observations.—Most of the Yellow Wagtails at times show a few blackish or dark greenish feathers on the breast, these dark markings occasionally becoming more developed. The white eyebrow of the present species is not unfrequently tinged with yellow.

Varieties are sometimes met with in the various forms in which the yellow underparts have a distinct orange hue.

Specimens may occasionally be found with an admixture of yellowish-green feathers on the crown. I have one such specimen from South Tunisia and there are similar examples in Mr. J. H. Gurney's collection from South Algeria.

The Yellow Wagtails, the group to which the present species belongs, were separated by Cuvier from other members of the family under the generic name of *Budytes*, but the grounds for such separation being somewhat slender, the subdivision has not been generally accepted by modern authors, many of whom consider it advisable to retain the group under the genus *Motacilla*.

As most ornithologists must have had occasion to observe, the group is a difficult one to deal with, owing to the number of forms which it presents; and the separation or subdivision of these, with our present limited knowledge regarding some of them, is no doubt more or less a matter of opinion.

Treating of those which occur in the Tunisian Regency, I may briefly say that the following forms are to be found, which in their fully adult and typical plumage may be thus characterised, viz. :—

(a) *M. flava* : with a bluish-slate-coloured crown, a distinct white

superciliary stripe, little or no white on the chin and none at all on the throat.

(b) *M. cinereocapilla* : with a similarly coloured crown, generally without a white superciliary stripe, but sometimes with a slight one, chiefly behind the eye, and with a distinct white chin and throat.

(c) *M. borealis* : with a darker slate-coloured crown, without any superciliary stripe, and with little or no white on the chin, and none at all on the throat.

(d) *M. melanocephala* : with a perfectly black crown, and without any superciliary stripe, or any white on the chin and throat.

(e) *M. rayi* : with a yellowish-green crown, a yellow superciliary stripe, and no white on the chin and throat.

It is not without considerable hesitation that I admit all these forms to full specific rank, some, if not all of them, appearing to me to be merely subspecies, or local forms, and some authors, indeed, go so far as to lump them all together under *M. flava*, Linn. According to excellent authorities, however, there are good reasons for specific separation or sub-division, apart from the variation of plumage colouring and marking, and some careful observers profess to be able to distinguish a difference between the respective notes and habits of the various forms, as well as between the relative dates of their arrival and departure, and even, in one or two cases, in their structural parts. According to some good ornithologists also, the various forms have different breeding areas, and should this fact be established for a certainty, it would no doubt constitute a strong argument in favour of specific distinction. So far, however, as our present knowledge goes, it is difficult to arrive at a definite conclusion on the matter, and we must be content to wait until further research may throw more light upon the subject.

The fact of the young birds of the various forms being practically indistinguishable one from the other greatly adds to the difficulty of identification, and it is by no means an uncommon occurrence to find birds, not fully adult which show, in a greater or less degree, what are considered to be the characteristic features of two different forms, thus rendering their identification an absolute impossibility.

The Blue-headed Wagtail is a bird of regular passage throughout the greater part of the Tunisian Regency, being particularly plentiful during the spring migration, when the species may be noticed, in greater or lesser numbers, from about March 20th until the end of

April. After that date a few individuals may be met with, but I am unable to say whether the species breeds in the Regency or not. Blanc, the Tunis naturalist, is of opinion that it does not do so, giving as a reason the fact of his not having met with the species in any part of Tunisia after the month of May, whereas *M. cinereocapilla*, according to him, is abundant there in the month of June. Baron von Erlanger, on the other hand, thinks that the present species *does* nest in the Regency, as he has met with it in pairs and not in flocks as late as the middle of May.

In Algeria *M. flava* is common both north and south of the Atlas. Dr. Koenig found it abundant in the Algerian Sahara, and Loche says the species is plentiful in Algeria during the periods of passage, and is also sedentary there to a certain extent. In Marocco it is common in spring, and I have examples of the species obtained as late as the month of May. Mr. Edward Dodson, when travelling in Tripoli, met with the Blue-headed Wagtail in considerable numbers in April at Bonjem and its vicinity, and found the famine-stricken residents of those districts subsisting to a great extent upon the flesh of these birds, which were caught in snares and greedily devoured.

M. flava frequents low-lying plains and moist meadows, as well as cattle-pastures and localities in the vicinity of water, where flies and other insects are numerous.

Grazing herds are sure to attract these birds, on account of the swarms of gnats and small flies which collect around them, and it is an interesting sight to see the birds threading their way in and out between the feet of the cattle or horses with the utmost fearlessness and self-assurance. For the same reason these Wagtails often accompany a travelling caravan for a considerable distance.

In most of its habits *M. flava* resembles other members of the group, although it is perhaps the least shy of them all. In its flight and movements it is particularly graceful and adroit. Its ordinary note appears to be a simple "zi-zi."

MOTACILLA CINEREOCAPILLA, Savi.

GREY-HEADED WAGTAIL.

- Motacilla cinereocapilla**, Savi, *Nuov. Giorn. del. Letter.* p. 190 (1831).
Motacilla cinereicapilla, Sharpe, *Cat. Birds Brit. Mus.* x, p. 526.
Budytes cinereocapilla, Loche, *Expl. Sci. Alg. Ois.* ii, p. 9 (1867);
 Koenig, *J. f. O.* 1888, p. 213; *id.* *J. f. O.* 1893, p. 26.
Motacilla viridis, Whitaker, *Ibis*, 1895, p. 96.
Budytes flavus cinereocapillus, Erlanger, *J. f. O.* 1899, p. 321.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Differs from *M. flava* in having the chin and throat white and the white superciliary stripe absent or less developed.

Soft parts and measurements as in *M. flava*.

Adult female like the female of *M. flava*, but with a white throat.

Young like the young of *M. flava*, but with little or no eye-stripe as a rule. The young of the different forms of Yellow Wagtail are not easily distinguishable from each other.

Observations.—The absence of the white superciliary stripe in this species is by no means a constant character, and specimens are often found *with* a stripe, although as a rule this is less pronounced than in *M. flava*, and more at the back of the eye. Apparently, therefore, the only constant and well-marked differential character between the two lies in the distinct white throat of the present species.

This Wagtail is common in Tunisia as a regular migrant, arriving in April and returning southwards in the early autumn.

According to Blanc, however, the species nests in the Regency, which is highly probable, as it is a common breeding species in Sicily and Southern Italy, being, indeed, a Mediterranean form. In the localities it frequents and in its general habits this species does not differ greatly from *M. flava*, although, according to some ornithologists, it is far more shy than that species, and also has a different note. In Sicily the principal vernacular name for the present species is *Pispisa vizzitana*, that of *M. flava* being *Pispisa virritana*, the local "cacciatori" and bird-fanciers professing to be able to distinguish the two by their notes, those of *M. flava*, according to them, resembling the words *virri-virri*, whereas those of *M. cinereocapilla* are more like *vizzi-vizzi*.

Nests of this species found in Europe are placed on the ground,

and are composed of grasses and root-fibres, lined with horsehair and a few feathers. The eggs, four to six in number, are a dull white, clouded with pale brown, and measure about 20×15 mm.

MOTACILLA BOREALIS, Sundevall.

SLATE-HEADED WAGTAIL.

Motacilla flava borealis, *Sundev. Cefv. K. Vet.-Akad. Förh. Stockh.* 1840, p. 53.

Motacilla borealis, *Sharpe, Cat. Birds Brit. Mus.* x, p. 522, pl. vii, figs. 1-3; *Koenig, J. f. O.* 1893, p. 25.

Budytes flavus borealis, *Erlanger, J. f. O.* 1899, p. 322.

Motacilla viridis, *Whitaker, Ibis*, 1895, p. 96.

Description.—**Adult male**, spring, from Hadj-el-Aioun, Central Tunisia. Differs from *M. flava* in having the crown and sides of the head darker, no white superciliary stripe, and no white on the chin or throat.

Soft parts and measurements as in *M. flava*.

Adult female duller in coloration than the male.

The young are hardly distinguishable from those of the preceding forms.

Observations.—Examples are occasionally found with a slight white supercilium, and a little white on the chin.

My Tunisian collection contains only two or three specimens of this Wagtail, which were obtained in spring. The form does not appear to be nearly so abundant in the Regency as either of the two preceding ones, and I have no knowledge of its nesting anywhere in that country. It is, in fact, supposed to breed much further north than any of the other Yellow Wagtails. In Tunisia it may sometimes be met with in the company of *M. flava*, from which species it probably does not differ much, if at all, in its general habits.

MOTACILLA MELANOCEPHALA, Lichtenstein.

BLACK-HEADED WAGTAIL.

Motacilla melanocephala, *Licht. Verz. Doubl.* p. 36 (1823).

Motacilla feldeggi, *Sharpe, Cat. Birds Brit. Mus.* x, p. 527, pl. 8, figs. i.-iv.

Budytes melanocephalus, *Loche, Expl. Sci. Alg. Ois.* ii, p. 10 (1867); *Koenig, J. f. O.* 1888, p. 214.

Description.—**Adult male**, spring, from Bari, Italy.

Differs from *M. flava* in having the crown, nape and ear-coverts of a rich glossy black, the rest of the upper parts rather deeper in their coloration, and in lacking the superciliary stripe.

Soft parts and measurements as in *M. flava*.

Adult female much duller in coloration than the male.

The young resemble those of the preceding forms, but are rather darker on the head.

Though I have not met with this form of Wagtail in Tunisia, Blanc informs me that, although rare, it occurs occasionally in the Regency, having been found as far south as Tatahouine. Dr. Koenig also includes it in his list of Tunisian birds (*J. f. O.* 1888, p. 214), having obtained a specimen of it in the Regency in the month of April, 1886. Loche mentions having obtained an example near Ain Oussera, in Algeria (*Expl. Scient. Alg. Ois.* ii, p. 11). A male specimen which exists in the Milan Museum under the No. 17,639 is probably this very example.

In Italy and Sicily *M. melanocephala* occurs in limited numbers and at irregular intervals. In the latter island the late Dr. Minà Palumbo stated that he had observed the species on several occasions in spring frequenting the torrent-beds of the Madonian mountains, where the birds remained until the end of July. Prof. Doderlein also obtained specimens of it near Palermo.

In some years *M. melanocephala* is not uncommon at Bari on the extreme eastern coast of Italy.

Examples of Black-headed Wagtails with a white supercilium have been named *M. paradoxa* (Brehm), and those with a yellow supercilium, *M. xanthophrys* (Sharpe). The former occurs in South-eastern Europe and has been found as far west as Bari, while the latter is principally met with in the Caucasus region, but strays westward to Dalmatia and, according to some authors, even to Italy.

MOTACILLA RAYI (Bonaparte).

YELLOW WAGTAIL.

Budytes rayi, Bonaparte, *Comp. List Birds Eur. and N. Amer.* p. 18 (1838); Loche, *Expl. Sci. Alg. Ois.* ii, p. 8 (1867); Koenig, *J. f. O.* 1888, p. 191; *id.* *J. f. O.* 1892, p. 389.

Motacilla campestris, Sharpe, *Cat. Birds Brit. Mus.* x, p. 510, pl. 6, figs. i, ii.

Description.—**Adult male**, spring, from Mazagan, Central Marocco.

Upper parts mostly yellowish-green, brighter on the forehead and lores; a conspicuous yellow stripe over the eye; wings and tail blackish-brown, but the longer secondaries are fringed with grey, and the two outer pairs of rectrices are white; entire underparts canary-yellow.

Iris dark brown; bill blackish; feet dark brown.

Total length 6 inches, wing 3·20, culmen ·50, tarsus ·85.

Adult female differs from the male in being duller and browner above, less brightly coloured below, and also somewhat smaller.

The young are hardly distinguishable from those of *M. flava*.

There is a specimen in my Tunisian collection, obtained on the plains to the west of Gafsa, which, though it is not a very typically coloured Yellow Wagtail, I can only refer to this species. Loche includes it in his list of the birds of Algeria, and states that he only met with the species on migration and considered it to be merely an accidental straggler in that country. Two male specimens obtained by Loche in Algeria exist in the Milan Museum under the numbers 17,642 and 17,643. From Marocco I have a few specimens of the Yellow Wagtail, which were obtained at Mazagan on the coast, and the species is probably not uncommon in some parts of that country. Although no doubt more or less a western species, *M. rayi* occurs occasionally in Italy, Sicily and Malta, and apparently even as far east as Turkestan. According to some ornithologists there are two forms of this species, one inhabiting Western Europe and migrating in winter to the west coast of Africa, the other inhabiting South Russia, the Caspian region and Turkestan, and wintering in East Africa. The former has been distinguished by the name of *Budytes campestris flavissimus* (Blyth), the latter bearing that of *Budytes campestris campestris* (Pallas).

With regard to Pallas's specific name of *campestris*, although much

older than Bonaparte's name of *rayi*, I have rejected it because the description given of the bird by Pallas is rather vague and does not well apply to the Yellow Wagtail, but better to the Blue-headed Wagtail. The description, in any case, appears to refer to an immature and not to an adult bird.

ANTHUS PRATENSIS (Linnæus).

MEADOW-PIPIT.

Alauda pratensis, *Linn. Syst. Nat.* i. p. 287 (1766).

Anthus pratensis, *Bechst. Naturg. Deutschl.* iii, p. 732 (1807); *Sharpe, Cat. Birds Brit. Mus.* x, p. 580; *Loche, Expl. Sci. Alg. Ois.* ii, p. 16 (1867); *Koenig, J. f. O.* 1838, p. 214; *id. J. f. O.* 1893, p. 28; *Whitaker, Ibis*, 1895, p. 96; *Erlanger, J. f. O.* 1899, p. 317.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Above olive-brown, with dark brown centres to feathers; faint superciliary stripe buff; wings dark brown, the secondaries and coverts broadly margined with buffy-white; tail dark brown, with the exception of the outermost pair of rectrices, which are white, with an oblique brown margin to the inner web and the adjoining pair, which have a white patch on the tip of the inner web; underparts buffy-white, thickly spotted on the sides of the neck, breast and flanks with longitudinal blackish-brown markings; hind-claw long and only slightly curved.

Iris dark brown; bill dark brown; feet light brown.

Total length 5·50 inches, wing 3, culmen ·40, tarsus ·80, hind-claw ·50.

Adult female similar to the male.

The Meadow-Pipit is common in Tunisia during the winter months, arriving regularly in autumn and leaving again in the early spring. By the end of March the vernal migration of these birds seems to have terminated, and I have no note of the species occurring after that date, or of its breeding anywhere in the Regency. Mr. C. Dixon, however, appears to have met with the species in Algeria in the month of May (*Ibis*, 1882, p. 571).

Although the Meadow-Pipit is generally to be found in Tunisia in the coast districts, or on the borders of inland lakes, it may occasionally be met with on some of the plains of the interior at a considerable distance from the coast. As a rule, however, in its

winter home it frequents localities either actually adjoining or at no great distance from water. The shores of El Bahira or the Lake of Tunis, and the little islet of Sheikli in the centre of that lagoon, are favourite resorts of Meadow-Pipits, which no doubt find an abundance of food among the sedges and rough grass plentiful there. The diet of these and allied Pipits consists of insects, small snails and worms, varied to a certain extent by seeds and other vegetable matter. The flight of the Meadow-Pipit is not unlike that of the Short-toed Lark, being jerky and flitting, although capable of being maintained for a considerable length of time. The call note of this species is sharp and shrill, but its song, generally uttered on the wing, is said to be well sustained and varied. In Marocco *A. pratensis* is common as a winter migrant. In the Canaries and Madeira a resident form, *A. bertheloti*, occurs, which differs from *A. pratensis* in being paler in colour and rather smaller in size.

ANTHUS CERVINUS (Pallas).

RED-THROATED PIPIT.

Motacilla cervina, *Pall. Zoo. Ross.-As.* i, p. 511 (1811).

Anthus cervinus, *Naum. Vög. Deutschl.* iii, pl. 85, fig. 1 (1823); *Sharpe, Cat. Birds Brit. Mus.* x, p. 585; *Loche, Expl. Sci. Alg. Ois.* ii, p. 17 (1867); *Koenig, J. f. O.* 1888, p. 215; *id. J. f. O.* 1893, p. 30; *Erlanger, J. f. O.* 1899, p. 318.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Above brown, the feathers with blackish centres and buff-brown margins, more pronounced on back; wings blackish-brown, secondaries and coverts broadly fringed with buff-white; outer pair of rectrices white on the terminal half of inner web, the remaining half being blackish, the outer web being brown at the base and very pale brown at the tip; the adjoining rectrices slightly tipped with white on inner webs; the remaining rectrices dark brown; a broad stripe of rufous-buff running from the base of the bill over and below the eye; lores and ear-coverts rufous-brown; chiu, throat, sides of neck and breast vinous-chestnut, the lower breast and the flanks being spotted with longitudinal dark markings; rest of the underparts pale buff; hind-claw as in *A. pratensis*.

Iris dark brown; bill dark brown; feet light brown.

Total length 5·75 inches, wing 3·40, culmen ·45, tarsus ·85.

Adult female resembles the male, but the vinous-chestnut colour does not extend so low down on the breast.

Observations.—In winter the rufous colour is wanting in both the sexes, except in the very old birds, and it is then not easy to distinguish at a glance between the present species and the Meadow-Pipit. On closer examination, however, and a comparison of the respective measurements, the differences between the two species are apparent. The browner colour of the upper parts and the bolder markings of the underparts in the present species are distinctive features.

I have examples of this Pipit from Central and Southern Tunisia, where in certain districts the species is not uncommon during the winter and spring months. Owing, however, to its resemblance in winter plumage to the Meadow-Pipit, it is no doubt often mistaken for that species, and is probably less uncommon than is generally supposed. Whether the Red-throated Pipit breeds in Tunisia or anywhere in North-west Africa I cannot say, but seeing that it occurs in the Regency as late as the end of April and the beginning of May (*Erlanger, J. f. O.* 1899, p. 318) it is not unlikely that it does so. I have myself obtained a specimen of the species at Metlaoui in South Tunisia about the middle of April, and Mr. Aplin met with it near Maktar in North Tunisia at the end of that month.

In its habits and mode of life generally the Red-throated Pipit resembles the Meadow-Pipit to a great extent, and it is not unfrequently to be found consorting with that species. The notes, however, of the two species, according to Mr. Aplin, are altogether different, that of the present species, when flushed, being fairly rendered by the syllable "*chzee*," whereas that of the Meadow-Pipit is more like "*snick*" or "*sneek*." Apparently, too, although often to be met with on the sea-coast and in the vicinity of water, like *A. pratensis*, the present species seems to be almost equally at home on inland plains and drier spots.

Its diet is the same as that of the Meadow-Pipit.

I have no note of the occurrence of the Red-Throated Pipit in Marocco and cannot say whether the species extends its western range to that country. It has been recorded, however, from South Spain. In Egypt it appears to be very abundant.

ANTHUS TRIVIALIS (Linnæus).

TREE-PIPIT.

Alauda trivialis, *Linn. Syst. Nat.* i, p. 288 (1766).

Anthus trivialis, *Fleming, Brit. Anim.* p. 75 (1828); *Sharpe, Cat. Birds Brit. Mus.* x, p. 543; *Whitaker, Ibis*, 1895, p. 96; *Erlanger, J. f. O.* 1899, p. 316.

Anthus arboreus, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Koenig, J. f. O.* 1888, p. 216; *id. J. f. O.* 1893, p. 30.

Dendronanthus arboreus, *Loche, Expl. Sci. Alg. Ois.* ii, p. 11 (1867).

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Above olive-brown, the feathers with dark centres and pale margins; wings dark brown, the secondaries and coverts broadly margined with buff outer pair of rectrices white on the terminal half of the inner web and the greater part of outer web, the remaining part dark brown, the adjoining pair tipped with white on the inner webs; rest of tail-feathers dark brown; superciliaries yellowish-buff; chin whitish; throat and breast yellowish-buff, becoming whitish on the abdomen and crissum; sides of the neck, breast and flanks spotted with longitudinal dark brown markings; hind-claw short and curved.

Iris very dark brown; bill light brown; feet flesh-colour.

Total length 6 inches, wing 3·50, culmen ·60, tarsus ·90, hind claw ·25.

Adult female very similar to the male.

The Tree-Pipit is common in Tunisia during both the spring and autumn periods of migration, and a certain number of individuals remain in the Regency throughout the winter, but I have no knowledge of its breeding in this country, or, indeed, in any part of North-west Africa. I have specimens of it from Marocco, but all obtained during the winter or early spring.

During the months of March and April I have found the Tree-Pipit very abundant in all orchards and olive-groves, both north and south of the Atlas. It is a tame, confiding bird, and when disturbed on the ground flies quietly up into the nearest tree, remaining there till the intruder has passed on, when it again descends. Although a tree-haunting species, it is perhaps as often to be found on the ground, and its food is mostly obtained there. It lives chiefly upon worms and insects, but also eats seeds and other vegetable matter. The song of this Pipit is rather powerful and far superior to that of other members of the family. It has even been likened to that of the Canary.

ANTHUS CAMPESTRIS (Linnæus).

TAWNY PIPIT.

Alauda campestris, *Linn. Syst. Nat.* i, p. 288 (1766).

Anthus campestris, *Bechst. Naturg. Deutschl.* iii, p. 722 (1807);
Sharpe, Cat. Birds Brit. Mus. x, p. 569; *Whitaker, Ibis*, 1895, p. 96;
Erlanger, J. f. O. 1899, p. 318.

Anthus rufescens, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846).

Agrodoma campestris, *Loche, Expl. Sci. Alg. Ois.* ii, p. 13 (1867);
Koenig, J. f. O. 1888, p. 216; *id. J. f. O.* 1893, p. 30.

Description.—**Adult male**, spring, from Kanghat-Sloughi, Central Tunisia.

Above light sandy-brown or tawny-grey, most of the feathers with darker centres, particularly on the crown; a pale buff superciliary stripe extending from the base of the bill to behind the eye; wings brown, the secondaries and coverts broadly margined with buff; the outer pair of rectrices dull white on the outer web and on the terminal half of the inner web, the remaining portion dark brown, the adjoining pair dull white on the outer web and at the tip; the remaining tail-feathers dark brown, the two central ones fringed with buff; lores and ear-coverts greyish-brown; underparts buffy-white, paler on the chin and throat, and darker on the breast and flanks; faint indication of a moustachial stripe and a few spots on the sides of neck and breast light brown.

Iris very dark brown; bill light brown; feet yellowish-flesh-colour.

Total length 7 inches, wing 3·75, culmen ·65, tarsus 1.

Adult female resembles the male in plumage, but is rather smaller.

Observations.—Some specimens have a decided tinge of yellow on the underparts, at times considerably developed.

The Tawny Pipit is abundant in Tunisia during the periods of migration, and also nests in the Regency. I have no note of its occurrence in that country, or, indeed, in any part of North-west Africa during the winter, but it is not unlikely that a few individuals may pass the colder months in some of the semi-desert districts immediately south of the Atlas Mountains.

The species appears to be common in spring in Algeria, Marocco and Tripoli, and probably breeds in all three countries.

During the months of March and April I have found the Tawny Pipit plentiful on the borders of the oases, and on the stony plains

adjoining the southern slopes of the Atlas, and later on I have met with the species further north.

Unlike most other members of the family this Pipit evinces a preference for dry sandy country, where vegetation is scanty or almost entirely wanting, and on the stony plains and barren wastes of Southern and Central Tunisia no doubt finds an ideal home. Essentially a ground bird, it is not often to be met with in hilly or wooded country, but keeps to the open and level plains, where it can move and run about with greater freedom.

When running it might be mistaken for a Lark, but its flight is very different to that of any member of the *Alaudidæ*, being much stronger and wilder. The diet of this Pipit consists chiefly, if not entirely, of insects and small coleoptera. Its notes, which are sometimes uttered by the bird when on the wing, are poor, and are hardly worthy of being called a song. The birds are, however, capable of being lured by an artificial call, and the local "gunners" in Sicily often entice them within shot by such means. At times, when thus called, they will drop down like a stone from a considerable height.

Apparently the species breeds twice, if not three times, during the season, nests being found throughout April, May and June. The nest is placed on the ground in a cavity or depression, sheltered by a tuft of grass, or merely by a stone, and is composed of dry grasses and plant stems, lined with wool or hair. The eggs, usually five in number, vary considerably both in colour and marking, as well as in shape and size. Some in my collection have a greyish-white ground-colour, spotted all over with grey shell-marks and light brown surface spots, while others are purplish-brown, with darker brown markings. As a rule they are rather round and their average measurements are 20 × 17 mm.

ANTHUS SPIPOLETTA (Linnaeus).

WATER-PIPIT.

Alauda spinoletta, *Linn. Syst. Nat.* i, p. 288 (1766).

Anthus spipoletta, *Jaub. et Lapomm. Rich. Orn.* p. 285 (1859);
Sharpe, Cat. Birds Brit. Mus. x, p. 592; *Koenig, J. f. O.* 1892, p. 389;
Erlanger, J. f. O. 1899, p. 320.

Anthus spinoletta, *Loche, Expl. Sci. Alg. Ois.* ii, p. 14 (1867).

Description.—**Adult male**, spring, from Italy.

Upper parts light brownish-grey, the feathers with rather darker centres; superciliaries broad and whitish; quills brown, margined with whitish; tail-feathers brown, the outer pair with their outer webs and the terminal portion of inner webs white, the next adjoining pair slightly tipped with white; chin and throat whitish, becoming oale ferruginous on the breast, and white on the abdomen and under tail-coverts.

Iris, bill and feet dark brown.

Total length 6 inches, wing 3·60, culmen ·60, tarsus ·80.

Observations.—In autumn plumage the upper parts are greenish-brown, and the underparts white, or whitish, with the sides of the throat and breast heavily streaked with brown.

The Water-Pipit is not uncommon in Tunisia in winter, being met with chiefly on the east coast, where Mr. Aplin observed it at Sfax, and Baron v. Erlanger frequently met with it near Gabès and Skirra. The species can no doubt only be looked upon as a winter migrant in the Regency, although Loche says that examples of it have been captured in Algeria in summer. Should any individuals of the species really breed in North-west Africa, they would no doubt resort to the higher valleys of the Atlas, where there is no lack of suitable localities for nidification. Canon Tristram seems to have met with the Water-Pipit in winter as far south as Laghouat in the Algerian Sahara. The summer quarters of the species, however, are the high mountain valleys and pastures, such as those of the Swiss and Italian Alps, where these birds may be found in large numbers during the warmer months. In autumn they descend to the plains, and may there be found frequenting the mud-flats and marshy ground at the mouths of the streams running into the Alpine lakes.

In its habits the Water-Pipit is said to resemble the Meadow-

Pipit to a great extent. It is, however, more shy and wary than that bird and not so easily approached, although when disturbed it rarely flies far. Its food is composed principally of water insects of various kinds and worms.

Among the collection of Loche's birds acquired by the late Count Turati, and now preserved in the Museo Civico of Milan, there is an example of the Rock-Pipit (*A. obscurus*, No. 17,649) labelled Algeria. Loche himself makes no mention of this species either in his catalogue of Algerian birds, published in 1858, or in his work on the Algerian Ornis, published in 1867, but the species evidently occurs in North-west Africa, though probably more or less rare there. From Tunisia I have as yet no note of its occurrence, but it appears to have been met with in Marocco, though Favier's statement regarding it should probably be referred to the Water-Pipit, as already observed by Colonel Irby (Orn. Strs. Gib. p. 110).

Family PYCNONOTIDÆ.

PYCNONOTUS BARBATUS (Desfontaines).

DUSKY BULBUL.

Turdus barbatus, Desf. *Mém. Acad. Roy. de Sciences*, p. 500, pl. xiii. (1787).

Pycnonotus barbatus, Gray, *Hand-list Birds*, i, p. 268, No. 3,926 (1869); Sharpe, *Cat. Birds Brit. Mus.* vi, p. 147; Whitaker, *Ibis*, 1896, p. 93; Erlanger, *J. O.* 1899, p. 315.

Ixus obscurus, Malherbe, *Faune Orn. de l'Alg.* p. 18 (1855).

Ixos barbatus, Loche, *Expl. Sci. Alg. Ois.* i, p. 288 (1867).

Description.—**Adult male**, winter, from El Fedja, North Tunisia.

Above dark umber-brown, deeper on the forehead, crown and rump; wings brown; tail blackish-brown; chin and throat dark umber-brown, becoming lighter on the breast and flanks, and white on the abdomen, crissum and under tail-coverts.

Iris dark brown; bill and feet blackish.

Total length 8 inches, wing 4, culmen .70, tarsus .90.

Adult female, spring, from Ghardimaou, North Tunisia.

Resembles the male, but is rather browner and duller in colouring.

In size it is also rather smaller, its wing measuring 3.85 inches. Soft parts similar.

Observations.—Apparently the winter plumage of this species is darker than that of spring, the colour of the head in the former season being almost like that of *P. arsinöc*. The difference in size, however, at once distinguishes the two species.

The Dusky Bulbul is not an uncommon bird in some of the wooded districts of North Tunisia, but its range in the Regency is not an extensive one, and appears to be confined strictly to the Tell country north of the Atlas.

In Algeria and Marocco, but particularly in the latter country, the species seems to be more abundant than it is in Tunisia, and my collection contains a large series of specimens obtained from various districts of the Empire, some of them situated as far south as the Haha country. Mr. Meade-Waldo says it ascends to at least 7,000 feet in the moist woods of the Atlas. Apparently the southern range of this Bulbul extends considerably beyond Marocco, the species, according to some authors, occurring along the West African coast down to Senegambia, and even further south. Whether this southern form is quite the same as the typical one is not yet clearly established. According to Colonel Irby (*Orn. Strs. Gib.* p. 77) the Dusky Bulbul is very plentiful in the vicinity of Tangier and Larache in North Marocco, where it frequents fruit-gardens and orchards, feasting largely upon ripe oranges. Its way of eating this fruit is ingenious, for it makes a neat hole in one side of the orange, and then completely clears out the juicy contents, leaving the rind intact, except for the small aperture on one side. The same method is often resorted to by Black Rats, and I have known orange-trees in Sicily completely thus denuded of their fruit by these creatures.

In Tunisia, as above mentioned, the Dusky Bulbul occurs in the Tell districts north of the Atlas, where it is resident and breeds. In the valley of the Medjerdah it is fairly abundant, and to be met with in most of the wild olive-groves, and among the higher "maquis" thickets on the hill-slopes, but it seldom occurs in the more lofty oak-forests. At Ain-Draham and Fernana, both thickly wooded districts, it is also to be found, as well as in the neighbourhood of Bizerta, in the extreme north-east of the Regency. The vegetation in the last-named district is almost exclusively of the "maquis" description, but the Bulbul seems to be as much at home there as in the better wooded country further west. Orange-groves, however,

which in Marocco appear to be the favourite resort of the species, are few and far between in any part of Tunisia. At certain seasons, particularly when several of these birds collect together, they are very noisy and quarrelsome, and may be heard chattering at a considerable distance; but owing to the fact of their frequenting, as a rule, thickly foliated trees and shrubs, they are not very often seen. The song of the Bulbul is decidedly pleasing, being composed of some remarkably rich and clear notes like "tit-wot-wot-tit-tit," which cannot fail to attract attention. The breeding season of this species is rather late, being in May and June. The bird selects a fork in a low tree or high bush as a site for its nest, which is generally composed of small roots and dry grass. The eggs, three or four in number, are of a dull white, with grey shell markings and reddish-brown surface spots. Average measurements 24 × 18 mm.

A male specimen of *P. barbatus* (No. 3,818), obtained at Nice in December, 1899, is to be found in the Italian Collection of the Royal Florence Museum.

Family ORIOLIDÆ.

ORIOLOUS GALBULA, Linnæus.

GOLDEN ORIOLE.

Oriolus galbula, *Linn. Syst. Nat.* i, p. 160 (1766); *Sharpe, Cat. Birds Brit. Mus.* iii, p. 191; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846); *Loche, Expl. Sci. Alg. Ois.* ii, p. 54 (1867); *Koenig, J. f. O.* 1888, p. 171; *id. J. f. O.* 1892, p. 370; *Whitaker, Ibis*, 1895, p. 96; *Erlanger, J. f. O.* 1899, p. 488.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

Entire plumage, with the exception of the lores, wings and tail, bright golden-yellow; lores and wings jet-black, but the primaries and secondaries are tipped and fringed with yellowish-white, the primary coverts tipped with pale yellow, forming an alar patch, and the edge of the wing is yellow; the central pair of rectrices jet-black, the remaining tail-feathers black at the base and yellow on the terminal portion.

Iris reddish; bill reddish-brown; feet lead-colour.

Total length, 9.50 inches, wing 5.90, culmen 1, tarsus .90.

Adult female, spring, from Tunis, North Tunisia.

Upper parts, with the exception of the lores, wings and tail, yellowish-green, becoming brighter on rump; lores and wings grey-brown, but otherwise marked as in the male; the central pair of rectrices greenish, lighter at the base, and darker at the tip, the remaining tail-feathers as in male; underparts greyish-white, striated with dark grey stripes, and becoming yellow on the flanks, crissum and under tail-coverts.

Soft parts and measurements as in the male.

Observations.—Young males in their first year's plumage resemble the adult female. In very old females the breast and underparts are almost as brightly coloured as in the male, but always slightly striated.

This handsome bird is a common summer migrant in Tunisia, arriving generally about the beginning or middle of April. The bulk of the migrants pass on northwards, but a good many pairs remain and breed in the north of the Regency, ascending into the mountain forests and cool, wooded spots for that purpose. Apparently the species also breeds in Marocco, for I have a specimen obtained in the Maroccan Atlas on May 18th, and Mr. Meade-Waldo met with full-grown young in July.

As in the case of several other species in Tunisia, the autumnal passage of the Golden Oriole is far less noticeable than the spring one. Whether this is due to the majority of the migrants returning southwards by some different route, or to the fact that the autumn passage takes place during the night, is unknown. It is possible that the majority of the birds, when travelling southwards in autumn, pass onwards without halting to rest anywhere on the way. What is certain, however, is that they duly reach their winter quarters, and in the following spring follow their accustomed route northwards. In Sicily and other Mediterranean islands the same marked disparity is noticeable between the vernal and autumnal migrations of several species, and the true explanation of this, and other important points in the migration of birds, still remains to be discovered.

When on passage the Golden Oriole is generally to be met with in small parties, but occasionally it is to be found singly or in pairs. Oak-forests are much frequented by these birds, particularly those of ilex, and it is a striking and pretty sight to see a brightly-coloured male Golden Oriole dart out of one of these trees and fly off in full view, its gorgeous golden plumage contrasting well with the dark green

foliage. The tender flowering shoots of the ilex seem to have a particular attraction for this species, and although no doubt insectivorous to a great extent, it is also very partial to fruit, and may constantly be found in cherry orchards and mulberry-groves.

The note or whistle of the Golden Oriole is melodious and flute-like, and although not particularly loud, may be heard at a considerable distance. I have often listened to it with pleasure on a still spring morning. The nest of this bird is quite a work of art, and is nearly always to be found securely woven into and suspended from the fork of a slender horizontal bough, generally at a considerable height from the ground, and inaccessible to any but its feathered foes. I have one of these nests before me at the present moment, which is composed chiefly of mosses and lichens, neatly bound together with dry grass-blades, the whole being interwoven into the fork of a small oak branch. The eggs, four in number, are of a glossy white, with a few spots of deep purplish-brown. Their measurements are 29 × 23 mm.

Although not often seen as a cage-bird, the Golden Oriole is easily domesticated, and is capable of becoming a most delightful and charming pet. One of these birds, belonging to a friend of mine living near Florence, Miss Lina Duff-Gordon, now Mrs. Aubrey Waterfield, although only recently captured when I saw it, would take a piece of biscuit or fruit from one's hand, and allow itself to be petted and made much of. This bird, a fine male, lived through a winter, in apparently excellent health, but died the following spring.

Family LANIIDAE.

LANIUS ALGERIENSIS, Lesson.

ALGERIAN GREY SHRIKE.

Lanius algeriensis, Lesson, *Rev. Zool.* 1839, p. 134; *Gadow, Cat. Birds Brit. Mus.* viii, p. 244; *Loche, Expl. Sci. Alg. Ois.* ii, p. 47 (1867); *Koenig, J. f. O.* 1888, p. 178; *id. J. f. O.* 1892, p. 376; *Whitaker, Ibis*, 1895, p. 96; *Erlanger, J. f. O.* 1899, p. 497.

Lanius meridionalis, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846).

Description.—**Adult male**, spring, near Tunis, North Tunisia.

Entire upper parts dark slate-grey, the scapulars tipped with white; a

narrow frontal line, lores, eye-region and ear-coverts jet-black; a faint indication of a white superciliary stripe; wings black, the primaries having the basal third white, and presenting a conspicuous alar patch, the secondaries tipped with white, and having whitish margins to their inner webs; edge of wing white; the four central rectrices black, the other tail-feathers black, tipped with white, the amount of white increasing on each successive pair as they approach the exterior feathers, the outer pair being quite white with the exception of the basal half of the inner web; underparts pale slate-grey, becoming whitish on the throat, middle of abdomen and under tail-coverts.

Iris dark-brown; bill and feet black.

Total length 9 inches, wing 4·25, culmen ·65, tarsus 1·20.

Adult female similar to the male.

Observations.—Individuals vary amongst themselves to a certain extent. Some examples show no sign whatever of any supercilium, others have it fairly pronounced. The alar speculum also varies somewhat in size: as a rule, however, it measures about half an inch in length, or half what it usually does in *L. elegans*. The proportion of black and white on the tail also varies to a certain extent in individuals. Specimens from the west of North Tunisia are generally rather darker than those from the east of that region.

Two species of Grey Shrike are commonly to be met with in Tunisia, one the dark-coloured *L. algeriensis*, Less., which occurs in its typical form in that part of the Regency lying to the north of the Atlas; the other a pale form, apparently referable to *L. elegans*, Swains., which inhabits the country south of that range.

Where the two species meet, however, Grey Shrikes occur, which in the colour of their plumage and markings are intermediate between the two. The first time I came across one of these intermediate examples I imagined it to be *L. fallax*, Finsch, but on subsequently meeting with similarly attired birds in that part of the Regency which may be considered as the meeting ground of the two species, *L. algeriensis* and *L. elegans*, I was induced to alter my opinion, and look upon these individuals as being either hybrids between the two species mentioned above, or intermediate forms modified by local causes.

In the *Ibis* for 1898 (pp. 228-231) I went somewhat fully into this question, and it may perhaps not be out of place for me here to give the following extract of what I then wrote on the subject:—

“As stated in my ‘Notes’ (*Ibis*, 1896, p. 94), on comparing the

specimen of doubtful Grey Shrike obtained from South Tunisia with examples of *L. fallax* in the British Museum, I found it agree so closely with some of them that I determined to refer it to this species. Having, however, now obtained similarly plumaged birds from a district in Central Tunisia which may be considered the meeting ground of the two, *L. algeriensis* and *L. elegans*, I am inclined to look upon these birds as being either hybrids between the two species, or else as belonging to intermediate forms, modified according to the natural characteristics of the localities where they may occur; in any case, I think it evident that they should not be referred to *L. fallax*, admitting this to be a good species, which is perhaps open to doubt.

“Which of the two theories I have just mentioned may be the correct one I am not prepared to say, although the balance of evidence is perhaps somewhat in favour of the former. The theory of hybridism, unentertainable as it might be in certain cases, is certainly not improbable in a case like the present, where the two species in question are so closely allied, and where no sufficient natural boundary or division exists to keep them apart, for the Atlas Mountains in Tunisia do not form the same unbroken barrier that they do further west.

“In favour of this theory, moreover, are the following facts: firstly, that, so far at any rate as I have been able to ascertain, there does not seem to be a gradual continuity of intermediate forms connecting or uniting the two species; and secondly, that in the particular district where these nondescript birds occur we do not find one constant type, but individuals which vary in plumage among themselves, some resembling more *L. algeriensis* and some *L. elegans*, and others, again, standing halfway between the two.

“On the other hand, in support of the alternative theory of intermediate forms may be adduced the argument that the difference between the two Shrikes, *L. algeriensis* and *L. elegans*, although sufficiently pronounced in typical examples, is after all merely one of plumage-colouring, or, to be more precise, I should say a difference in the *shade* of plumage-colouring, and in the proportion of black and white markings, this difference being subject to modification according to the locality inhabited. Structurally there would appear to be no difference whatever between the two species. In the case of typically plumaged birds, besides the very marked difference in the shade of the general grey colouring, both above and below, we have that of the markings of the wings and tail-feathers, there being,

roughly speaking, more black and less white in *L. algeriensis*, and *vice versâ* in *L. elegans*, and these points of difference seem to be fairly constant so long as we confine ourselves to typical specimens. When, however, we leave these, we find the difference between the two species less marked and no longer constant; and when we come to birds like those occurring in the particular Central Tunisian district I have mentioned, it is absolutely impossible to decide to which of the two species they may belong."

Referring to what I have written above, I may merely add in conclusion that should the hypothesis of intermediate forms prove to be the correct one, it would imply that there is but one distinct species of Grey Shrike in Tunisia, which grades from one shade of colour to another, according to its habitat. In that case *L. elegans*, Swains. being the older name, would have the precedence of *L. algeriensis*, Less. which would become merely subspecific. For the present, however, there does not appear to be sufficient reason to depart from the generally recognised acceptance of the two forms of Grey Shrike in question as distinct species.

In both North Algeria and North Marocco *L. algeriensis* occurs commonly, as it does in Tunisia, specimens from all three countries being identical. In Central and Southern Marocco, however, a form of Grey Shrike occurs which was described by me as a subspecies of *L. algeriensis* under the name of *L. a. dodsoni* (*Ibis*, 1898, p. 599). As mentioned in my description, this bird differs from *L. algeriensis* in being paler in colouring, both above and below, without, however, approximating to typical examples of *L. elegans*, from which species it also differs in the marking of its wings and tail, these being more as in *L. algeriensis*. That this Marocco Grey Shrike is neither typical *L. algeriensis* nor *L. elegans* is certain, neither can it, in my opinion, be referred to any other previously described species. Under the circumstances, therefore, and much as I would have wished to avoid adding another name to the already long list of Grey Shrikes, I felt I had no alternative but to act as I did.

In Tripoli *L. algeriensis* does not seem to occur, but this is not surprising, considering the desert character of the country. There is a specimen of *L. algeriensis*, No. 3,408, in the Royal Florence Museum, captured on July 2nd, 1892, at Scandicci, near Florence, by Signor Vincenzo Squilloni, and presented by him to the above Museum. This appears to be the only recorded instance of the occurrence of the species out of North-west Africa.

In the Tunisian Regency, as already mentioned, *L. algeriensis* inhabits that part of the country lying to the north of the Atlas Mountains, where it is resident and to be met with at all seasons of the year. The species, however, does not appear to be equally distributed throughout all the northern districts, but is to be found chiefly in the more open country, where cereals and a bush vegetation flourish. In the higher mountain districts, indeed, these Shrikes rarely occur. Within a short distance of the town of Tunis itself Grey Shrikes may occasionally be met with, and throughout all the flat country extending towards Souk-el-Arba and Mater, they are more or less common. As already mentioned, specimens from the more western districts of North Tunisia are generally rather darker than those from the east of that region.

Owing to its rather conspicuous plumage, and to its habit of perching on bush-tops, whence it obtains a clear view of the surrounding country, *L. algeriensis* may frequently be seen, but rarely allows one to approach very near to it, and should the naturalist wish to observe its movements more closely, it must be with the aid of glasses of some sort.

Like most other Shrikes, the present species is generally to be found singly, or, during the breeding season, in pairs. Its food consists chiefly of insects, but small mammals and young birds are also occasionally brought to the larder. Its note is rather harsh and grating.

L. algeriensis breeds throughout the months of April and May, and nests may sometimes be found in June. Its nest, which is usually placed in the centre of a thick thorny bush, is roughly built of twigs and coarse grasses, lined with wool and feathers. The eggs, four to six in number, are generally greenish-white, marked and spotted, chiefly at the larger end, with grey and brown. In size, however, as well as in colour and marking, they vary not a little. Average measurements 25×19 mm.

Instances of continuous laying on the part of Grey Shrikes are not uncommon, and I am informed by an acquaintance living at Bizerta that in one season he took three successive clutches of eggs of *L. algeriensis* from the same bush, presumably belonging to the same pair. A fourth clutch of eggs, which he left, was duly hatched, and the young birds successfully reared.

Mr. W. R. Ogilvie-Grant, in a monograph on the genus *Lanius*,

recently published (Nov. Zool. ix, pp. 449-486), reviews its several species with careful and systematic minuteness.

The scope of the present work will not allow of more than a cursory notice of this review, but as criticism is very sensibly invited, I may briefly observe that while concurring with Mr. Grant on many points, I cannot agree with him entirely in his treatment of the Grey Shrike group, several of the forms recognised by him being, in my opinion, separated on insufficient grounds, while others, which have distinctly more claim to separation, are denied even subspecific distinction. Mr. Grant allows full specific rank to, and separates under the names of *L. hemileucurus*, *L. elegans*, and *L. dealbatus*, the Grey Shrikes inhabiting the very same tract of country in South Tunisia. The differential characters, however, pointed out by him as existing between these so-called species are extremely slight and not constant, or, indeed, more than what may be observed between individuals of the same form. The above three names, together perhaps with that of *L. assimilis*, are probably all referable to one form, which, as before mentioned, should bear the oldest available name of *L. elegans*, Swains.

L. pallidirostris, Cassin, with which Mr. Grant unites *L. fallax*, Finsch, and other forms, including *L. grimmi* and *L. algeriensis dodsoni*, although in some respects approximating to *L. elegans*, resembles more closely *L. algeriensis*, Less., in the markings of its wings and tail, and in the grey colouring of its underparts, as does also, and still more so, *L. uncinatus*, Sel. and Hartl., which latter, moreover, is somewhat smaller and has a differently shaped bill. *L. uncinatus* is an insular form from the island of Socotra, and appears to be a good species.

LANIUS ELEGANS, Swainson.

PALLID SHRIKE.

Lanius elegans, Swainson, *Fauna Bor.-Amer.* ii, p. 122 (1831); *Gadow, Cat. Birds Brit. Mus.* viii, p. 251, pl. vii.

Lanius dealbatus, Loche, *Expl. Sci. Alg. Ois.* ii, p. 49 (1867); *Koenig, J. f. O.* 1892, p. 379; *Whitaker, Ibis*, 1894, p. 89; *Erlanger, J. f. O.* 1899, p. 499.

Description—**Adult male**, spring, from Douz, South Tunisia.

Crown, nape and back delicate French-grey; a narrow frontal line, lores,

eye-region and ear-coverts black; small superciliary stripes white; scapulars pale French-grey, very broadly tipped with white; rump pale French-grey, shading into white on the upper tail-coverts; primaries brownish-black on the terminal half and pure white on the basal half, forming a conspicuous white alar patch; secondaries black, broadly tipped with white, and having their inner webs also white; edge of the wing white; the two central rectrices black, the adjoining pair black, slightly tipped with white, the next pair still more tipped with white, and so on to the exterior rectrices, which are pure white; entire underparts white.

Iris very dark brown; bill and feet black.

Total length 9 inches, wing 4.25, culmen .65, tarsus 1.15.

Adult female similar to the male.

Observations.—As in the case of *L. algeriensis*, there is a certain amount of variation in plumage coloration and marking in this species also, the palest examples being met with in the more southern parts of the Regency, the darkest in the central districts. Very pale specimens have a greater proportion of white in the plumage, some even having the three outer pairs of rectrices entirely white.

The Pale Grey Shrike of the southern and semi-desert regions of North Africa seems to have been described and christened by various authors under different names. Of these the oldest available name would appear to be that of *L. elegans*, given by Swainson and Richardson (Fauna Bor.-Am. ii, p. 122, 1831), with a description taken from a specimen in the British Museum collection, which, although purporting to come from America, appears to be identical with examples from North Africa, and probably really comes from that country.

The present species is the Grey Shrike commonly found throughout Central and Southern Tunisia, occupying the place there that *L. algeriensis* does in the north of the Regency, the latter not occurring, so far as I am aware, in its typical form anywhere south of the Atlas Mountains.

Roughly speaking, the habitat of *L. elegans* in Tunisia may be called the entire country south of this range, and more particularly, perhaps, the so-called Sahel region, where vast plains occur, dotted with patches of cultivated land and clumps of thorny bushes. Here the Pallid Shrike is common, and cannot fail to attract attention, as it sits perched conspicuously on the topmost branch of a wild jujube (*Ziziphus lotus*), or some similar plant. The mimosa thickets of the

Redirs Thalal, situated to the east of Gafsa, are much frequented by Grey Shrikes, as well as by Magpies and Bush-Babblers. These thickets are, in fact, exactly suited to the requirements of all these three species, affording, as they do, ideal nesting sites and a sure refuge, whether from the birds' natural enemies or from the inclemencies of the weather.

The species occurs commonly in Algeria, south of the Atlas, as also in Tripoli and Cyrenaica, specimens from all these countries being identical with Tunisian examples.

In Central and Southern Marocco, as mentioned in the preceding article on *L. algeriensis*, another form of Grey Shrike, *L. a. dodsoni*, occurs, but it is quite possible that *L. elegans* may also be found in the more desert inland districts of the Empire.

In its habits *L. elegans*, like others of the family, seems to be solitary and unsociable, being rarely found otherwise than singly or, during the breeding season, in pairs. In the localities it frequents, however, several individuals may be met with in comparatively a limited area. Most wary and difficult to approach, the bird, if followed, will often lead its pursuers a long chase, although rarely making an extended flight, and owing to its conspicuous plumage is easily observed as it flies from bush to bush. The diet of this Shrike resembles that of its allies, being composed chiefly of coleoptera and other insects, lizards, and occasionally small mammals and young birds. Thanks to the remarkable abundance of coleoptera in most of the southern districts of Tunisia, Shrikes and other hard-billed insectivorous birds have no difficulty in finding a plentiful supply of food, and during the locust invasions, so common in North Africa, they must positively feast.

The notes of this species are rather grating and metallic, but during the nesting season a fuller and more varied song is heard. According to Mr. Aplin, the following syllables somewhat express the bird's notes: "chow, chow, chizzy" and "chree-chree," and sometimes "pchee-ar, chce, chee, chee," quicker at the beginning, and then slowing down, and uttered by the bird with quivering wings. Both male and female also utter a cry like "chitteree," probably a note of alarm or distress, on their nest being approached, for they then end, Mr. Aplin says, "by crying out almost like a domestic hen in trouble."

L. elegans commences nesting operations towards the end of March, the breeding season extending throughout the months of April

and May. A wild jujube, or mimosa bush is generally chosen as a site for the nest, and a better or more impenetrable stronghold could scarcely be found. The nest, which as a rule is placed in the centre and thickest part of the bush, at a height varying from six to twelve feet from the ground, is rather a bulky structure, composed of small twigs and coarse grasses, matted together with wool or hair, and often with a plentiful admixture of the cottony flowers or seed-pods of some composite plant. Pieces of rag or cotton stuff, picked up near some Arab *douar*, are often introduced into the mass. The eggs, of which four to six is the usual number laid, vary considerably in shape and size, as well as in colouring and marking. Specimens in my collection vary from almost white to a dull greenish or yellowish-white, with grey shell marks and yellowish-brown surface spots. Average measurements 25×19 mm.

LANIUS POMERANUS, Sparrman.

WOODCHAT-SHRIKE.

Lanius pomeranus, *Sparrm. Mus. Carls.* pl. i. (1786); *Whitaker, Ibis*, 1895, p. 97.

Lanius auriculatus, *Gadow, Cat. Birds Brit. Mus.* viii, p. 283.

Lanius rutilus, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 10 (1846).

Enneoctonus rufus, *Loche, Expl. Sci. Alg. Ois.* ii, p. 52 (1867).

Lanius rufus, *Koenig, J. f. O.* 1888, p. 180.

Lanius rutilans, *Koenig, J. f. O.* 1892, p. 384.

Lanius senator rutilans, *Erlanger, J. f. O.* 1899, p. 502.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Forehead, space round eye, ear-coverts and sides of neck black; lores, and a small patch on each side of the bill, as well as a few feathers just behind the eye, white; crown, nape and mantle rich rufous-chestnut; upper back black, slightly tinged with rufous, and joining the black on the sides of the neck; lower back and upper tail-coverts grey; scapulars and rump white; primaries blackish-brown, with white bases, forming a distinct white alar patch; secondaries and wing-coverts blackish-brown, fringed with buffy-white; the two central rectrices blackish, the adjoining tail-feathers with white tips and bases, the exterior rectrices entirely white, with the exception of a blackish patch on the centre of the inner web; entire underparts white, tinged with pale buff.

Iris brown ; bill and feet dark brown.

Total length 7 inches, wing 3·90, culmen ·60, tarsus 1.

Adult female resembles the male in marking, but is much paler and duller.

The Woodchat-Shrike occurs abundantly throughout Tunisia as a summer migrant, the first arrivals being generally seen early in April. Many pairs remain and breed in the Regency, chiefly north of the Atlas, but these birds, together with their young broods, according to Blanc, disappear early in the summer. In Algeria and Marocco the Woodchat is common, and in the latter country it appears to nest in districts as far south as 32° N. lat., from whence I have numerous examples of young birds, obtained in May and June.

In Tripoli the species is also abundant as a summer migrant, and it doubtless breeds in that country, being found there in May. In many of its habits the Woodchat resembles other members of the family, but it differs greatly from the Grey Shrikes in being far less shy and wary. Owing to its fearlessness, and to its conspicuous plumage, the poor bird often falls a victim to the gun of the young collector, as it perches unsuspectingly in full view on some bare branch or bush-top. Besides being bold and fearless, it seems also to be rather an inquisitive bird, and this, too, is often the cause of its coming to an untimely end. In some of the Tunisian oases numbers of these Shrikes are snared, together with other birds, by the Arab boys when the spring migration is at its height. The food of the Woodchat, like that of other Shrikes, consists largely of coleoptera, grasshoppers and other insects, although occasionally it no doubt preys also upon the fledglings of small birds, and on very small mammals. Like its allies, it keeps a larder, and is in the habit of impaling its spoil on thorns. The note of this species is a harsh grating "kra," repeated two or three times. The Woodchat commences nesting operations in Tunisia soon after its arrival, and eggs of the species may be found shortly after the middle of April. An olive-tree is a favourite site for its nest, but thorny bushes, or indeed any bush or low tree may be chosen for the purpose. The nest is most artistically built, being a compact cup-shaped structure, composed of root-fibres and grasses, with a goodly proportion of vegetable down and wool, and frequently beautifully studded all over with the small dry flowers of some composite plant, such as *Evax pygmæa*, Pers. The eggs, from four

to six as a rule, vary considerably in colour and marking, being sometimes of a pale bluish-green, with lilac-grey shell marks and olive-brown surface spots, at other times of a pale salmon or flesh-colour, with grey shell marks and reddish-brown surface spots. Average measurements 23×16 mm.

There do not appear to be any good grounds for the specific, or even subspecific, separation of the Woodchat found breeding in Tunisia from typical *L. pomeranus* as found in Europe.

The Red-backed Shrike (*L. collurio*) has been once recorded as occurring in Morocco, but with this exception I have no knowledge of the species being found in North-west Africa. In Egypt, however, according to Captain Shelley (*Birds of Egypt*, p. 117), it occurs in spring and autumn as a regular migrant, though never plentifully. In Southern Italy and some of the Mediterranean islands the species is not uncommon as a summer migrant.

TELEPHONUS CUCULLATUS, Temminck.

HOODED SHRIKE.

Lanius cucullatus, *Temm. Man. d'Orn.* iv, p. 600 (1840); *Malherbe, Faune Orn. de l'Alg.* p. 19 (1855).

Telephonus cucullatus, *Bonap. Consp. Gen. Avium*, i, p. 361 (1850).

Telephonus cucullatus, *Gadow, Cat. Birds Brit. Mus.* viii, p. 126.

Lanius telephorus, *Malherbe, Faune Orn. de l'Alg.* p. 19 (1855).

Telephonus tchagra, *Loche, Expl. Sci. Alg. Ois.* ii, p. 45 (1867).

Telephonus erythropterus, *Koenig, J. F. O.* 1892, p. 374.

Description.—**Adult male**, spring, from North Tunisia.

Forehead, crown, lores and a streak behind the eye jet-black; a conspicuous white superciliary stripe becoming rufescent further back; ear-coverts, nape, back, rump and upper tail-coverts brownish-grey; scapulars blackish, fringed with bright chestnut; wing-coverts and the greater part of the outer webs of the quills bright chestnut, the inner webs being dark brown, fringed with chestnut; the middle pair of rectrices ash-brown, minutely barred with darker markings; the remaining tail-feathers black, broadly tipped with white; underparts ash-grey, becoming lighter on the chin and middle of the abdomen.

Iris brown; bill and feet black.

Total length 9.50 inches, wing 3.70, culmen .90, tarsus 1.25.

Adult female similar to the male.

The Hooded Shrike of North-west Africa has been distinguished under the above name from *T. senegalus* (L.) on account of its somewhat brighter coloration and other slight difference in its plumage.

The species, the Tschagra as it is usually styled by the Arabs, can hardly be called common in the Regency, although it occurs, more or less sparingly, throughout the greater part of the country north of the Atlas, where it is resident and breeds. In some of the wooded districts of the Atlas, and particularly on some of the "maquis-" covered hill-slopes, it is indeed fairly plentiful, and may constantly be seen, and perhaps more often heard, its rich flute-like notes striking the ear of the passer-by and at once attracting attention. I have no note of the occurrence of the Hooded Shrike anywhere in South Tunisia, but in South Marocco the species is not uncommon in the Atlas districts, and I have specimens of it obtained there, as well as at Ras-el-Ain on the South coast, in the months of May and June.

According to Dr. Koenig (J. f. O. 1892, p. 374), the Tschagra is by no means uncommon in some of the Atlas districts adjoining the east coast of Tunisia, where the wild olive, thuja, and pistachio grow luxuriantly at the foot of the lower hills and mountain-spurs. Likewise near Bizerta in the north it appears to be often met with, and even near the town of Tunis itself the species is occasionally to be seen, examples of it being now and then exposed for sale in the Tunis market.

In its habits this species differs a good deal from other Shrikes, being fond of hiding itself in thick foliage, and depending on concealment to escape detection, instead of perching on the outer branches or tops of bushes and trusting to its keen sight for safety. It seems also to be more or less of a ground bird, and will run from one bush to another, instead of taking to flight. Its food does not seem to differ from that of other Shrikes, consisting chiefly of coleopterous insects, grubs and worms. I have never taken the nest and eggs of this species myself, but according to various authors the nest, which is generally to be found in the middle of a bush, is fairly large, and rather roughly built of rootlets, lined with wool and hair. The eggs, three or four in number, are white or whitish, spotted all over with russet-brown and grey.

Family MUSCICAPIDÆ.

MUSCICAPA GRISOLA, Linnæus.

SPOTTED FLYCATCHER.

Muscicapa grisola, *Linn. Syst. Nat.* i, p. 328 (1766); *Sharpe, Cat. Birds Brit. Mus.* iv, p. 151; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846); *Koenig, J. f. O.* 1888, p. 187; *id. J. f. O.* 1892, p. 387; *Whitaker, Ibis*, 1895, p. 97; *Erlanger, J. f. O.* 1899, p. 504.

Butalis grisola, *Loche, Expl. Sci. Alg. Ois.* ii, p. 61 (1867).

Description.—**Adult male**, spring, from Djebel Semmama, Central Tunisia.

Above hair-brown, the feathers of the crown with dark centres and pale borders; wings and tail dark hair-brown, the secondaries and wing-coverts fringed on their outer margins with whitish; underparts white, washed and striped with pale hair-brown on the throat, cheeks, breast and flanks.

Iris, bill and feet dark brown.

Total length 5·50 inches, wing 3·50, culmen ·50, tarsus ·65.

Adult female similar to the male.

This species is chiefly noticeable in Tunisia during the spring migration, but appears to be semi-resident in that country, being found there in limited numbers throughout the year. According to M. Blanc, it nests commonly north of the Atlas, but I cannot say whether it also breeds in the south of the Regency. In Marocco, however, the species apparently breeds as far south as 31° N. lat., and I have examples of young birds obtained at Ras-el-Ain and at Isseremont in the months of May and June. In Tripoli the Spotted Flycatcher is not uncommon on passage in April and May, and probably also nests in that country. During the month of April, when the spring passage is at its height, these birds are abundant in most parts of the Regency, and may constantly be seen hawking for insects. They chiefly frequent gardens and the neighbourhood of human habitations, but numbers may also be found in the woods and olive-groves when on passage. Their flight and movements when engaged in pursuing flies or other small winged insects are singularly light and graceful, and as the species is by no means shy it may be observed at close quarters. A bare branch or fence is generally selected as a point of vantage, and from this the bird will swoop down swiftly upon its prey, returning immediately afterwards to the same

spot. Many hours of the day are thus spent, and the number of insects devoured by a single bird must be considerable.

The notes of this species are faint and insignificant, the call note being a low chirp.

The Spotted Flycatcher generally builds its nest in a shallow hole in a wall or bank, and often on the knotted bole of a tree-trunk. The nest is composed of moss and fine fibres, lined with wool and hair, and the eggs, four or five in number, are pale greenish, spotted with reddish-brown, chiefly at the larger end. Average measurements 17×14 mm.

Loche includes the Red-breasted Flycatcher (*M. parva*) among the birds of Algeria, as an accidental visitor, but I have never heard of the species having been found in Tunisia.

MUSCICAPA ATRICAPILLA, Linnæus.

PIED FLYCATCHER.

Muscicapa atricapilla, Linn. *Syst. Nat.* i, p. 326 (1766); Sharpe, *Cat.*

Birds Brit. Mus. iv, p. 157; Loche, *Expl. Sci. Alg. Ois.* ii, p. 58 (1867);

Koenig, *J. f. O.* 1892, p. 387; Whitaker, *Ibis*, 1895, p. 97.

Muscicapa speculigera Loche, *Expl. Sci. Alg. Ois.* ii, p. 60 (1867).

Muscicapa luctuosa, Koenig, *J. f. O.* 1888, p. 187.

Muscicapa atricapilla speculigera, Erlanger, *J. f. O.* 1899, p. 505.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Above black, with the exception of a white frontal patch, and some conspicuous white markings on the secondaries and greater wing-coverts, as well as a small white alar patch on the base of the inner primaries; rump rather lighter, owing to an admixture of whitish feathers; entire underparts pure white.

Iris very dark hazel; bill and feet black.

Total length 5 inches, wing 3·20, culmen ·35, tarsus ·70.

Adult female resembles the male in the distribution of its markings, but has the darker parts hair-brown instead of black, more white on the exterior rectrices, and the underparts less pure white.

Observations.—Immature males greatly resemble females and can scarcely be distinguished from them. In autumn the male plumage becomes lighter and browner. The white frontal patch varies considerably in size, probably according to age or season.

A regular summer migrant, the Pied Flycatcher is of common occurrence in Tunisia during the spring months, and many pairs remain and breed in the Regency, particularly in districts north of the Atlas. Probably a certain number also nest south of those mountains, as they appear to do in South Marocco, whence I have examples obtained during the month of May.

In its habits, as well as in the localities it frequents, the Pied Flycatcher differs somewhat from *M. grisola*, being rather more shy, and far less often found in the neighbourhood of human dwellings. High leafy woods are much resorted to, as well as the lower growing olive plantations. The species also seems fond of water, and may frequently be met with in its vicinity, the banks of streams and lake-sides being among its favourite haunts. Like its congeners, the present species feeds upon flies and other small insects, and may constantly be observed busily engaged in their pursuit. A favourite resort of the bird when on the look-out for food is a bare bough or projecting branch, where it will remain motionless for a considerable length of time, with drooping wings, as if asleep, every now and then suddenly darting off in pursuit of some insect, and then returning to its post. Although an adept at capturing insects on the wing, the bird often takes its prey on the ground, indeed, according to Mr. Aplin, it takes *most* of its food on the ground.

M. atricapilla generally nests in the holes of trees, often using the deserted habitation of some other bird. The eggs are four to six in number, and are generally of a delicate bluish-white, sparsely spotted with russet-brown. Average measurements 16 × 13 mm.

The Pied Flycatcher found in Algeria and Tunisia is by some ornithologists considered distinct from typical *M. atricapilla*, Linn., from Europe, and has been separated under the name of *M. speculigera*, de Selys, the grounds for such separation being that the frontal white patch is much larger in Algerian and Tunisian specimens, the coloration of the upper plumage more intense, and the white on the wings more pronounced, than in *M. atricapilla*.

Among the examples of this species in my Tunisian collection I find considerable variation in the size of the white frontal patch. In the adult male specimen described above the frontal patch measures nearly half an inch in diameter; in some specimens, probably less adult, the patch is only about half that size, and in others, apparently still younger, it is only about one quarter, till finally, in very immature

examples the patch is almost or entirely absent. It is evident therefore, I think, that the amount of white on the forehead of this species varies according to age, and possibly also in some measure according to season. Whether the very adult males of *M. atricapilla*, found in Europe ever attain the large-sized white patch of North-west African birds I cannot say, as I have not examined sufficient material to be able to form a decided opinion on the point. With regard to the other differential characters mentioned as existing between typical *M. atricapilla* and *M. speculigera*, I do not find that they hold good.

MUSCICAPA COLLARIS, Bechstein.

WHITE-COLLARED FLYCATCHER

Muscicapa collaris, *Bechst. Gemeinn. Naturg. Deutschl.* iv, p. 495 (1795); *Sharpe, Cat. Birds Brit. Mus.* iv, p. 160; *Loche, Expl. Sci. Alg. Ois.* ii, p. 59 (1867); *Whitaker, Ibis*, 1896, p. 95; *Erlanger, J. f. O.* 1899, p. 508.

Muscicapa albicollis, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 9 (1846); *Koenig, J. f. O.* 1888, p. 187; *id. J. f. O.* 1892, p. 387.

Description.—**Adult male**, spring, from Hamman-Lif, North Tunisia.

Resembles the adult male of *M. atricapilla*, but differs in having a white collar extending right round the neck, and in having rather more white on the rump.

Soft parts and measurements as in *M. atricapilla*.

Adult female resembles the female of *M. atricapilla*.

Like the preceding species, although perhaps rather less common, the White-collared Flycatcher is a regular summer migrant in Tunisia, and may frequently be observed during the spring months. Whether it also breeds in the Regency I cannot say, having no information on the point.

Loche says the species is to be found widely distributed in Algeria, but later travellers in that country do not seem to have met with it, nor have I any specimen of it from Marocco. In Tripoli, however, the species is not uncommon, and I have examples of it from various parts of that country, obtained in April and May.

It is perhaps worthy of observation here that the present species appears to be commoner in Sicily than *M. atricapilla*, although in Continental Italy the contrary is the case.

In its habits and general life *M. collaris* resembles its near relative *M. atricapilla*, and there can be no doubt that the two species are very closely allied, so much so, indeed, that some ornithologists do not distinguish one from the other. The call note of the present species is a sharp "tchip." The bird is of a restless nature, and seems to be constantly on the move. It feeds chiefly on flies and other small insects, generally capturing its prey on the wing. Its movements when thus occupied are particularly graceful and well worth watching.

Family HIRUNDINIDÆ.

HIRUNDO RUSTICA, Linnæus.

SWALLOW.

Hirundo rustica, *Linn. Syst. Nat.* i, p. 343 (1766); *Sharpe, Cat. Birds Brit. Mus.* x, p. 128; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 17 (1846); *Loche, Expl. Sci. Alg. Ois.* ii, p. 64 (1867); *Koenig, J. f. O.* 1888, p. 166; *id. J. f. O.* 1892, p. 364; *Whitaker, Ibis*, 1894, p. 90; *Erlanger, J. f. O.* 1899, p. 512.

Description.—**Adult male**, spring, from Kairouan, Central Tunisia.

Forehead and throat chestnut; crown and upper parts generally, as well as a pectoral band, metallic blue-black; quills and tail with a bluish-green gloss, the latter with white patches on all the feathers except the central pair, the outer pair extending generally two inches or more beyond the others; lower breast and abdomen rufescent buffy-white, becoming darker on the crissum.

Iris very dark brown; bill and feet black.

Total length 7.50 inches, wing 4.80, culmen .30, tarsus .40.

Adult female similar to the male, but slightly duller in colouring.

Although to be met with in Tunisia throughout a considerable portion of the year, the Swallow can only be looked upon as a visitor in that country, as elsewhere. It is true individuals of the species may occasionally be found there even in the middle of winter, but these are

no doubt belated stragglers, possibly young birds of very late broods. Canon Tristram (*Ibis*, 1859, p. 435) mentions having observed Swallows in the oases of Southern Algeria during the winter, but their presence was no doubt accidental. The naturalist Blanc also tells me he has seen Swallows in Tunis and at Bizerta towards the end of December, and Mr. Aplin met with the species near Gabès in South Tunisia in the month of February; but similar instances are recorded from time to time from countries further north than Tunis, and can only be looked upon as accidental and exceptional cases. In Central Tunisia I have noticed Swallows in considerable numbers at the end of February, and the first arrivals there may probably be seen a few days before that date, and still earlier in the far south of the Regency. By the end of March the spring passage of these birds may be said to be at its height, and continues in full swing until the middle or 20th of April, when it commences to diminish, coming practically to a close by the end of that month or beginning of May, although a few stragglers arrive even after that date. The return migration in Tunisia commences early in September, and continues throughout that month and part of October. During both periods of migration vast flocks of these birds may be observed of an evening, when they descend from the higher latitudes at which they may have been travelling, and congregate together, preparatory to roosting. This they do generally under the eaves of buildings or outhouses, and sometimes in trees, keeping close together, side by side, for warmth. I remember on one occasion seeing a row of several hundreds of Swallows perching on a horizontal bar or girder extending the whole length of a long railway shed, and within a foot or two of a person's head.

Naturally fearless and confiding, the Swallow seems to court the society of man and frequents human habitations in preference to the open, uninhabited country. In some of the Tunisian villages I have seen Swallows nesting, and evidently quite at home, in the smallest and most crowded houses, circling round and round the interior of the rooms in their chase after flies, and darting in and out through the open doorways as unconcernedly as possible. I have myself slept in one of these rooms, with a Swallow's nest over the head of my bed, my first thought on waking at daybreak, being to throw open the door, the only aperture the room had, in order to release the owners of the nest.

Subsisting as it does almost entirely on the smaller winged insects, the Swallow naturally affects localities where such a supply of food is most plentiful, and for this reason it is generally to be found abundantly in the vicinity of water. The same reason, no doubt, explains the fact of its presence in the busy streets of towns and places teeming with life and traffic. To the greater or lesser abundance of insect-life is also presumably due the Swallow's occurrence in large numbers in certain towns and villages, while it is totally wanting in others situated comparatively not far distant. Of this we have a very good illustration in the Sicilian towns, some of which, like Trapani and Syracuse, swarm with Swallows during the summer months, while others, like Palermo and Messina, have either none at all or but very few during that season. It is, of course, possible that there may be some other reason than that of a greater or lesser abundance of food to account for the marked preference shown by this species for certain localities, but I am unable to suggest any more plausible explanation. It cannot, certainly, be due to the construction of the buildings, this being the same throughout the island.

The note or twitter of this species is too well known to need description.

The Swallow breeds abundantly throughout the Regency both north and south of the Atlas, nesting operations being commenced soon after the birds' arrival in spring, and two broods are generally reared in a season by the same pair. The well-known nest, built of mud and lined with feathers, is usually attached to the wall of a building—in Tunisia as often *inside* as *outside*—and sheltered by a cornice or other projection. Nests, however, are sometimes to be found in cliffs and high banks, and such sites were probably originally the breeding homes of this and other allied species which now resort principally to human habitations and artificial walls. The eggs of the Swallow, generally four or five in number, and rather elongate in shape, are white, speckled with reddish-brown and violet-grey. Average measurements 20×14 mm.

As has often been proved by marking the birds, the same pair of Swallows, if not parted by death, will continue to mate together, and if undisturbed will return year after year to their old breeding home. *Apròpos* of this, I cannot refrain from repeating here the following amusing, if not altogether credible, story mentioned in Prof. Giglioli's "Avifauna Italica" (p. 184), as having appeared in the *Times*

newspaper, and having afterwards been reproduced in *Nature* (June 18th, 1885, p. 161), to the effect that a bookseller of the name of Meyer, living at Ronneburg, in the autumn of 1881 attached a label to the wing of a Swallow which had nested in his house, writing on the label the words: "Where hast thou passed the winter?" The following spring the Swallow returned to Meyer's house, and under its wing was found another label with the answer: "At Florence, in the house of Castellari; many greetings." No comment is here needed except that made by Prof. Giglioli that "no Swallows are in the habit of wintering in Florence."

Loche includes *H. cahirica*, Licht. (*H. savignii*, Steph.), in his list of Algerian birds (Expl. Scient. Alg. Ois. ii, p. 67), as being of accidental occurrence in that country. Blanc also says he once saw a Swallow in Tunis, with very dark underparts, which he took to be of that species, but, so far as I am aware, there is no well-authenticated instance of the Chestnut-bellied Swallow, a resident and non-migratory species peculiar to North-east Africa and Palestine, having ever occurred so far west.

HIRUNDO RUFULA, Temminck.

RED-RUMPED SWALLOW.

Hirundo rufula, Temm. *Man.* iii, p. 298 (1835); Sharpe, *Cat. Birds Brit. Mus.* x, p. 156; Koenig, *J. f. O.* 1892, p. 364; Whitaker, *Ibis*, 1895, p. 97.

Description.—**Adult male**, spring, from Tunis, North Tunisia.

A very narrow frontal line, extending over and behind the eye, and a broad band on the nape rufous-chestnut; crown, back and scapulars metallic blue-black, the back showing some white, owing to the feathers on this part having conspicuous white bases; the lower part of back and the rump bright rufous-chestnut, becoming whitish towards the tail-coverts; quills and tails black, with a slight bluish-green gloss; underparts buff, tinged with pale chestnut, the dark shafts of the feathers giving a slightly striated appearance.

Iris very dark brown; bill black; feet brown.

Total length 7 inches, wing 4.75, culmen .30, tarsus .50.

Adult female similar to the male.

I have a few examples of this Swallow from Tunis, obtained by the naturalist Blanc, who informs me that the Arab bird-catchers occasionally catch one or two of this species when netting the common Swallow in spring; for unfortunately this bird is not considered sacred in Tunisia, as it apparently is in some Mahomedan countries. Although evidently not common in Tunisia, the Red-rumped Swallow is probably less rare there than it is generally supposed to be, but escapes notice, owing to the difficulty of distinguishing it from the Common Swallow when on the wing. In South Marocco *H. rufula* is a resident and common species, and I have adult and young examples of it from Marocco City in the interior, as well as from Ras-el-Ain on the sea-coast.

In Sicily and in some parts of Continental Italy examples of this Swallow are not unfrequently met with. North of the Alps, however, the species rarely strays, although it is recorded as having once occurred in Heligoland, and is said to have been occasionally met with in France.

The eggs of the present species, unlike those of the Common Swallow, are pure white. Measurements as in *H. rustica*.

CHELIDON URBICA (Linnæus).

HOUSE-MARTIN.

Hirundo urbica, *Linn. Syst. Nat.* i, p. 344 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.*, p. 17 (1846).

Chelidon urbica, *Boie, Isis*, 1822, p. 550; *Sharpe, Cat. Birds Brit. Mus.* x, p. 87; *Loche, Expl. Sci. Alg. Ois.* ii, p. 71 (1867); *Koenig, J. f. O.* 1888, p. 166; *id. J. f. O.* 1892, p. 365; *Whitaker, Ibis*, 1894, p. 90; *Erlanger, J. f. O.* 1899, p. 509.

Description.—**Adult male**, spring, from Kairouan, Central Tunisia.

Above metallic blue-black, excepting the rump and upper tail-coverts, which are white; wings and tail brownish-black; underparts entirely white; feet feathered down to the toes.

Iris dark brown; bill black.

Total length 5·50 inches, wing 4·30, culmen ·30, gape ·55, tarsus ·45.

Adult female similar to the male, but rather smaller.

Observations.—The white bases of the feathers on the nape are often conspicuous and have the appearance of an ill-defined white collar.

Like the Common Swallow, the House-Martin arrives in Tunisia early in the spring, and leaves again in the autumn. The bulk of the birds pass on northwards for the summer, but many remain and breed in the Regency: Blanc mentions an example of this species obtained at Tatahouine in South Tunisia on February 2nd, but this must doubtless have been an early straggler, as the winter quarters of the House-Martin are probably considerably further south.

C. urbica arrives in the Regency both in spring and autumn in large flocks, and may often be seen in company with *H. rustica*. Like that species, it feeds on the smaller winged insects, and frequents towns and villages in preference to the more open country. I have, however, met with it breeding in colonies far away from any human dwelling.

One of these bird-colonies remains most vividly impressed upon my memory, partly from the savage grandeur of the site and its surroundings, and partly from the fact of its being also the home of a colony of *Cypselus affinis galilæjensis*, the two species, indeed, forming one colony, and apparently living together in the most perfect harmony. The spot in question was situated in a deep gorge or pass in the chain of mountains lying to the north of Metlaoui in South Tunisia where the Oued Seldja, which flows through the pass, and in times gone by must have been a more important river than it is at the present day, had hollowed out a recess or cavern in the mountain side. The sloping bank leading up to and forming the floor of the cave was carpeted with a thick bed of most luxuriant Maiden-hair fern, itself an unexpected and delightful surprise in this desert country, and feathery creepers hung down from the vault, while the overhanging cliffs and beetling crags on either side formed a fitting frame-work for the picture, and enhanced still further its picturesque beauty. Lining the top of the cave at the point where it commenced to arch over, and forming, as it were, a frieze or cornice to its walls, were the nests of both *C. affinis galilæjensis* and *C. urbica*, placed side by side and touching one another. The nests being at a height of about forty feet from the ground were practically inaccessible without the aid of a long ladder, an article which a travelling caravan does not usually possess. I had therefore to content myself with an examination

of them through a pair of opera-glasses, and after obtaining a single specimen of each species for identification, proceeded on my journey.

In towns and villages the House-Martin builds its nest under the eaves of buildings or similar sheltered sites. The nest is composed of mud and straw, with a lining of feathers, and the eggs, from three to five in number, are pure white, measuring about 19×13 mm. Two and even three broods are reared in a season by the same pair.

COTILE RIPARIA (Linnæus).

SAND-MARTIN.

Hirundo riparia, *Linn. Syst. Nat.* i, p. 344 (1766); *Malherbe, Faune Orn. de l'Alg.* p. 10 (1855).

Cotile riparia, *Boie, Isis*, 1822, p. 550; *Sharpe, Cat. Birds Brit. Mus.* x, p. 96; *Whitaker, Ibis*, 1895, p. 97.

Cotyle riparia, *Loche, Expl. Sci. Alg. Ois.* ii, p. 70 (1867); *Koenig, J. f. O.* 1888, p. 166; *id. J. f. O.* 1892, p. 365; *Erlanger, J. f. O.* 1899, p. 510.

Description.—**Adult male**, spring, from Kairouan, Central Tunisia.

Above mouse-colour, slightly darker on the crown, wings and tail; chest and sides also mouse-colour, rest of underparts white.

Iris dark hazel; bill dark brown; feet brown.

Total length 5 inches, wing 4, culmen .25, gape .50, tarsus .40.

Adult female similar to the male.

The Sand-Martin, although appearing in far smaller numbers than either of the two preceding species, is a common summer migrant in Tunisia, arriving in spring and leaving again in the autumn, a certain number of the birds remaining throughout the summer and breeding in the Regency. The date of its arrival in Tunisia in spring seems to be somewhat later than that of the Swallow and House-Martin, and probably does not commence until about the middle of March. Owing to the fact that it usually frequents the neighbourhood of water, the Sand-Martin can scarcely be described as universally distributed throughout the Regency, where so large a proportion of the country is practically waterless, but in suitable localities it is not

uncommon, and may generally be found wherever there are sand-cliffs or clay-banks bordering rivers and ponds. Its food is the same as that of other members of the family, and it may sometimes be seen hawking for gnats and other flying insects in the company of the Common Swallow and the House-Martin. The present species breeds in clay-banks and sand-cliffs, placing its nest at the extremity of a hole or tunnel. The nest is composed of a little dry grass or straw, lined with feathers, and the eggs, four to six in number, are pure white and measure about 19×12 mm.

Baron Erlanger met with the Sand-Martin breeding in company with the House-Martin in the high sand-cliffs bordering the Oued Kasrin (J. f. O. 1899, p. 510).

The description of a new species of Sand-Martin, *Cotile mauritanica*, discovered by Mr. E. G. B. Meade-Waldo in Central Marocco, in June, 1901, will be found in the Bulletin of the British Ornithologists' Club, xii, p. 27. This new species appears to be nearest to *C. paludicola*, Vieill., and *C. minor*, Cab., but is paler in coloration and devoid of gloss.

BIBLIS RUPESTRIS (Scopoli).

CRAG-MARTIN.

Hirundo rupestris, Scop. *Ann. i.* p. 167 (1769); Malherbe, *Cat. Rais. d'Ois. Alg.* p. 18 (1846).

Biblis rupestris, Lesson, *Compl. Buffon*, viii, p. 495 (1837).

Cotile rupestris, Sharpe, *Cat. Birds Brit. Mus.* x, p. 109; Whitaker, *Ibis*, 1896, p. 95.

Cotyle rupestris, Erlanger, *J. f. O.* 1899, p. 511.

Ptyonoprogne rupestris, Loche, *Expl. Sci. Alg. Ois.* ii, p. 68 (1867).

Description.—**Adult female**, spring, from Source des Trois Palmiers, Central Tunisia.

Above pale mouse-brown, darker on the crown wings and tail, and paler on the rump; the inner web of all the tail-feathers, except the middle pair, with a white oval patch, gradually decreasing in size, and smallest on the outer pair; chin whitish, spotted with light brown; throat, sides of the neck and breast dirty white; rest of the underparts dusky light brown, becoming darker on the crissum.

Iris very dark brown; bill dark brown; feet pale brown.

Total length 5·75, wing 5, culmen ·30, tarsus ·45.

Adult male similar to the female, but rather larger.

Observations.—The length of the wing in this species varies considerably in individuals.

Although nowhere particularly abundant, the Crag-Martin is to be met with in various parts of Tunisia, and, as in some other Mediterranean countries, appears to be resident and found at all seasons. I have specimens obtained in Central Tunisia in spring, and notes of its occurrence in the north of the Regency in mid-winter, but it is probably more or less local in its distribution, and is not to be found throughout the country generally. In Algeria and Marocco the Crag-Martin appears to be not uncommon in certain districts, particularly in the latter country, and, according to Favier, it is nearly as common as the House-Martin in the neighbourhood of Tangier. In Spain Col. Irby says the species is plentiful about Gibraltar, and though universally distributed in the rocky Sierras during the breeding season, is to some extent migratory (*Orn. Straits Gib.* p. 104). In Sicily the species is very local in its distribution, but in the districts where it occurs appears to be resident. In the immediate neighbourhood of the town of Syracuse I have found it most plentiful in the middle of winter, and from the Madonian Mountains I have specimens of it obtained in June.

From Tripoli I have no example of this species, but I have one of *C. obsoleta*, Cab., which Mr. Dodson obtained at the small town of Sebha, in the interior of the Vilayet, in the month of June. The name of Crag-Martin is well bestowed, for the bird is eminently a rock-loving species, its favourite haunts being among crags and rocky caverns, in which it roosts at night and nests during the breeding season. High sea-cliffs are much frequented by these birds, and I have often watched them circling round about such spots in the morning and evening. During the middle of the day, in winter-time, the birds seem to forsake their home and go elsewhere, presumably in search of food, returning, however, about an hour before sunset, and going through their customary evolutions preparatory to retiring to roost. The food of this species, like that of its allies, consists of the smaller winged insects, and the birds may often be seen hawking for flies in the company of others of their kind. Mr. Aplin saw the

species thus engaged in company with the White-rumped Swift at Source des Trois Palmiers.

The Crag-Martin breeds in quiet secluded spots, attaching its nest to the roof of a cave, or in some rocky cleft, often quite inaccessible. Its eggs, four to six in number, somewhat resemble those of the Common Swallow, being white, spotted with brown.

Count Arrigoni degli Oddi has recently described a new form of Crag-Martin from Sardinia under the name of *Cotile obsoleta sarda* (Avicula Luglio-Agosto, 1902).

Family FRINGILLIDÆ.

Subfamily FRINGILLINÆ.

CARDUELIS CARDUELIS (Linnæus).

GOLDFINCH.

Fringilla carduelis, Linn. *Syst. Nat.*, i, p. 318 (1766); Malherbe, *Cat. Rais. d'Ois. Alg.* p. 14 (1846).

Carduelis carduelis, Boie, *Isis*, 1822, p. 554; Sharpe, *Cat. Birds Brit. Mus.* xii, p. 185.

Carduelis elegans, Loche, *Expl. Sci. Alg. Ois.* i, p. 154 (1867); Koenig, *J. f. O.* 1888, p. 248; *id.* *J. f. O.* 1893, p. 65; Whitaker, *Ibis*, 1894, p. 90.

Carduelis carduelis meridionalis, Erlanger, *J. f. O.* 1899, p. 465.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Feathers at the base of bill and surrounding the eyes, lores, hinder part of crown and sides of neck black; forehead and upper throat glossy crimson-red; a patch behind the eyes, ear-coverts, lower throat and a small space on the nape white; back, scapulars and rump brown; upper tail coverts black at the base and whitish at the tip; middle pair of rectrices black, slightly tipped with white, two outer pairs black, with long white patches on inner webs, next adjoining pairs with only small white spots, remaining tail-feathers black; wings black, conspicuously barred with bright canary-yellow, secondaries slightly tipped with white; sides of the breast and flanks brown; centre of breast, abdomen and under tail-coverts white.

Iris very dark brown; bill rosy-white, becoming brown at tip; feet flesh-colour.

Total length 5 inches, wing 3·10, culmen ·50, tarsus ·60.

Adult female rather duller in colouring than the male, and slightly smaller.

The Goldfinch is one of the commonest birds in North Tunisia, both as a resident and as a migrant, occurring in large flocks throughout the winter months and periods of migration, and in pairs during the breeding season. In the more southern districts of the Regency, however, it is far less abundant, and is to be found chiefly during the winter or on passage, but in some of the oases it appears to be resident, and I have taken nests of the species in the Gafsa oasis in April. The semi-cultivated plains of North Tunisia and extensive olive-groves, with their undergrowth of thistles and other weeds, are its favourite haunts, and vast numbers are to be found there during the colder months. By the middle of April most of the migrants have departed, and the resident birds are then generally to be met with in gardens and orchards, or similar secluded spots, to which they have retired for the breeding season.

The food of the Goldfinch in its natural state consists chiefly of the seeds of the thistle and other wild plants, but in captivity it will eat almost anything.

It is easily domesticated, and owing to its bright plumage and lively, engaging ways, is much prized as a cage-bird. Its song, too, although not particularly varied or melodious, is fairly pleasing, and may be improved by placing the bird near a Canary or some other good songster, whose superior notes are soon acquired. Its call note is a sharp "tweet." The Goldfinch mates readily with the Canary, the offspring being a very handsome hybrid or "mule," and it will also mate with some other Finches. Albinism is of frequent occurrence in the Goldfinch.

The nest of the present species is one of the most beautiful of all birds' nests. It is generally placed in the fork of a low tree, and is a compact cup-shaped structure, composed of fine grasses, mosses, and lichens, plentifully lined with thistle-down, or at times with a little wool or hair. The eggs, four or five in number, are of a delicate bluish-white, slightly streaked and spotted with lake and reddish-brown. Average measurements 16 × 13 mm.

The resident Goldfinch of North-west Africa which breeds in that country is considered by some ornithologists to differ from typical

C. carduelis from North Europe in its smaller size, and has been separated subspecifically under the name of *Carduelis c. meridionalis* (Brehm). The Goldfinch of Madeira has also been distinguished under the name of *Carduelis c. parva*, Tschusi. The latter, however, appears to be identical with North-west African birds, so that if any distinction from typical *C. carduelis* is really warranted, Brehm's name of *meridionalis* should no doubt be used for this small form, as well as for birds from the Canary Islands and the Mediterranean sub-region generally. I may here observe that Count Arrigoni has recently described the resident Sardinian Goldfinch as distinct from the ordinary Continental form under the name of *Carduelis c. tschusii* (Avicula, 1902, p. 104).

CHRYSOMITRIS SPINUS (Linnæus).

SISKIN.

Fringilla spinus, *Linn. Syst. Nat.* i, p. 322 (1766).

Chrysomitris spinus, *Boie, Isis*, 1828, p. 322; *Sharpe, Cat. Birds Brit. Mus.* xii, p. 212; *Loche, Expl. Sci. Alg. Ois.* i, p. 152 (1867); *Whitaker, Ibis*, 1898, p. 126.

Description.—**Male**, winter, from Tunis, North Tunisia.

Crown and lores black; superciliaries and nape yellowish-green; ear-coverts dusky green; back and scapulars dark green, striped with dusky-black; rump yellow; upper tail-coverts dark green; central pair of rectrices blackish-green, remaining rectrices yellow, tipped with blackish, the exterior pair with black outer webs; primary quills blackish, margined with yellow, secondaries and wing-coverts blackish, broadly margined with yellow; throat and breast greenish-yellow, the former showing an indication of the dark patch of summer plumage; abdomen and crissum whitish; flanks and under tail-coverts heavily striped with blackish.

Iris dark brown; bill grey, darker at the tip; feet greyish brown.

Total length 4.25 inches, wing 2.90, culmen .40, tarsus .50.

Adult female considerably duller in coloration than the male.

The Siskin is not at all common in Tunisia, and apparently only occurs as a winter migrant in the north of the Regency, being more plentiful in some years than in others. South of the Atlas the species probably never strays. In Algeria, as in Tunisia, it only occurs as an

irregular winter migrant. When met with it is generally found in small flocks, which frequent the vicinity of streams and marshy spots where alders and similar plants flourish. Fir-woods are also favourite resorts of the species. Its food consists to a great extent of aphides and other small insects, as well as of seeds of various kinds. The Siskin has a pleasant song, and being easily tamed, is very popular as a cage-bird. The Tunis bird-catchers occasionally take it in their nets together with Goldfinches and Linnets.

CHRYSOMITRIS CITRINELLA (Linnæus).

CITRIL FINCH.

Fringilla citrinella, *Linn. Syst. Nat.* i, p. 320 (1766).

Chrysomitris citrinella, *Boie, Isis*, 1828, p. 322; *Sharpe, Cat. Birds Brit. Mus.* xii, p. 230.

Citrinella alpina, *Loche, Expl. Sci. Alg. Ois.* i, p. 155 (1867); *Koenig, J. f. O.* 1893, p. 54.

Description.—**Adult male**, from Italy.

Forehead and crown yellowish-green; nape and sides of the neck slate-grey; back green, slightly streaked with dusky-brown; rump green, quills and tail-feathers blackish, slightly margined with greenish-yellow; secondaries and greater wing-coverts black, broadly margined with light green; lesser coverts bright green; underparts yellowish-green, becoming dusky on the flanks.

Total length 4·50 inches, wing 3·10, culmen ·40, tarsus ·60.

According to Loche, the Citril Finch occasionally visits North-west Africa, specimens of it having been obtained in the neighbourhood of La Calle on the borders of the Algerio-Tunisian frontier. The species, however, is probably of rare and merely accidental winter occurrence south of the Mediterranean. Malherbe has recorded it as occurring in Sicily in winter, but even there it must be rare, as there is no Sicilian specimen of it in the Palermo Museum.

In Corsica and Sardinia a brown-backed form of this Finch occurs, which Dr. Koenig has named *C. corsicana* (*Orn. Monatsber.* vii, p. 120), and which is without doubt fairly separable. This form appears to be resident and abundant in both the above islands, breeding even

in the coast districts. It differs from *C. citrinella* not only in the brown coloration of the back, but also in having the rump less brightly coloured, and the forehead, cheeks, chin and eye-region more brilliant. In size *C. corsicana* is slightly smaller than *C. citrinella*, its wing length averaging in the case of males 2·90 inches, as against 3·10 inches in *C. citrinella*. In addition to the pair from Corsica figured by Mr. Dresser in his "Birds of Europe," which are in the Lilford collection, now in my possession, I have been enabled, through the kindness of Professor Giglioli, to examine the fine series of both forms of this Finch existing in the Florence Museum. Some specimens in this collection from Villafranca, on the French Riviera, and from Turin, appear to be intermediate between *C. citrinella* and *C. corsicana* so far as the coloration of the back is concerned, but on the whole they incline more to *C. citrinella*.

In its general habits the Citril Finch seems to differ but little from the Siskin. Fir-woods and mountain-forests are its favourite haunts during the breeding season, but during migration and throughout the winter lower-lying localities and the vicinity of streams are much resorted to, no doubt on account of the greater abundance of food to be obtained there.

SERINUS SERINUS (Linnæus).

SERIN-FINCH.

Fringilla serinus, *Linn. Syst. Nat.* i, p. 320 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 15 (1846).

Serinus serinus, *Sharpe, Cat. Birds Brit. Mus.* xii, p. 368; *Erlanger, J. f. O.* 1899, p. 464.

S. meridionalis, *Loche, Expl. Sci. Alg. Ois.* i, p. 157 (1867).

S. hortulanus, *Koenig, J. f. O.* 1888, p. 245; *id. J. f. O.* 1893, p. 63; *Whitaker, Ibis*, 1894, p. 91.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Forehead, superciliary stripes, throat, breast and rump yellow; crown, nape and sides of the neck yellow, thickly streaked with dark green; back and scapulars dark green, streaked with blackish-brown; quills and tail blackish-brown, with narrow yellow margins; flanks and abdomen whitish, heavily streaked with blackish-brown; crissum and under tail-coverts white.

Iris very dark brown; bill greyish-brown above and lighter below; feet greyish-brown.

Total length 4.25 inches, wing 2.75, culmen .20, tarsus .50.

Adult female much greyer and duller in coloration than the male.

Observations.—Young birds are browner, with but little yellow in their plumage.

The Serin is one of the commonest birds in North and Central Tunisia, both as a resident and as a migrant. It also occurs in South Tunisia, although not quite so plentifully as further north. During winter and early spring large flocks of these little Finches may be seen ranging over the semi-cultivated plains of the Atlas districts, feeding upon the seeds of thistles and other wild plants, often in the company of Goldfinches and Linnets. By the end of March these flocks disperse, most of the birds intending to nest in the Regency having already paired before that date. The species appears to be an early breeder, and I have found nests with well-grown young birds in them as early as March 24th. In high mountainous districts, however, the Serin may be found breeding late on in the summer, and Mr. Meade-Waldo found nests containing eggs in the Maroccan Atlas in the month of July. In both Marocco and Algeria this little Finch is as abundant as it is in Tunisia. From Tripoli I have no specimens of it.

Besides frequenting open plains and low mountain-sides, the Serin is constantly to be found in gardens and orchards, particularly during the nesting season, when it appears to be less shy than at other times of the year. It feeds almost entirely on seeds. Its flight is rather undulating and distinctly powerful for the size of the bird. The notes of this little Finch are rather poor and by no means melodious, its continuous and monotonous twitter at times resembling more the sound made by the "Cicala" cricket than the song of a bird. The syllables "zi-zi" repeated several times render the song fairly well. Nevertheless, the bird may often be seen in a cage in most Mediterranean towns, where the species is common.

The Serin does not seem to be very particular in its choice of a site for its nest, at times selecting a low bush or hedgerow not more than three feet in height, at others choosing the branch of a tree over twenty feet from the ground. The nest, which is generally

placed in a fork of a tree or plant, is small and compactly built, but the materials of which it is composed are often rather coarse for so small a structure. They consist chiefly of rootlets and grass-bents, plentifully lined with feathers and other soft materials. The eggs, three or four in number, are of a delicate greenish-white, lightly speckled with reddish-brown. Average measurements 15×12 mm.

LIGURINUS CHLORIS (Linnæus).

GREENFINCH.

Loxia chloris, *Linn. Syst. Nat.* i, p. 304 (1766).

Ligurinus chloris, *Koch, Syst. baier. Zool.* p. 230 (1816); *Koenig, J. f. O.* 1888, p. 244; *id. J. f. O.* 1893, p. 63.

Chloris chloris, *Sharpe, Cat. Birds Brit. Mus.* xii, p. 21.

Fringilla (Ligurinus) chloris, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 14 (1846).

Chlorospiza chloris, *Loche, Expl. Sci. Alg. Ois.* i, p. 149 (1867).

Description.—**Adult male**, winter, from Tunis, North Tunisia.

Upper parts green-washed with brown, brighter and purer on the rump and upper tail-coverts; lores grey-brown; primaries blackish, tipped with light grey, and margined on the basal three-fourths of the outer web with bright yellow; secondaries and wing-coverts broadly margined with light grey; edge of wing yellow; central rectrices blackish, margined with pale grey; the other tail-feathers yellow on the basal half and black on the terminal half; underparts green, tinged with brown on the flanks, and becoming yellow on the middle of the abdomen and on the crissum.

Iris hazel; bill purplish-brown; feet flesh-colour.

Total length 5.75 inches, wing 3.40, culmen .50, tarsus .70.

Adult female much more soberly coloured, and with but little yellow in its plumage, the upper parts being greyish-brown with darker striations, the lower parts paler and tinged with greenish-yellow.

The common European Greenfinch I believe occurs in Tunisia merely as a migrant in winter, and does not remain to breed in the Regency, the resident Greenfinch of the country, as well as of the whole of North-west Africa being the following subspecies.

In the town of Tunis I have occasionally seen examples of *L. chloris* (L.) in cages, but I have never myself met with the species in the Regency in a wild state. From both Algeria and Marocco I have specimens of it obtained in winter.

LIGURINUS CHLORIS AURANTIIVENTRIS (Cabanis).

NORTH AFRICAN GREENFINCH.

Ligurinus aurantiiventris, *Cabanis, Mus. Hein. Th. i, p. 158 (1850); Whitaker, Ibis, 1894, p. 90.*

Chlorospiza aurantiiventris, *Loche, Expl. Sci. Alg. Ois. i, p. 151 (1867).*

Chloris chloris aurantiiventris, *Erlanger, J. f. O. 1899, p. 468.*

Description.—**Adult male**, spring, from Oglet-Zellès, South Tunisia.

Differs from *L. chloris* (L.) in being much more brightly coloured, the upper parts being uniform and pure bright yellowish-green, without any trace of brown, while the underparts are also much brighter, particularly the abdomen, crissum and under tail-coverts. The bill is also rather larger, stouter and more wedge-shaped than in typical *L. chloris*.

Soft parts and general measurements as in *L. chloris*.

Adult female greyer and paler in coloration than the female of *L. chloris*.

Although many ornithologists are opposed to the idea of separating the North African Greenfinch from our European bird, there is no doubt that there is a considerable and a constant difference between the two, and one which appears quite sufficient to justify their subspecific separation. Admitting this, we come then to the question as to whether the North African Greenfinch can rightly be referred to *L. aurantiiventris* (Cab.), by which name it has of late years generally been known, or to some other described form of Greenfinch. *L. aurantiiventris* was based by Dr. Cabanis (*Mus. Hein. i, p. 158*) on a specimen from the south of France, the type being in the Berlin Museum, but whether this, or any of the other names given, can stand, or whether they do not merely, one and all, refer to brightly coloured examples of *L. chloris* (L.), I am not in a position to say, having never examined the type specimens. Under the circumstances, therefore, I consider it advisable to retain the name of *L. aurantiiventris* (Cab.) for the North African Greenfinch, making a subspecies of it. At the same time, however, I feel bound to remark that although I have seen many brightly coloured examples of the Greenfinch from South France, Spain and Italy, I have never yet seen one perfectly identical with birds from North Africa. The latter are, moreover, so far as my experience goes, perfectly constant in their colouring, and in this respect differ from their European congeners, which vary greatly amongst themselves.



Ligurinus chloris aurantiiventris.

The North African Greenfinch differs from typical *L. chloris* (L.) chiefly in the colouring of its plumage, which is brighter and more uniform throughout, with a very marked absence on the upper parts of the *brown* shade noticeable in most examples of *L. chloris*. This difference, as already observed, appears to be perfectly constant and not confined merely to individuals, for among the many specimens I have examined I have never found a single bird in full plumage that varied from the rule. The difference is also noticeable at all seasons, and I have examples obtained in autumn and winter, which do not differ materially from those obtained in spring, the brown shade being invariably absent. Besides the difference in plumage coloration, the bill of the North African bird is slightly larger, stouter and more wedge-shaped than in the generality of European birds.

With regard to the relative size of the two forms of Greenfinch, having compared a large series of both, I cannot say I find any appreciable and constant difference between the two.

Throughout the greater part of North-west Africa *L. c. aurantiiventris* is more or less plentifully distributed. From both North and South Marocco I have examples of it, and in Algeria it appears to be abundant in the wooded districts. From Tripoli I have no specimens, but the species may possibly occur near the coast where the country is fertile and fairly well wooded in some parts. In North-east Africa no Greenfinch appears to occur.

From South Spain I have several examples of the Greenfinch, which, although not perfectly identical with North-west African birds, resemble them very closely. Examples from Italy, however, and even from Sicily, can only be referred to *L. chloris* (L.), although occasionally bright coloured individuals may be met with, particularly during the breeding season.

The present subspecies is common throughout the greater part of the Tunisian Regency, and breeds in several districts north of the Atlas. Whether it nests in South Tunisia I cannot say, but I have met with the species in small flocks on passage about the middle of March at Oglet-Zellès and Oglet-Alima in the Tunisian Sahara, and at Feriana and other places in Central Tunisia I have found it as late as April 20th. In the immediate neighbourhood of the town of Tunis this Greenfinch is common all the year round and nests in the gardens of the vicinity.

In its general habits *L. c. aurantiiventris* appears to differ in no

way from our European bird, being generally found in small flocks during the winter and early spring, frequenting the neighbourhood of gardens, the outskirts of oases, and similar localities where bushes are abundant, and feeding on seeds and berries of various kinds, as well as on corn during the autumn months. Its song, a mere twitter, is distinctly poor, although capable of development when the bird is kept in captivity, as it often is in Tunis. When brought up from the nest it becomes very tame, and I have a Greenfinch at the present moment which will perch on my hand and take seed from my lips with perfect fearlessness. The nest of *L. c. aurantiiventris* may be found in orchards or olive-groves, as well as in the wild thuja and juniper bushes, so plentiful on some of the Atlas slopes. It is rather loosely built of bents and rootlets, lined with wool and hair, and its eggs, four or five in number, are greenish-white, slightly streaked and spotted, chiefly at the larger end, with violet and brown. Average measurements 20×14 mm.

The accompanying plate shows an adult male and female of the North-west African Greenfinch, obtained in the month of March in South Tunisia.

COCCOTHRAUSTES COCCOTHRAUSTES (Linnæus).

HAWFINCH.

Loxia coccothraustes, *Linn. Syst. Nat.* i, p. 299 (1766).

Coccothraustes coccothraustes, *Bonap. Consp. Gen. Avium*, i, p. 506 (1850); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 37.

Coccothraustes vulgaris, *Loche, Expl. Sci. Alg. Ois.* i, p. 140 (1867); *Koenig, J. f. O.* 1888, p. 233; *id. J. f. O.* 1893, p. 54; *Whitaker, Ibis*, 1896, p. 95.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Forehead pale buff, becoming yellowish-brown on the crown and sides of head; lores, narrow frontal line, circle of feathers round the eyes, chin and upper throat jet-black; nape and sides of neck grey; back and scapulars chocolate-brown, rump fawn-brown, becoming yellowish-brown on the upper tail-coverts; quills black, with a large white spot on the inner web, and tipped with metallic shades of blue, green and purple; the fifth and adjoining inner quills with a peculiar hook-shaped tip; outer and greater wing-coverts

whitish, inner ones yellowish-brown; middle pair of rectrices pale brown, slightly tipped with white, remaining pairs black, broadly tipped on the inner web with white; underparts vinous, except the middle of abdomen, crissum and under tail-coverts, which are white.

Iris brown; bill bluish-black; feet flesh colour.

Total length 7 inches, wing 3·95, culmen ·75, tarsus ·90.

Adult female rather duller in colouring than the male.

Observations.—In winter the bill of this species becomes a light flesh colour and the plumage is rather duller.

The Hawfinch is not a very common bird in Tunisia, and its range seems to be more or less restricted to the country north of the Atlas, although it is occasionally to be met with in the southern districts during the winter months. I have a note of its occurrence as far south as Tatahouine, but have no knowledge of the species breeding anywhere south of the Atlas. North of these mountains I think there can be no doubt that it nests, although perhaps not in any numbers, as I have a specimen obtained in the Medjerdah Valley on May 14th, and notes of its occurrence in summer in that district.

In Algeria Dr. Koenig seems to have found this species remarkably abundant at Batna, the birds actually coming into the town in large numbers, presumably in order to feed upon the ripening seeds of some elm-trees (J. f. O. 1896, p. 127). In Marocco Mr. Meade-Waldo met with a few Hawfinches at Sould-Jedid in the Atlas, but the species was evidently not common in those districts, as he never saw any others (*Ibis*, 1903, p. 202). According to Colonel Irby (Orn. Strs. Gib. p. 124), Favier found the Hawfinch "very rare near Tangier," while on the Spanish side of the Straits it is "very common and most plentiful in winter." This agrees with my experience in Sicily, where the Hawfinch is abundant in autumn and winter. The Sicilian vernacular name of *scaccia-mennuli*, a corruption of the Italian *Schiaccia-mandorla*, or almond-cracker, has been given to the bird on account of its supposed partiality for this fruit, which is plentiful in the island. The Hawfinch's powerful bill is certainly capable of cracking any nut, no matter how hard it may be, and the bird subsists largely upon the kernels of stone-fruit, but it also feeds on softer seeds and berries, and occasionally upon insects and grubs. In spite of its size and rather striking appearance the Hawfinch is

naturally so shy and wary that it often escapes notice. At times, however, particularly when flocking together on migration, it becomes bolder and approaches the neighbourhood of human habitations, occasionally entering some small town or village in search of seeds and other food.

Although as a rule a silent bird, its call-note, when uttered, may be heard at a considerable distance. Its song, however, if such it can be called, is distinctly poor, and is certainly not the reason of its being kept as a cage-bird, as it so often is in many Mediterranean towns.

The Hawfinch generally nests in low trees, building rather a bulky structure composed chiefly of twigs, with a lining of grass and hair or wool. Its eggs, three to five in number, are of a dull greenish colour, spotted with grey and brown. Average measurements 24×18 mm.

PASSER DOMESTICUS (Linnæus).

HOUSE-SPARROW.

Fringilla domestica, *Linn. Syst. Nat.* i, p. 323 (1766).

Passer domesticus, *Pall. Zoogr. Ross.-As.* ii, p. 39 (1811); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 307; *Loche, Expl. Sci. Alg. Ois.* i, p. 129 (1867); *Koenig, J. f. O.* 1888, p. 232; *Whitaker, Ibis*, 1895, p. 98; *Erlanger, J. f. O.* 1899, p. 476.

Passer tingitanus, *Loche, Expl. Sci. Alg. Ois.* i, p. 132 (1867); *Koenig, J. f. O.* 1888, p. 232.

Description.—**Adult male**, spring, from Feriana, Central Tunisia.

Crown, nape, lower back and upper tail-coverts grey; lores black; narrow line over the eyes white; superciliary stripes chestnut-red, becoming broader on sides of nape and neck; back chestnut-red streaked with black, some of the feathers being margined with rufescent-buff; quills blackish, margined with rufescent-buff on the outer webs; secondaries and greater wing-coverts broadly margined with rufescent-buff; lesser wing-coverts chestnut-red; median coverts barred with white; tail dark grey, slightly fringed with pale buff; chin, throat and upper breast black; ear-coverts pale grey; sides of neck white; rest of underparts whitish, washed with grey on the sides and flanks.

Iris dark brown; bill blackish; feet pale brown.

Total length 5·70 inches, wing 3, culmen ·50, tarsus ·75.

Adult female dull brown, without any rufous colour, and without any black on the throat; underparts pale greyish-brown, becoming whiter on the abdomen and crissum.

In winter the bill becomes pale yellowish horn colour.

As stated in my notes on Tunisian Birds (*Ibis*, 1898, p. 132), the Sparrows in some parts of the Regency are puzzling, owing to the cases of evident hybridism. I have, however, no hesitation in saying that *P. hispaniolensis* is the common Sparrow of the country, being found generally throughout the whole of the Regency from north to south and east to west, while *P. domesticus*, so far as I have been able to ascertain, occurs at present only in the more western districts of Tunisia, whither it has probably spread from Algeria. The railway has no doubt been instrumental in contributing towards this diffusion, and it is not unlikely we shall, at no distant date, find *P. domesticus* established and quite at home in the town of Tunis and in other places in the east of the Regency, where at present it appears to be wanting.

Where the two species *P. domesticus* and *P. hispaniolensis* meet they seem to interbreed freely, so much so that in some of the villages of Western Tunisia a bastard race is found, partaking of the characters of both species. Individuals vary greatly in colour, some showing the grey crown of *P. domesticus* and the heavily striped breast and flanks of *P. hispaniolensis*, while others have the red crown of the latter and the under-marking of the former, and many are intermediate in plumage.

With regard to *P. italiae*, I am still unable to state positively that it occurs in Tunisia. Some specimens in my collection from Tunisia certainly resemble this species more than either of the other two, but I cannot affirm that I have yet come across a typical example of *P. italiae* in any part of the Regency.

Baron v. Erlanger, in his work on the Tunisian Ornis (*J. f. O.* 1899, p. 479), advocates the advisability of specifically uniting the two red-headed species of Sparrow, *P. italiae* and *P. hispaniolensis*, the latter becoming a subspecies of the former under the name of *P. italiae hispaniolensis*. There is naturally considerable similarity between the two, and in certain countries, such as Sicily for instance, forms occur which seem to partake equally of the characters of both species, so much so, indeed, that they cannot well be referred to one more

than the other. On the other hand, however, there is in many respects more affinity between *P. domesticus* and *P. italiae* than there is between the latter and *P. hispaniolensis*, the colour of the crown being, in fact, the only striking point of difference between the two. Mr. Hartert (Nov. Zool. ix, pp. 331-333) also alludes to this, and indeed unites *P. domesticus* and *P. italiae*, making the latter a subspecies of the former. In the same article Mr. Hartert makes a subspecies of the Sparrow found in Malta, calling it *P. hispaniolensis maltae*.

Herr v. Tschusi has recently gone still further in the subdivision of the Sparrows, making no less than *seven* different forms of *P. hispaniolensis* and *two* of *P. italiae* (Ornithol. Jahrbuch, Februar, 1903)!

P. domesticus is not uncommon in some parts of Algeria and Marocco. In the former country I have obtained specimens at Biskra, while from Marocco I have examples both from the north and south of the empire. Specimens from Schaf-el-Akab in the north, and from Glaoui in the Atlas Mountains, are fairly typical, while others from the city of Marocco, Tameshlot and Ras-el-Ain show evident signs of hybridism with *P. hispaniolensis*. Mr. Meade-Waldo also appears to have found many of the Sparrows in the Maroccan Atlas intermediate between *P. domesticus* and *P. hispaniolensis* (*Ibis*, 1903, p. 210). I have no specimens of *P. domesticus* from Tripoli.

In the Tunisian Regency, as I have already said, *P. domesticus* occurs at present only in the more western districts, in some of which, such as the village of Feriana and its neighbourhood, the species is abundant, and in its breeding and general habits differs in no way from our European bird. The nests I found there were placed in holes in the walls of houses and other buildings, and were composed of the customary mass of straw and dry grasses, plentifully lined with feathers, while the eggs, four to six in number, were of the usual bluish-white colour, speckled with brown surface spots and grey shell-marks. Average measurements 22 × 15 mm.

PASSER ITALIÆ (Vieillot).

ITALIAN SPARROW.

Fringilla italiæ, *Vieill. Nouv. Dict.* xii, p. 199 (1817).

Passer italiæ, *Bonap. Consp.* i, p. 509 (1850); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 315; *Loche, Expl. Sci. Alg. Ois.* i, p. 133 (1867); *Koenig, J. f. O.* 1888, p. 242; *id. J. f. O.* 1893, p. 61; *Whitaker, Ibis*, 1895, p. 97; *id. Ibis*, 1898, p. 132.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Differs from *P. domesticus* chiefly in having the crown and nape of a rich chestnut-red, and from *P. hispaniolensis* in having no black on the sides and flanks, and in being more rufous on the back.

Soft parts and measurements as in *P. domesticus*.

Adult female resembles the female of *P. domesticus*.

I include this species among the birds of Tunisia, having obtained in the south of the Regency examples of Sparrows which, although not typical *P. italiæ*, resemble that species more than they do either *P. domesticus* or *P. hispaniolensis*. As already stated in the preceding article, however, I cannot say that I have ever met with a perfectly typical example of *P. italiæ* anywhere in Tunisia, although from Marocco I have specimens which are almost identical with typical examples from Italy. Dr. Koenig mentions having met with *P. italiæ* at Monastir on the east coast of Tunisia (*J. f. O.* 1893, p. 61). I have not visited that place, but at Sousa, which is not far distant from Monastir, the only Sparrows I came across were *P. hispaniolensis*.

PASSER HISPANIOLENSIS (Temminck).

SPANISH SPARROW.

Fringilla hispaniolensis, *Temm. Man. d'Orn.* i, p. 353 (1820).

Passer hispaniolensis, *Rüpp, Syst. Uebers.* p. 78 (1845); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 317; *Koenig, J. f. O.* 1888, p. 241; *id. J. f. O.* 1893, p. 62.

Fringilla (Passer) hispaniolensis, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 14 (1846).

Passer salicicola, *Loche, Expl. Sci. Alg. Ois.* i, p. 134 (1867); *Whitaker, Ibis*, 1894, p. 29; *id. Ibis*, 1898, p. 132.

Passer italiæ hispaniolensis, *Erlanger, J. f. O.* 1899, p. 477.

Description.—**Adult male**, spring, from Kasrin, Central Tunisia.

Differs from *P. domesticus* in having the crown and nape rich chestnut-red, the ear-coverts and sides of neck of a purer white, the back and upper parts blacker, some of the feathers margined with white, the black on the breast extending over a large expanse, and the sides and flanks thickly streaked with black. It is also rather a larger bird than *P. domesticus*, with a stouter bill and tarsus.

Soft parts as in *P. domesticus*.

Total length 5·75 inches, wing 3·10, culmen ·55, tarsus ·85.

Adult female resembles the female of *P. domesticus*.

Observations.—From the above description it will be seen that the adult male of the present species differs from that of *P. italicæ* chiefly in having the breast, sides and flanks thickly streaked with black, and the back darker and less rufous; otherwise the two species are much alike.

Like other Sparrows, the Spanish Sparrow often has an admixture of rufous-brown in the black of the throat and breast.

This species is the common Sparrow of Tunisia, and is to be met with generally throughout the Regency, in towns and villages as well as in the open country. In the west of the Regency, where it meets *P. domesticus*, it seems to interbreed freely with that species, specimens obtained in those districts almost invariably showing signs of hybridism. Vast flocks are to be met with in winter and early spring in some of the central and southern districts of Tunisia, frequenting the tamarisk clumps by the banks of streams and *oueds*, and the noise the birds make when congregating together of an evening, preparatory to roosting, is at times simply deafening. In Sicily, where the present species is also the Sparrow of the country, I have noticed the same thing, and in my garden at Palermo, during the winter and early spring, vast numbers congregate of an evening and roost in some high trees by the side of a small lake. When the breeding season commences these flocks break up, and the birds are then to be seen in pairs or very small parties. In some parts of Tunisia, however, the Spanish Sparrow may be found breeding in large colonies among the tamarisk and wild jujube bushes. At the village of Feriana I found Sparrows breeding in considerable numbers during the month of April, their nests being placed in buildings as well as in trees, mostly poplars. At the town of Sousa on the east coast of the Regency I also found the present species breeding at the

beginning of April, the males and females taking an equal share in the construction of the nest. The birds here seemed very fearless, some of them actually building their nests under the eaves of a low verandah attached to a crowded French café, at a height of only nine or ten feet from the ground, and continuing their work apparently regardless of the noisy throng just below them. It is, indeed, curious that this Sparrow, so shy and suspicious in the open country, should become so fearless and confiding when inhabiting a town.

In most of its habits the present species does not differ from the two preceding, and its notes appear to be similar. The nests and eggs I examined also resembled those of *P. domesticus*.

PASSER MONTANUS (Linnæus).

TREE-SPARROW.

Fringilla montana, *Linn. Syst. Nat.* i, p. 324 (1766).

Passer montanus, *Koch, Syst. baier. Zool.* p. 219 (1816); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 301; *Whitaker, Ibis*, 1898, p. 126; *Erlanger, J. f. O.* 1899, p. 478.

Pyrgita montana, *Loche, Expl. Sci. Alg. Ois.* i, p. 136 (1867).

Description.—**Adult male**, spring, from Carthage, North Tunisia.

Crown and nape dull chocolate; back buff-brown, striped with black; lower back, rump and upper tail-coverts buff-brown; tail grey-brown, with lighter margins; wings grey-brown, fringed on the outer webs with buff-brown, wing-coverts tipped with whitish, presenting a double alar bar; narrow frontal line, lores, patch below the eye, hinder part of ear-coverts, chin and throat black; remainder of ear-coverts, cheeks and sides of neck dull white, this colour extending partly in a collar behind the nape; rest of underparts greyish-white, washed with buff-brown on the flanks and under tail-coverts.

Iris dark brown; bill black; feet pale brown.

Total length 5·25 inches, wing 2·85, culmen ·40, tarsus ·65.

Adult female similar to the male.

This is by no means a common species in the Regency, and I have only a solitary example of it, which was obtained in the neighbourhood of Carthage. Blanc, the Tunis naturalist, tells me that the local bird-

catchers occasionally take this species in their nets during the winter months. Loche says the Tree-Sparrow occurs in Algeria, but is rather rare there. From Marocco I have no note of its occurrence. According to von Heuglin (*Orn. N. O. Afr.* p. 633) the species visits Egypt, probably on migration in winter.

In its habits the Tree-Sparrow bears a certain resemblance to the common Sparrow, but differs from it in being more of a tree-frequenting species, and in Europe, at least, is not often to be found in the immediate neighbourhood of buildings, unless trees are also present. In some Asiatic countries, however, this species is said to take the place of the common House-Sparrow, often frequenting human habitations, and nesting in holes in the walls and under the eaves. In Europe, holes in trees are generally selected as nesting sites, particularly those in pollard-elms and willows.

The food of the Tree-Sparrow consists chiefly of seeds of various kinds, and corn when to be obtained, but its young are said to be fed principally upon grubs and insects.

The call note of this species is a *chirp*, resembling that of the House-Sparrow, but rather softer, and the male is said to have a regular and pleasing, though somewhat short, song. The bird may not unfrequently be seen in a cage in Continental towns, and is said to breed, in captivity, with the House-Sparrow.

PASSER SIMPLEX (Lichtenstein).

DESERT-SPARROW.

Fringilla simplex, *Licht. Verz. Doubl.* p. 24 (1823).

Passer simplex, *Hartm. J. f. O.* 1863, p. 313; *Sharpe, Cat. Birds Brit. Mus.* xii, p. 339; *Erlanger, Orn. Monatsb.* 1897, p. 188.

Corospiza simplex, *Bonap. Consp.* i, p. 511 (1850); *Loche, Expl. Sci. Alg. Ois.* i, p. 138 (1867).

Passer simplex saharæ, *Erlanger, J. f. O.* 1899, p. 472.

Description.—**Adult male**, spring, from El-Hamman, Tripoli.

Upper parts pale silvery-grey, darker on the crown, and more sandy on the back and scapulars; rump and upper tail-coverts creamy-white; tail-feathers blackish-brown, fringed, particularly on the outer webs, with cream colour; primaries brown, becoming blackish towards the tips, and fringed on

the outer webs and bases of the inner webs with cream colour; secondaries similar, but with much broader cream-coloured margins; lesser wing-coverts white; larger wing-coverts blackish, fringed with whitish; lores, circle of feathers round the eyes, chin and throat black; sides of the neck white; rest of the underparts white, slightly tinged with cream-colour.

Iris brown; bill black; feet yellowish-flesh-colour.

Total length 5·50 inches, wing 3·10, culmen ·40, tarsus ·80.

Adult female, spring, from El-Hamman, Tripoli.

Upper parts yellowish-isabelline throughout; quills and tail-feathers brown, fringed with yellowish-isabelline; underparts white, tinged with cream colour.

Iris brown; bill light brown; feet yellowish-flesh-colour.

Measurements slightly less than in the male.

Observations.—The colour of the bill appears to be yellowish during the winter, as shown by a specimen in the British Museum, obtained in Algeria at that season.

This bird is undoubtedly a true Sparrow, belonging to the genus *Passer*, and the distinctive generic name of *Corospiza* bestowed on it by Bonaparte appears to be uncalled for. The species was first described by Lichtenstein from the White Nile, and the type specimen, collected by Hemprich and Ehrenberg at Ambukohl, is in the Berlin Museum.

P. simplex is eminently a desert species, occurring, so far as is at present known, in the sandy districts of the Algerian and Tunisian Sahara, the Province of Fezzan in Tripoli, and the desert regions of Nubia and the White Nile. The species, however, will no doubt eventually be found to occur in other desert districts of the African continent.

Although not uncommon in the localities it frequents, the bird appears to be somewhat local in its distribution, and is not found everywhere in the sandy desert. In Tunisia it is only to be met with in the inland desert districts lying to the south of the Chott Djerid. I have never myself visited this bird's home, nor had the good fortune to meet with it. Baron v. Erlanger appears to have found it fairly common in the neighbourhood of Timbain and Bir-Touil, districts situated not far south of Douz, where he observed it in small flocks and companies, but never in pairs. This was in winter-time, when the breeding season had not yet commenced, but an old nest con-

taining two addled eggs was found near Timbain in the hollow of an old desert tree.

Loche, Canon Tristram and Dr. Koenig all appear to have met with the Desert-Sparrow in the Algerian Sahara, the last-named gentleman having also been fortunate enough to find it breeding in various localities in the Ouargla district. In Tripoli Mr. Dodson met with the bird on various occasions in the Fezzan, where it was not uncommon.

There seems to be some difference of opinion as to the description of country and localities most frequented by the Desert-Sparrow, and also regarding the situations selected by it for its nest. All the evidence, however, points to the species being partial to sandy spots, and it probably occurs both on the outskirts of the oases and in the more open country, and nests in trees as well as in the holes of well-sides, or similar sites. Mr. Dodson, alluding to the birds of this species met with in Tripoli, says that he observed them only in palm-trees, where, apparently, they were breeding. Baron v. Erlanger, as already mentioned, found a nest in the hollow of an old desert tree, and was informed by Herr Paul W. H. Spatz that these birds nested among the sticks forming the nests of some of the larger Raptores, built on similar desert trees. Dr. Koenig, on the other hand, appears to have found the species nesting in the crevices of well-sides.

In many of its habits, as well as in its note, the Desert-Sparrow seems to resemble the Tree-Sparrow. It feeds chiefly on seeds, but also to a large extent on insects. Its nest is a rather bulky structure compactly built of dry Halfa grass, wool and feathers, and the eggs, which are usually three in number, are said to closely resemble those of the Tree-Sparrow.

Baron v. Erlanger considers the Desert-Sparrow found in Tunisia and Algeria to be somewhat different from typical *P. simplex*, and has separated it subspecifically from that species under the name of *P. simplex saharae* (J. f. O. 1899, p. 472). I fail, however, to see sufficient grounds for this distinction.

PETRONIA PETRONIA (Linnæus).

ROCK-SPARROW.

Fringilla petronia, *Linn. Syst. Nat.* i, p. 322 (1766).

Petronia petronia, *Kaup, Natürl. Syst.* p. 158 (1829); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 289.

Petronia rupestris, *Loche, Expl. Sci. Alg. Ois.* i, p. 148 (1867).

Pyrgita petronia, *Koenig, J. f. O.* 1888, p. 243; *id. J. f. O.* 1893, p. 62.

Petronia stulta, *Whitaker, Ibis*, 1894, p. 92.

Petronia petronia barbara, *Erlanger, J. f. O.* 1899, p. 481.

Description.—**Adult male**, spring, from Tatahouine, South Tunisia.

Above sandy-brown, streaked and spotted with darker brown, the feathers of the back and wings with dark centres and pale buff margins; a conspicuous pale buff superciliary stripe; tail-feathers dark brown, the two middle pairs slightly and the remaining pairs largely tipped with white on the inner webs; underparts pale buff, with faint brown streaks, becoming darker on the flanks, and with a distinct yellow patch on the throat.

Iris brown; bill brown, paler below; feet light brown.

Total length 6 inches, wing 3·80, culmen ·55, tarsus ·75.

Adult female resembles the male, but has the yellow throat patch much less pronounced.

The Rock-Sparrow is resident and not uncommon in some districts of Tunisia, but appears to be more or less locally distributed. I have examples from various parts of the Regency, both north and south of the Atlas, and some were procured in districts as far south as Tatahouine and Douirat. From South Marocco I also have specimens which were obtained in the neighbourhood of Glaoui, at 5,000 feet above sea-level. Mr. Dodson, who was collecting for me in Marocco, said he met with the species in no other part of the Empire, and apparently it is not abundant in that country, nor is it at all common, I believe, in Algeria, although Loche includes it among his Algerian birds.

As its name would imply, *P. petronia* is a rock-loving bird, being generally found, either in small parties or in pairs, on hill-sides or in the vicinity of rocky ground. Occasionally, however, it is to be found on cultivated land, consorting with Sky-Larks, and I once shot one out of a flock of Larks in the middle of a cornfield. The food of the Rock-Sparrow consists chiefly of grain and various kinds of seeds, but it is varied to a considerable extent by an insect diet. The note of this bird is a harsh and monotonous chirp.

The Rock-Sparrow breeds as a rule in holes in cliffs or old walls, and the nest is composed of straw or dry grasses, with a little wool, plentifully lined with feathers and hair. The eggs, four or five in number, greatly resemble those of the common House-Sparrow.

Baron v. Erlanger considers the Rock-Sparrow of Tunisia sufficiently different from typical *P. petronia* (L.) to merit subspecific distinction, and has separated it under the name of *P. petronia barbara* (J. f. O. 1899, p. 481). After careful comparison of my Tunisian specimens with a large series of Rock-Sparrows from different parts of Europe, I cannot say I find sufficient grounds for this distinction. There is certainly a slight difference in colour between examples from South Tunisia and those from Europe, but it is extremely slight, while the measurements are about the same in both. Examples from Northern and Central Tunisia are identical in every way with some from South Europe.

P. puteicola (Festa), from Palestine, differs far more from typical *P. petronia* (L.), and has perhaps rightly been separated from it, although it is scarcely entitled to full specific rank. Prof. Arrigoni degli Oddi has recently separated the Sardinian Rock-Sparrow from typical *P. petronia* (L.) under the name of *P. petronia hellmayri*. I have not myself seen any examples of the Rock-Sparrow from Sardinia.

FRINGILLA CŒLEBS, Linnæus.

CHAFFINCH.

Fringilla cœlebs, *Linn. Syst. Nat.* i, p. 318 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 171; *Loche, Expl. Sci. Alg. Ois.* i, p. 143 (1867); *Koenig, J. f. O.* 1888, p. 233; *id. J. f. O.* 1892, p. 303; *id. J. f. O.* 1893, p. 55; *Whitaker, Ibis*, 1894, p. 91.

Description.—**Adult male**, winter, from Tunis, North Tunisia.

Forehead black; crown, nape and sides of neck dull bluish-grey, slightly washed with brown; back and scapulars chestnut-brown; rump and upper tail-coverts green; middle pair of rectrices dark grey, the two outer pairs white, excepting the terminal portion of outer web and the basal portion of inner web, which are black; the next adjoining pair with only a white patch on the terminal portion of inner web; the remaining tail-feathers black; quills dark brown, slightly fringed on outer webs with light green;

greater wing-coverts black, broadly tipped with yellowish-white; lesser wing-coverts pure white; lores, ear-coverts and region round eye brown, becoming paler and more vinous on the throat, breast and rest of underparts, and almost white on the crissum and under tail-coverts.

Iris hazel; bill livid flesh-colour, darker at the tip; feet light brown.

Total length 6 inches, wing 3·50, culmen ·50, tarsus ·75.

Adult female, winter, from Tunis, North Tunisia.

Above brown, with a slight greenish tinge; rump and upper tail-coverts green; tail and wings as in the male; below grey-brown, lighter on the abdomen and crissum.

Soft parts as in the male; measurements slightly less.

Observations.—The summer plumage of both male and female is brighter.

Our European Chaffinch undoubtedly occurs as a winter migrant in North-west Africa, as well as in Egypt (Shelley, *Birds of Egypt*, p. 151), and is to be met with in certain numbers in the Tunisian Regency during the winter and early spring months. It is most frequently found in the more northern districts, but ranges along the sea-coast of the Regency to the Tripoli frontier; I have an example of it from Tatahouine, which is not far from that frontier.

Dr. Koenig (*J. f. O.* 1893, p. 56) met with the species near the village of Schradou, on the east coast of Tunisia, towards the end of March, and again on the Djebel Batteria in the same district as late as April 15th. The birds he saw seemed to be on passage, and were in small flocks, consisting chiefly of females, although on the latter occasion he also saw two male birds. April 15th is certainly a late date for this species to remain in Tunisia, and Dr. Koenig was no doubt perfectly right in concluding that the birds he saw were on passage. A still later date for the occurrence of *F. cœlebs* in North-west Africa has, however, been recorded by Mr. C. Dixon, who states that he found it rather common in the cork-woods in the neighbourhood of Philippeville as late as the middle of May (*Ibis*, 1882, p. 574). It is to be regretted that Mr. Dixon was unable to ascertain whether the birds he saw were nesting, or whether they were merely on passage, as it is still doubtful whether our European Chaffinch ever breeds south of the Mediterranean.

Loche and Malherbe both mention *F. cœlebs* as occurring in Algeria, and from North Marocco I have specimens obtained during the winter months.

The Chaffinch is of bright, sociable habits, and by no means shy. During the winter months it is gregarious and usually to be found in small flocks, which in Tunisia frequent the olive-groves and similar plantations, feeding on the seeds of various wild plants as well as on insects. The Chaffinch has a particularly bright and cheerful song, and for this reason is often kept in captivity. Its sharp "pink-pink" also rings pleasantly on the ear and is considered by some ornithologists to be clearer in tone than that of *F. spodiogenys*, the resident Chaffinch of North-west Africa.

A curious instance of a hermaphrodite Chaffinch was recorded by Herr F. E. Blaauw (*Ibis*, 1890, p. 464). The specimen in question, besides having the genital organs of both sexes well developed, had the plumage on the right half of its body coloured like that of a male, and on the left like that of a female, the two different plumages being sharply defined. The specimen was mounted and is preserved in the Royal Zoological Museum at Amsterdam.

FRINGILLA SPODIOGENYS, Bonaparte.

ALGERIAN CHAFFINCH.

Fringilla spodiogenys, *Bp. Rev. Zool.* 1841, p. 146; *Sharpe, Cat. Birds Brit. Mus.* xii, p. 177; *Malherbe, Faune Orn. de l'Alg.* p. 20 (1855); *Koenig, J. f. O.* 1888, p. 235; *id. J. f. O.* 1893, p. 57; *Whitaker, Ibis*, 1894, p. 91; *Erlanger, J. f. O.* 1899, p. 470.

Fringilla spodiogena, *Loche, Expl. Sci. Alg. Ois.* i, p. 146 (1867).

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Forehead and lores black; remainder of head, nape, scapulars and upper tail-coverts slate-blue; back and rump green; middle pair of rectrices dark grey, fringed with whitish; three outer pairs white, black on the terminal portion of the outer web and on the basal portion of the inner web; next adjoining pair black, with a white patch on the inner web; primary quills black, fringed externally with greenish-white; secondaries similar, but more broadly fringed; wing-coverts as in *F. cœlebs*; throat and rest of underparts a pale roseate-vivous, becoming whitish on the abdomen, crissum and under tail-coverts.

Iris hazel; bill lead-colour; feet brown.

Total length 6.50 inches, wing 3.65, culmen .50, tarsus .75.

Adult female, spring, from Gafsa, South Tunisia.

Entire head brownish-grey, becoming bluish on nape and sides of the neck; back brownish-green; rump greenish; upper tail-coverts bluish-grey; wings and tail as in male, but duller; underparts pale brownish-grey, becoming lighter on the abdomen and vent.

Soft parts as in the male; measurements rather less.

Observations.—The female of *F. spodiogenys* may be easily distinguished from that of *F. cœlebs* by the far greater amount of white on the wings, particularly on the bases of the secondaries. The general colour of the upper parts is also greyer and less brown than in *F. cœlebs*. In size there is also a difference, *F. cœlebs* being rather smaller than *F. spodiogenys*.

The winter plumage of both sexes is rather duller than the spring one, and at that season the head and back show some brownish feathers.

In Tunisia this species is the representative Chaffinch of the country, occurring abundantly in the Regency wherever the environment may be adapted to its requirements. In many parts of Northern Tunisia, particularly where there are orchards and olive-groves, this Chaffinch is remarkably plentiful, and by no means shuns the neighbourhood of buildings, although it also frequents the open country far from any human dwellings. In Central Tunisia it also occurs plentifully in certain districts, especially in those situated near the east coast, where extensive tracts of olive-groves abound. Further south in the Regency the distribution of the species is somewhat peculiar, as it apparently occurs in only a few of the oases, and not in all of them. The Gafsa Oasis is one of the favoured few, probably owing to its fine olive-groves and orchards. Mr. Aplin also met with this Chaffinch in the Oasis of El Guettar, to the south-east of Gafsa, and M. Blanc has found it at Tatahouine still further south.

In Algeria *F. spodiogenys* is as abundant as it is in Tunisia, in districts where the environment is suitable. In Marocco it is also abundant, and my collection contains a large series of specimens from different parts of the Empire. The Maroccan Chaffinch has been separated by Messrs. Rothschild and Hartert from typical *F. spodiogenys* as a subspecies, under the name *Fringilla spodiogenys koenigi*, but scarcely, I think, on sufficient grounds. Comparing my large series of Chaffinches in full breeding plumage from Marocco with those from Tunisia, I find that they certainly differ slightly from the latter in being a little darker and richer in colouring, but the difference appears to me to be too slight to warrant separation. Birds in Marocco in general are rather darker than those obtained further east.

The Algerian Chaffinch never appears to have strayed across the Straits of Gibraltar, or to have been found in Spain, and the species has every right to be considered as peculiar to North-west Africa. I may, however, here mention that the Florence Natural History Museum possesses an undoubted male specimen of *F. spodiogenys*, which was taken by a local bird-catcher in a net at Santa Lucia, near Prato in Tuscany, on December 2nd, 1895, and presented to the above Museum by Dr. Enrico Azzolini. Its Museum number is 3,615. In its habits generally *F. spodiogenys* resembles our European Chaffinch, and I cannot say that I have noticed much difference in its song, although its notes may perhaps be a little harsher and not so clear as those of *F. cælebs*. To be able to judge properly, however, one should hear individuals of the two species singing together, or one almost immediately after the other. In any case, however, the bright call notes of the Algerian Chaffinch and its cheery short song fall as pleasantly on the ear in the North African woodlands as do the familiar notes of its European congener at home, and they form no slight contribution to the wealth of bird music to be heard in some of those districts during the spring and early summer months. This Chaffinch thrives well in confinement, and examples of it may often be seen in cages in Tunis and other towns of the Regency. Seeds of various kinds seem to be the principal food of the species, but insects also enter largely into its diet.

The nesting season of *F. spodiogenys* in Southern and Central Tunisia commences soon after the middle of March and is continued well into May. In the north of the Regency it is somewhat later. In the olive-groves of the Gafsa oasis I have found many nests during the first fortnight of April, some with fresh eggs, others with fledglings in them. The nests are placed as a rule in the fork of a bough, at a height of from eight to sixteen feet from the ground, and resemble those of our European Chaffinch in being cup-shaped and neatly and compactly built, but they are somewhat larger, and composed externally of dry bents and grasses of a greyish colour, which no doubt harmonises better with the grey boughs and foliage of the olive-tree.

Interwoven into the nest are pieces of wool and cotton-threads, and occasionally also a bit of blue cotton-stuff, probably picked up near some Arab tent; the interior is neatly lined with hair and feathers. The eggs, usually rather larger than those of the Common

Chaffinch, and generally four in number, are of a dull pale bluish or greenish colour, sparsely clouded and spotted with vinous and russet markings. They vary a good deal in size and shape, but their average measurements are $21\cdot50 \times 15\cdot50$ mm.

FRINGILLA MONTIFRINGILLA, Linnæus.

BRAMBLING.

Fringilla montifringilla, *Linn. Syst. Nat.* i, p. 318 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 178; *Loche, Expl. Sci. Alg. Ois.* i, p. 142 (1867); *Koenig, J. f. O.* 1888, p. 233; *id. J. f. O.* 1893, p. 54.

Description.—**Adult male**, autumn, from Italy.

Upper parts mottled black and buff, the feathers having dark centres, light margins and white bases; lower back and rump white, mottled with black; tail blackish-brown, the outer feathers with some white at their bases; quills blackish-brown, margined with whitish; lesser wing-coverts orange-yellow; greater wing-coverts blackish, margined with whitish; throat and breast warm buff; rest of underparts whitish, the flanks spotted with black.

Iris brown; bill yellowish, with a dark tip; feet flesh-colour.

Total length 6 inches, wing 3·50, culmen ·50, tarsus ·70.

Adult female is much duller and browner than the male.

Observations.—In full breeding plumage the head and upper back of the male are of a rich blue-black colour, and the general coloration is brighter.

The Brambling occurs in Tunisia as an occasional winter visitor, but it is probably only in exceptionally severe weather that it extends its wanderings as far as the African coast. Blanc informs me that he has met with the species once or twice in autumn near Tunis, and that the bird-catchers of that town sometimes take it in their nets. Judging from what Loche says (*Expl. Sci. Alg. Ois.* i, p. 143), the species would appear to be a regular winter migrant in Algeria, but possibly a succession of severe winters may have caused these birds to be more frequently observed in that country about the time Loche was there. In any case, I do not think the Brambling can be looked upon otherwise than as an occasional visitor to North-west Africa, although when it occurs there it may be found in considerable

numbers. In North Italy large flocks of the species are at times to be met with in the autumn months, even as early as the end of September. In the neighbourhood of Turin I have sometimes seen flock after flock passing throughout the day during the month of November.

In some parts of North Italy it is said that as many as a thousand Bramblings are taken with nets in a single day.

According to Savi and other Italian ornithologists, the Brambling breeds in some of the mountains of Italy.

In its habits this species is bright and active, being essentially gregarious, and even breeding, it is said, in small communities. In many ways it resembles the Common Chaffinch, but its notes are altogether different, being more twittering, and in this respect resembling those of the Greenfinch. Its food consists chiefly of seeds and berries, but it also eats insects and their larvæ. In confinement the bird thrives well, and it is said to breed in captivity.

ACANTHIS CANNABINA (Linnæus).

LINNET.

Fringilla cannabina, *Linn. Syst. Nat.* i, p. 322 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 4 (1846).

Acanthis cannabina, *Bechst. Orn. Tascheub.*, i, p. 125 (1802); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 240; *Erlanger, J. f. O.* 1899, p. 467.

Linota cannabina, *Loche, Expl. Sci. Alg. Ois.* i, p. 166 (1867); *Whitaker, Ibis*, 1894, p. 92.

Cannabina sanguinea, *Koenig, J. f. O.* 1888, p. 249; *id. J. f. O.* 1893, p. 67.

Description.—**Adult male**, spring, from Kasrin, Central Tunisia.

Forehead crimson; crown, nape, ear-coverts and sides of neck greyish-brown, striated on the nape with a darker brown; back, scapulars and wing-coverts chestnut-brown; upper tail-coverts blackish, with broad white margins; tail blackish, margined with white, both on the outer and inner webs; chin and throat whitish, striped with grey; breast light crimson; rest of underparts whitish, becoming brown on the sides and flanks.

Iris dark brown; bill brown, lighter below; feet pale brown.

Total length 5 inches, wing 3, culmen .40, tarsus .70.

Adult female resembles the male to a certain extent, but has no crimson on the head and breast, while the underparts are more spotted and striped. Soft parts and measurements similar to those of the male.

Observations.—In winter the crimson forehead and breast of the male have an admixture of whitish feathers, and the general plumage of both sexes is duller.

The Linnet is a common species throughout the Regency, occurring as a resident and migrant north of the Atlas, but apparently only as a winter migrant south of those mountains. In Algeria and Marocco it also appears to be abundant. In the former country Dr. Koenig found it nesting in the Aurès districts, while from the latter country I have young birds obtained in the southern districts. Mr. Meade-Waldo mentions having seen Linnets in the Maroccan Atlas at an elevation of 9,500 feet.

During the colder months large flocks of Linnets may be seen on most of the Tunisian plains and tracts of semi-cultivated land, but these flocks disperse on the approach of spring, the bulk of the birds migrating northwards.

In its habits the Linnet is very sociable, and may often be found consorting with other Finches, as well as with birds of its own kind. Its food consists chiefly of the seeds of various wild plants, but it may often be found on stubble-fields feeding upon grain. The Linnet has a soft and musical song, and being easily domesticated, is in great request as a cage-bird.

The breeding season of this species in Tunisia commences about the beginning of April and continues throughout that month and May. The nest, which is generally placed in a low bush, is made of fine rootlets and grasses, lined with wool and hair, and the eggs, four or five in number, are bluish-white, sparsely spotted with reddish-brown. Average measurements 17×14 mm.

The resident Linnet of North-west Africa is considered by some ornithologists to differ from the ordinary European form and has been separated from it subspecifically.

No Redpoll seems to occur in North-west Africa. In Sicily, however, I obtained a specimen of the Lesser Redpoll (*L. rufescens*) in the autumn of 1903, the first example of the species recorded from the island.

Subfamily LOXIINÆ.

ERYTHROSPIZA GITHAGINEA (Lichtenstein).

DESERT BULLFINCH.

Fringilla githaginea, *Licht. Verz. Doubl.* p. 24 (1823).**Erythrospiza githaginea**, *Bp. Faun. Ital. Ucc. Pl.* 35, fig. 3 (1832-41); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 284; *Koenig, J. f. O.* 1888, p. 249; *id. J. f. O.* 1893, p. 68; *Whitaker, Ibis*, 1894, p. 91; *Erlanger, J. f. O.* 1899, p. 462.**Bucanetes githagineus**, *Loche, Expl. Sci. Alg. Ois.* i, p. 164 (1867).

Description.—**Adult male**, spring, from Djebel Semama, Central Tunisia. General colour above and below delicate pale rose, tinged with light greyish-brown on the crown, nape and back, the rose tint being more pronounced on the forehead, rump, upper tail-coverts and on the underparts generally; quills and tail-feathers brown, margined with pale rose.

Iris very dark hazel; bill orange; feet yellowish-flesh colour.

Total length 5 inches, wing 3·40, culmen ·40, tarsus ·70.

Adult female, spring, from Djebel Semama, Central Tunisia.

Resembles the male, but rather duller in colour.

Soft parts and measurements almost the same as in the male.

This pretty little Desert Bullfinch, although nowhere particularly plentiful in the Regency, is a resident species, and seems to be generally distributed throughout the more hilly country south of the Atlas Mountains, where arid mountains and stony plains are mostly to be met with. I have found the species not uncommon at the foot of the Djebel Semama near Kasrin, and on the slopes of the Djebel Tfel and the Djebel Stah near Gafsa, as also on all the stony plains lying to the south-west of that town, notably those near Metlaoui and Tozer. My collection also contains specimens from districts south of the Chott Djerid.

Erythrospiza githaginea occurs in Algeria in the same description of country as it affects in Tunisia. The species probably also occurs in some parts of Marocco and Tripoli, but I have seen no examples of it from those countries.

Although strictly a desert or semi-desert species, *E. githaginea* has not unfrequently been found far from its proper habitat, examples having been obtained from time to time in South Spain, Malta, Sicily and Continental Italy, and occasionally from countries still

further north. The Palermo Museum possesses a specimen of the *Trombetti*, as this bird is called in Italy, which was captured at Mondello, not far from Palermo, on October 20th, 1891.

Eminently a rock-frequenting bird, the Desert Bullfinch is, as a rule, only to be found in hilly, stony districts, and never apparently in the true sandy desert. Its plumage, like that of many of the Larks and other birds, harmonises admirably in colour with the warm reddish tints of the southern rocks and soil, and affords a good example of Nature's protective colouring. The exquisite rose hue of this little bird's plumage, however, is unfortunately somewhat evanescent, and fades considerably after death.

During the greater part of the year *E. githaginea* is to be found in small parties, but during the breeding season single pairs are more often met with. It is by no means a shy bird, and will often allow one to approach within a few yards of it before taking to flight. Its food consists chiefly of the seeds of wild plants, but also to a certain extent of insects and grubs. In captivity the species thrives well, and examples of it may occasionally be seen in aviaries.

The notes of the Desert Bullfinch have been likened to those of a small trumpet, whence its trivial name in various languages.

Its flight is fairly swift, and at times very darting or jerky.

In the more southern districts of Tunisia *E. githaginea* commences nesting in the beginning of March, or even before that date, full-grown young of the species being found on the wing by the beginning of April. I have myself met with many such young birds in the neighbourhood of Metlaoui during the first fortnight of April. Further north in the Regency the breeding season is rather later. The nest of this species is usually placed under a tussock of grass or other small plant on a hill-side, and is neatly built of fine bents, lined with a little hair or wool. The eggs, usually four or five in number—though I have found as many as six—are elongate in shape, and of a delicate sea-green colour, slightly spotted and streaked at the larger end with dark lake and reddish-brown. Average measurements 20×14 mm.

ERYTHROSPIZA SANGUINEA (Gould).

CRIMSON-WINGED FINCH.

Fringilla sanguinea, *Gould, P. Z. S.* 1837, p. 127.

Erythrospiza sanguinea, *Blanford, East. Persia*, ii, p. 252 (1876);
Koenig, J. f. O. 1893, p. 68.

Rhodopechys sanguinea, *Sharpe, Cat. Birds Brit. Mus.* xii, p. 280.

Rhodopechys Phœnicoptera, *Loche, Expl. Sci. Alg. Ois.* i, p. 163 (1867).

Description.—**Adult male**, spring, from Persia.

Forehead and crown blackish; sides of the crown, cheeks and nape light brown; lores reddish; upper parts generally umber-brown, the feathers of the back with darker centres; upper tail-coverts washed with rose; outer rectrices white, the adjoining feather on each side white throughout its greater part and tipped with blackish, the remaining tail-feathers blackish, with white bases; quills and greater wing-coverts dark brown, externally margined with rose-red, the inner secondaries tipped with white; chin, throat, upper breast and sides pale umber-brown; remainder of underparts whitish, washed with rose.

Iris brown; bill yellowish-brown; feet brown.

Total length 6 inches, wing 4·20, culmen ·50, tarsus ·75.

Adult female similar to the male, but duller generally, and less tinged with rose.

Soft parts and measurements as in male.

Loche includes this species in his list of Algerian birds under the name of *Rhodopechys phœnicoptera* (Bonap.) (*Expl. Sci. Alg. Ois.* i, p. 163), and states that he saw a specimen which had been brought by Dr. Buvry from the Tunisian frontier, and a second example obtained in the neighbourhood of Zaatcha.

Dr. Koenig also (*J. f. O.* 1893, p. 68) mentions the fact of the naturalist Alessi, of Gabès, having informed him that an Arab had once brought him a beautiful bird of the genus *Erythrospiza*, which may perhaps have been Loche's *R. phœnicoptera*. Apparently this specimen was too badly shot to be preserved.

Although recent travellers in Tunisia do not appear to have met this species in the Regency, there is no reason to doubt the authenticity of the occurrences recorded above, particularly, as either this or a very closely allied species is to be found in the Maroccan Atlas. This latter was discovered by Mr. E. Dodson, when collecting for me in that country, at Glaoui, a valley in the Great Atlas, about 5,000 feet above

sea-level, and was described by me as a new species under the name of *Rhodopechys aliena* (Bull. B. O. C. vii, p. 18). This Maroccan form of Crimson-winged Finch closely resembles *E. sanguinea* (Gould), but differs from it in certain respects, as pointed out in my original description; possibly the specimens seen by Loche and Alessi, as mentioned above, are referable to it and not to typical *E. sanguinea*.

Mr. Dodson appears to have met with this Finch only at Glaoui, and the bird is evidently not common in Marocco.

If any Crimson-winged Finch is to be found in Tunisia, it should probably be looked for on the higher mountains of the west or south-west of the Regency.

PYRRHULA EUROPÆA, Vieillot.

BULLFINCH.

Pyrrhula europæa, Vieill. *Nouv. Dict.* iv, p. 286 (1816); *Sharpe Cat. Birds Brit. Mus.* xii, p. 447.

Pyrrhula vulgaris, Loche, *Expl. Sci. Alg. Ois.* i, p. 159 (1867); *Koenig, J. f. O.* 1893, p. 54.

Description.—**Adult male**, winter, from Italy.

Upper part of the head and chin glossy black; mantle and back bluish-grey; rump white; wings, upper tail-coverts and tail glossy purple-black; larger wing-coverts tipped with white, forming an alar bar; cheeks and underparts bright red; crissum and under tail-coverts white.

Iris dark brown; bill black; feet dark brown.

Total length 6 inches, wing 3·50, culmen ·45, tarsus ·75.

Adult female has the head dull black, the upper parts greyish-brown, and the underparts vinous-brown.

The Bullfinch is merely an occasional or accidental straggler to Tunisia, and the naturalist Blanc has only once met with the species in the course of twenty years' residence in the country. This occasion was in the early spring of 1886, but during that year there must have been a considerable immigration of the birds, as no less than fifteen examples were brought to him. These were presumably obtained in the neighbourhood of the town of Tunis.

Loche states that the Bullfinch is of rare and accidental occurrence

in Algeria also, and records the capture of two examples in December 1859 (Expl. Sci. Alg. Ois. i, p. 160).

Even in Southern Italy and some of the Mediterranean Islands the Bullfinch is seldom seen, and can only be regarded as an occasional winter visitor. In Sicily I know of but two instances of its occurrence during the past ten years. On the rare occasions when the species strays as far as North-west Africa—no doubt in exceptionally severe winters—the Bullfinch probably confines its wanderings to the wooded country north of the Atlas, and never goes beyond those mountains. It is eminently a bird of the wood or garden, and although not particularly shy, is somewhat secretive in its habits, resorting to localities where it is likely to escape notice. In captivity it is capable of becoming remarkably tame and domesticated, and when brought up from the nest forms a delightful pet. Its soft plaintive notes, and the facility with which it acquires any tune taught it, cause the species to be much sought after as a cage-bird, and a good piping Bullfinch commands a high price. In its wild state, however, the bird's notes are not particularly fine or varied, although its soft call note is always pleasing to the ear. Its food consists chiefly of seeds and berries, insects and their larvæ forming the principal diet of the young birds.

LOXIA CURVIROSTRA POLIOGYNA, Whitaker.

TUNISIAN CROSSBILL.

Loxia curvirostra polioygna, Whitaker, *Ibis*, 1898, p. 625; *Erlanger*, *J. f. O.* 1899, p. 461.

Description.—**Adult male**, spring, from El Oubira, West-central Tunisia.

Crown, nape and upper back brownish-grey, the head thickly streaked and the back washed with bright brick-red; lower back, rump and upper tail-coverts bright brick-red; wings and tail dull brown; greater part of the under surface bright brick-red, with a slight admixture of grey; flanks and crissum brownish-grey; under tail-coverts brownish-grey, fringed with white.

Iris brown; bill blackish-brown; feet dark brown.

Total length 6.50 inches, wing 3.80, culmen .75, tarsus .70.

Adult female, spring, from Bou Chebka, West-central Tunisia.



$\frac{7}{8}$
Loxia curvirostra poliozona.

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Entire upper parts brownish-grey, with darker striations, and slightly washed on the rump with a faint greenish tinge; entire underparts light brownish-grey, paler on the throat and centre of the abdomen; under tail-coverts fringed with white.

Soft parts as in male, measurements slightly less.

The young are spotted as in *L. curvirostra*, but much greyer.

Observations.—In some individuals the upper mandible curves over the right side of the lower mandible, in others over the left side.

As stated in my original description of this bird (*Ibis*, 1898, p. 625), the Tunisian Crossbill differs from typical *L. curvirostra*, Linn., in being paler and greyer in colour, especially in the adult female, which is almost entirely grey, and not green, or greenish, like the female of the Common Crossbill. This is a perfectly constant character, as shown by the large series of specimens in my collection, all exactly alike, and is, I think, sufficient to justify subspecific separation. Adult male birds, owing to the large proportion of red colouring in their plumage, naturally show this difference less than the females do, but immature males, as well as young birds in the spotted stage of plumage, show it distinctly. The bill of the Tunisian Crossbill is like that of *L. curvirostra*, and its measurements do not differ appreciably from those of its European congener. This subspecies affords a good instance of a geographical race, and illustrates the tendency of all species to become paler in Tunisia.

When I first met with the Tunisian Crossbill I thought it might be referable to von Homeyer's *L. c. balearica* from the Balearic Isles (*J. f. O.* 1862, p. 256), but this does not seem to be the case, and the bird from the Balearic Isles is now regarded by good authorities as identical with the ordinary *L. curvirostra*. Certainly the only specimens I have seen from those islands are indistinguishable from examples of the common European bird, and both Mr. Saunders and Mr. Dresser, who have carefully examined specimens from Majorca, agree in referring them to true *L. curvirostra*.

In Spain and Portugal, as also throughout the Western Mediterranean generally, the Common Crossbill occurs more or less irregularly. In Sicily the species appears from time to time as an irregular migrant, generally in autumn, but it has also been known to occur there in the middle of summer. The Sicilians say the Crossbill only

visits their island once in every six or seven years, and perhaps they are not wrong, as I have only known it occur once near Palermo during the past six years. On that occasion a small flock visited my garden in the month of September and lingered there a few hours.

The Tunisian Crossbill is probably to be found throughout the greater part of the Eastern Atlas. Mr. O. Salvin appears to have met with it half a day's journey to the west of Kef, and found young birds just out of the nest on March 26th (*Ibis*, 1859, p. 315). Dr. Koenig also met with Crossbills near Batna in Algeria (*J. f. O.* 1896, p. 134), which presumably belonged to the present subspecies, and it may also occur still further west. I have no specimens of the Crossbill from Morocco, but if it occurs there, I should expect to find it darker in colouring than the Tunisian bird, and very similar to, or even identical with, typical *L. curvirostra* from Europe. I would here observe that the fact of there being a resident race of Crossbill in North-west Africa does not preclude the possibility of typical *L. curvirostra* being found there also, on the contrary, I consider it highly probable that the species occurs there from time to time, as an irregular migrant, as it does in the adjacent islands of Sicily and Malta.

The Tunisian Crossbill is to be found generally in the Aleppo pine-woods of the mountainous districts of Central Tunisia, where it is resident, and in some parts fairly abundant. It may also occur in some of the more northern districts of the Regency, but I have no knowledge of its doing so. I obtained several specimens of the bird, both male and female, at the end of March, 1894, on the high plateaux lying to the north of Feriana, where the Aleppo pine (*P. halepensis*) flourishes at an altitude of between 3,000 and 4,000 feet above sea-level, and where this Crossbill without doubt breeds, although I have never been successful in finding its nest and eggs. In 1897 and 1898 I obtained additional examples of the species from the same locality, including young birds of the year. These latter, which were obtained in the early part of May, seemed to be about two months old. Other localities in which I have met with this Crossbill are the Djebel Semama near Kasrin, and El Oubira on the frontier between Kasrin and Tebessa. On the Djebel Semama I found it at an elevation of over 4,000 feet above sea-level.

In its general habits the Tunisian Crossbill seems to differ in no way from the common Crossbill, and probably its mode of nesting is

similar to that of its congener. The bird is certainly an early breeder in Tunisia, and judging from the young examples procured in May, probably commences to nest in February. This would, no doubt, account for my having failed to meet with its nest and eggs, my visits to the Regency having been made somewhat later in the spring. I have generally found the species in pairs, but several of these pairs may sometimes be within a short distance of each other, busily engaged in feeding upon the seeds of the Aleppo pine. The Crossbill is naturally very tame and unsuspecting, and even in districts like these Tunisian highlands, where man is seldom to be seen, it evinces no sign of fear or alarm on the approach of human beings, but, on the contrary, seems more or less indifferent to their presence. The hard seeds of conifers no doubt form the chief food of the species, but insects and their larvæ are also occasionally eaten. The Crossbill bears captivity well, and in some countries may often be seen as a cage-bird. In Bohemia a curious popular superstition exists among the lower classes, the Crossbill being supposed to ward off illness from the house in which it is kept in confinement. Moreover, should any member of that household be taken ill, the poor bird is said to contract the illness in the patient's stead, and to die of it!

The Crossbill's notes are soft and pleasing, but the bird can hardly be said to have a regular song.

Nests of the common Crossbill found in Europe are generally placed on the horizontal branches of firs, or other coniferous trees, and are composed of twigs, moss and lichen, lined with wool and hair. The eggs, generally four in number, are of a pale bluish-white, slightly spotted and streaked, chiefly on the larger end, with reddish-brown and lake. Average measurements 22×16 mm.

Subfamily EMBERIZINÆ.

FRINGILLARIA SAHARÆ (Levaillant, junr.).

HOUSE-BUNTING.

Emberiza saharæ, *Levaill. jr. Expl. Sci. Alg. Ois.* pl. 9 bis, fig. 2 (1850);
Whitaker, Ibis, 1894, p. 92.

Fringillaria saharæ, *Tristr. Ibis*, 1859, p. 295; *Sharpe, Cat. Birds Brit. Mus.* xii, p. 563; *Loche, Expl. Sci. Alg. Ois.* i, p. 182 (1867);
Koenig, J. f. O. 1893, p. 53; *Erlanger, J. f. O.* 1899, p. 459.

Emberiza sahari, *Malherbe, Faune Orn. de l'Alg.* p. 21 (1855);
Koenig, J. f. O. 1888, p. 232.

Description.—**Adult male**, spring, from Gafsa, South Tunisia.

Head, throat, upper breast and nape pale bluish-grey, striped with black, more conspicuously on the crown and less so on the other parts; superciliaries white; back and rump dull cinnamon, slightly striped on the back with dark brown; wings and tail-feathers blackish-brown, the former slightly and the latter broadly margined with cinnamon; the lesser wing-coverts brighter cinnamon; breast and rest of underparts light cinnamon.

Iris very dark brown; upper mandible brown, lower one yellow; feet light yellowish-brown.

Total length 5.50 inches, wing 3, culmen .40, tarsus .65.

Adult female resembles the male to a certain extent, but the head and nape are pale sandy-brown instead of bluish-grey, and the rest of the plumage is duller.

Soft parts and measurements almost the same as in the male.

This soberly attired, but highly interesting and attractive little bird is one of a group which seems to form a connecting link between the true Buntings and the Finches, partaking of the characters of both genera, resembling more the former in some respects, and the latter in others. I am therefore inclined to follow some other ornithologists and refer this species to the genus *Fringillaria* (Swainson, *Classification of Birds*, ii, p. 290, 1837), which should no doubt also include some of the other Buntings, such as *F. striolata* and *F. casia*. These two last named species are both included by Loche among the birds of Algeria, but there appears to be no record of the occurrence of either within or near the borders of the Regency.

The present species is apparently peculiar to North-west Africa, and has only been recorded from the more southern districts of Tunisia, Algeria and Marocco. Somewhat to my surprise, Mr. Dodson brought no specimens from Tripoli, when collecting for me in that

country in 1901, but I cannot help thinking that the species must occur there also in certain districts.

In Algeria, as in Tunisia, *F. saharae* is abundant in some of the oases, but not in all of them. At Biskra I found it very plentiful in the old part of the village, "Vieux Biskra" as it is called, which is quite in the oasis, and where the mud-hovels of the Arabs, and the surroundings generally, are more suited to the bird's requirements than the modern French town that has sprung up of late years.

From Morocco I have specimens of the House-Bunting obtained at the city of Morocco, where the species appears to be abundant. These examples are slightly darker in coloration than birds from Tunisia and Algeria. Mr. Meade-Waldo found *F. saharae* locally common throughout the Moroccan Atlas, and breeding in most of the Kasbahs, or forts, up to about 4,000 feet. At one place (Djebel Bourzegane) it was nesting in rocks far removed from any human dwellings.

In the Tunisian Regency *F. saharae* is somewhat local in its distribution, being extremely abundant in certain places and entirely wanting in others close by. At Gafsa the species is very common, and I have notes of its occurrence at many places south of that town, such as Bir-Mrabot, Kebilli, Douz, Bir-Abdullah, Tamerzed, Douirat, and Tatahouine; at the last-mentioned place, however, I am told it is rather rare. Eminently a house-bird, the species is generally to be found in the vicinity of buildings, but occasionally it occurs in the open country at a considerable distance from human habitations. In the spring of 1902 I found several of these birds in the cliffs bordering the ravine through which the Oued Seldja flows when issuing from the chain of mountains lying to the north of Metlaoui and Tozer. Here a colony of the birds had evidently established itself, as I met with both adults and young, the latter full-grown and on the wing by the middle of April. I may here observe, however, that the breeding season of that year was an exceptionally early one, owing probably to the winter immediately preceding it having been an extremely mild one, with little or no rain or inclement weather. It would be difficult to find a wilder spot, or one in greater contrast to the neighbourhood of a town or village, than this *embouchure* of the Oued Seldja, where the river leaves the savage mountain fastnesses and loses itself in the expanse of sandy desert stretching away for miles southwards. According to Baron Erlanger (*J. f. O.* 1899, p. 460), *F. saharae* also occurs on the Djebel Tfel, and one or two other mountains near Gafsa.

He also met with the species as far north as the village of Feriana. In Marocco also, as already mentioned, the House-Bunting has occasionally been found in the open country, and no doubt this was the original home of the species, which, like some others, has considerably modified its habits and mode of living, and now resorts to the neighbourhood of human dwellings, presumably on account of the greater abundance of food and shelter to be found there. Arab huts, with their hard-baked mud and rubble walls, seem to be particularly attractive to these birds, which no doubt find plentiful and suitable nesting sites in such roughly constructed buildings. Mosques also are greatly frequented by the House-Bunting, and those situated in towns where these birds occur are sure to be the resort of several pairs. There would, indeed, appear to be a certain association between mosques and *F. saharae*, so much so, that Mr. Aplin, when collecting for me in Tunisia, used to say that he was never surprised on arriving at a town or village *without* a mosque to find that there were no House-Buntings, or *vice versa*! In the fine Mosque of Sidi-Yacoub at Gafsa, to which I have always obtained access without difficulty, I found *F. saharae* particularly abundant, and took several nests of the species there; I also shot one or two specimens of the birds with an air-gun in the Mosque courtyard, a proceeding which apparently in no way offended the religious feelings of my Arab guide, who took part in the proceedings with the greatest keenness. I confess to having felt a certain degree of compunction when shooting these little birds, for they are so extremely confiding and unsuspecting, and I abstained from securing more specimens than were necessary for my collection. I was glad to find that the Arabs of Gafsa and elsewhere do not trap this species, as they do so many others, and they probably look upon the bird with feelings of respect, although not considering it absolutely sacred. In some parts of Tunisia this species, indeed, goes by the name of the *Marabout*.

In the towns and villages where it occurs the House-Bunting seems to be absolutely devoid of fear, and will enter the open door-way of a house with the utmost self-assurance and pick up any crumbs of bread or other scraps of food that are to be found on the floor. The birds I met with in the open country, however, were much wilder, in fact, they seemed to be decidedly shy and suspicious. This species feeds on insects and seeds of various kinds, but like our common House-Sparrow, it subsists to a great extent upon any scraps which

it may pick up in and about houses. The song of the male bird is low, soft and twittering, as a rule, but at times poured forth brightly and *con amore*, and although not very varied it is distinctly pleasing. I used often to stop and listen to one of these little songsters as it sat perched on top of a mud wall, within a few feet of me, singing and preening its feathers alternately, its mate probably being on her nest close by. The call notes of the male bird may be fairly rendered by the syllables "zweet, zweet-a-twee," to which the female replies "zeewit."

The nesting season of this species, as a rule, commences about the end of March and is continued throughout the months of April and May, but in some years, after a fine dry winter, it begins earlier. During the first fortnight of April I have found numerous nests at Gafsa, some with eggs and others with young birds in them, and, as above mentioned, I have met with fully-grown young birds on the wing, in the mountains near the Oued Seldja, even before the middle of April. The nest, which is generally placed in a hole or crevice in a wall, is small and very shallow, being composed of fine fibres and dry grasses, lightly lined with horse and goat-hair, and occasionally with a little wool. In the Gafsa mosque, above alluded to, I found several nests placed in small indentures in the capitols of the columns of the building. The eggs are usually three or four in number, and resemble diminutive examples of those of the House-Sparrow, being of a pale bluish-white colour, speckled with grey and brown, the spots often forming a zone at the larger end. The eggs vary a good deal both in size and shape, but their average measurements may be given as 19 × 14 mm

EMBERIZA MILIARIA, Linnæus.

CORN-BUNTING.

Emberiza miliaria, *Linn. Syst. Nat.* i, p. 308 (1766); *Malherbe, Faune Orn. de l'Alg.* p. 20 (1855); *Koenig, J. f. O.* 1888, p. 233; *id. J. f. O.* 1893, p. 54; *Whitaker, Ibis*, 1894, p. 92; *Erlanger, J. f. O.* 1899, p. 458.

Miliaria miliaria, *Sharpe, Cat. Birds Mus.* xii, p. 552.

Cynchramus miliaria, *Loche, Expl. Sci. Alg. Ois.* i, p. 168 (1867).

Description.—**Adult male**, spring, from Tamerzed, South Tunisia.

Above greyish-brown, the plumage generally having a somewhat striated appearance owing to the dark centres of the feathers; rump more uniform in colour; wings and tail dark brown, with light margins to the feathers; faint superciliary stripe creamy-white; chin and throat creamy-white, spotted on the sides; rest of underparts creamy-white, spotted on the breast, and streaked on the sides and flanks with dark brown.

Iris very dark brown; bill yellowish-brown; feet yellowish-flesh-colour.

Total length 7 inches, wing 4, culmen .50, tarsus 1.

Adult female similar to the male, but rather smaller.

Observations.—Few species are more subject to variation in plumage than the present one, and "varieties," including complete albinos, are constantly to be met with, my own collection possessing several such "sports."

This is one of the commonest birds to be met with in Tunisia, and occurs throughout the Regency generally, except in the higher mountain districts and in the sandy desert. Owing to its fearless, and somewhat obtrusive habits, it is constantly in evidence, even to the most careless observer. Although distinctly a resident species in Tunisia, this Bunting also appears to be migratory there to a certain extent.

In Algeria and Marocco the species is abundant in districts corresponding to those where it occurs in Tunisia, and it is also to be found in the north of Tripoli.

The Corn-Bunting as a rule frequents cultivated plains and open country, where bushes are plentiful, and is rarely to be met with on mountains, or at any great elevation. Road-sides are much resorted to, particularly if they are edged by hedgerows. This bird is by no means shy, and may indeed be called rather stupid, for it seems actually to court danger, perching conspicuously on bush-tops, or on the roadside immediately in front of the passer-by.

During the autumn and winter months these Buntings collect in small flocks, and may often be found on stubble fields, in the company of other species, feeding on grain and seeds. During that season the Tunis bird-catchers take numbers of the birds, as they roost at night on the ground together with Larks.

Besides feeding on grain and seeds, this species devours numbers of insects, particularly coleoptera, during the spring and summer.

Its call note is rather harsh and monotonous, and its song, if such it can be called, is distinctly poor.

The Corn-Bunting commences nesting operations in Tunisia somewhat earlier than it does in Europe, and by the end of April young birds on the wing may occasionally be met with. As a rule, however, nests with eggs are not to be found until the beginning of May, and in the extreme north of the Regency even a little later. The nest is nearly always placed on the ground, among rough grass or under a clod in the middle of a corn-field, and is loosely constructed of rootlets and grasses, with a lining of finer grasses and hair. The eggs, four or five in number, are of a pale lilac colour, streaked and spotted with a darker shade of lilac and reddish-brown. Average measurements 23×17 mm.

EMBERIZA CITRINELLA, Linnæus.

YELLOW BUNTING.

Emberiza citrinella, *Linn. Syst. Nat.* i, p. 309 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 515; *Loche, Expl. Sci. Alg. Ois.* i, p. 170 (1867); *Koenig, J. f. O.* 1888, p. 232; *id. J. f. O.* 1893, p. 53.

Description.—**Adult male**, winter, from Ain-Draham, North Tunisia.

Forehead lemon-yellow; crown dusky-green, with blackish streaks; nape greyish-green; back and scapulars rufescent-brown, with black middles to the feathers; rump cinnamon-brown; tail blackish, the two outer rectrices with white at the tip and on the greater portion of the inner webs; quills blackish-brown, margined with yellowish-green; secondaries broadly margined with cinnamon; lores and a line behind the eyes lemon-yellow; ear-coverts blackish; chin, throat and sides of neck lemon-yellow, washed with dark green; breast greenish-yellow; lower breast and abdomen lemon-yellow, striped on sides and flanks with cinnamon.

Iris dark brown, bill blackish; feet pale brown.

Total length 6.50 inches, wing 3.30, culmen .40, tarsus .70.

The Yellow Bunting or Yellow Hammer, does not seem to be at all common in Tunisia, or indeed anywhere on the African Continent, although Loche includes the species in his list of Algerian birds, saying that he had met with it frequently in the province of Algiers,

and particularly on the Zaccar. This statement, however, is preceded by another, to the effect that the species is not common in Algeria. My Tunisian collection includes but one example of the Yellow Bunting, obtained by the naturalist Blanc, who informs me that he has occasionally met with it in the neighbourhood of Ain-Draham and Fernana in the north of the Regency. He adds that although not as a rule abundant, the species is fairly numerous in some winters. From Marocco I have no example of the bird, nor any note of its occurrence, and on the whole, I think that the species can only be looked on as an occasional winter visitor to North Africa.

Even in Southern Italy and the Mediterranean Islands this Bunting is somewhat rare, although by no means uncommon in autumn and winter in Northern Italy, and at times even in the central districts of the Peninsula.

In some of its habits the present species resembles the Cirl Bunting, but it is fonder of the open country than that bird.

In winter, when this species is found in Tunisia, its food consists chiefly of grain and the seeds of various wild plants. Its notes, so familiar to us in North Europe, are rarely to be heard during the colder months.

EMBERIZA CIRLUS, Linnæus.

CIRL BUNTING.

Emberiza cirlus, *Linn. Syst. Nat.* i, p. 311 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 525; *Loche, Expl. Sci. Alg. Ois.* i, p. 171 (1867); *Koenig, J. f. O.* 1888, p. 232; *id. J. f. O.* 1893, p. 53; *Whitaker, Ibis*, 1896, p. 95.

Description.—**Adult male**, spring, from Ghardimaou, North Tunisia.

Crown dusky-green, striped with blackish; nape dusky green; back cinnamon, sparsely striped with blackish; rump greyish-green; tail brown, with whitish margins to the feathers, the two outer pairs white on terminal portion of inner webs; quills brown, margined with yellowish on the outer webs; secondaries and greater wing-coverts broadly margined with cinnamon, lesser wing-coverts olive-green; lores, moustachial stripe, feathers around and behind the eyes dark dusky green; chin and upper throat black; super-

ciliary stripes, patch below the eyes and lower throat lemon-yellow; broad pectoral band joining the nape yellowish-green; sides of the lower breast bright cinnamon; rest of underparts lemon-yellow, striped on the flanks with brown.

Iris dark brown; bill slate, paler below; feet pale flesh-colour.

Total length 6·25 inches, wing 3·20, culmen ·40, tarsus ·70.

Adult female, spring, from Ghardimaou, North Tunisia.

Above grey-brown, washed with cinnamon on the back and wings, and streaked with dark brown; below pale yellow, with dark brown striations, and slightly washed on the sides with cinnamon.

Soft parts as in the male, measurements slightly less.

Observations.—In the present species the bases of feathers on the crown are dull green, differing in this respect from those of *E. citrinella*, which are bright yellow.

The Cirl Bunting occurs locally in North Tunisia, although nowhere very abundant, and the only specimens I have in my collection are from the neighbourhood of Ghardimaou in the Medjerdah Valley district. These were collected by Mr. Aplin in the month of May, when the males were in full song, and the birds no doubt breeding, although no nests of the species were actually found. The hill-sides of the Medjerdah Valley are thickly clothed with high shrubs of a "maquis" description and seem well suited to the tastes of this Bunting.

The species, however, appears to be more numerous further west, and is abundant in Algeria and Marocco. Dr. Koenig found it common about Batna and throughout the wooded ranges of the Aurès Mountains generally. He also found the species as far south as El-Kantara, which is situated immediately south of the Atlas. In Marocco this Bunting appears to be abundant throughout the Atlas range up to about 5,000 feet above sea-level, and I also obtained a large series of specimens, including young birds, from the neighbourhood of Marocco City, and from Ras-el-Ain on the coast. In some parts of Southern Italy this Bunting is common and resident all the year round, but seems to shun the coast districts during the breeding season, retiring to the higher and more wooded mountains for the purpose of nesting. From Sicily, where the species is abundant, I have both nests and eggs, but all obtained in the higher districts of the interior of the island. The species no doubt prefers wooded

country to the more open plains and arable land, differing in this respect from the two preceding species. In some of its habits, however, it greatly resembles *E. citrinella*, and its song and notes also are not unlike those of that species, although generally considered to be less melodious. Its call note is a simple "zib-zib." Although not at all shy, *E. cirrus* is retiring in its habits, and would probably often escape notice were it not for its notes, which may frequently be heard, though the bird be hidden from view. Seeds and grain form the principal food of this Bunting, varied to a certain extent by insects and caterpillars.

According to Dr. Koenig, who found this species breeding near Batna, its nest is generally to be met with in juniper or other low bushes, and is neatly built of grass-bents and small twigs, with a lining of finer grasses and a little hair or wool. The eggs, three to five in number, apparently vary considerably; the usual colour, however, is pale greenish-white, with dark brownish spots and streaks and grey and pale violet shell-marks. Average measurements 21 × 16 mm.

EMBERIZA HORTULANA, Linnæus.

ORTOLAN.

Emberiza hortulana, *Linn. Syst. Nat.* i, p. 309 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 530; *Koenig, J. f. O.* 1893, p. 55.

Hortulanus chlorocephalus, *Loche, Expl. Sci. Alg. Ois.* i, p. 178 (1867).

Description.—**Adult male**, spring, from North Tunisia.

Crown and nape greenish-grey; back, scapulars, wing-coverts and secondaries fulvous-brown, with dark centres to the feathers; rump rufous-grey; tail dark brown, the outermost feathers with oblong white patches on the lower portions; quills dark brown, margined with buff; throat straw-yellow; breast olive-grey; rest of the underparts chestnut.

Iris brown; bill dull reddish; feet reddish flesh-colour.

Total length 6·10 inches, wing 3·50, culmen ·50, tarsus ·80.

Adult female duller and greener than the male.

Although met with in certain numbers during the periods of migration in spring and autumn, the Ortolan is not very abundant in

Tunisia, and I am not aware that it either nests or winters anywhere in the Regency.

According to Loche, the species is not widely distributed in Algeria, but in Marocco, *vide* Favier, it is, next to the Common Bunting, the most abundant species of the genus near Tangier, and some individuals remain to breed.

The Ortolan is of sociable habits, and when on passage is generally to be found in small parties, frequenting hill-sides and the outskirts of woods and gardens. Its food consists of seeds and insects, and in autumn to a great extent of grain. It is considered by some authorities to have a soft and pleasing song, and a good many are snared by the Tunisian bird-catchers to be kept as cage-birds. In Tunis they are apparently only kept in captivity for their song, and not, as in Italy and France, to be fattened up for the table. As the market-supply could not possibly satisfy the demand for these delicate birds in most Continental towns, many other species of Warblers are made to do duty for the Ortolan as an article of food.

EMBERIZA PUSILLA, Pallas.

LITTLE BUNTING.

Emberiza pusilla, *Pall. Reis. Russ. Reichs.* iii, p. 697 (1776); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 487; *Loche, Expl. Sci. Alg. Ois.* i, p. 174 (1867); *Koenig, J. f. O.* 1892, p. 299; *id. J. f. O.* 1893, p. 53.
Emberiza lesbia, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 14, (1846).

Description.—**Adult male**, from Asia.

Crown and sides of head rufous, a broad black superciliary streak extending behind the eye; back and rump brown, striped with black; tail dark brown, the outer feathers obliquely tipped with white; quills dark brown margined with dull white; chin and throat pale chestnut; rest of underparts dull white, the breast and flanks streaked with black.

Iris dark brown; bill brown; feet pale brown.

Total length 5 inches, wing 2·75, culmen ·35, tarsus ·70.

Adult female duller in plumage than the male.

Malherbe and Loche have both recorded this Bunting as occurring in Algeria, the former having obtained a specimen of it from the neighbourhood of Bône, within a short distance of the Tunisian

frontier. The species, though no doubt a scarce visitor to North-west Africa, is perhaps less rare than it appears to be, its inconspicuous plumage causing it to be overlooked, particularly in a country little explored by the ornithologist. In Italy the species occurs from time to time, even in the south of the Peninsula, and is said to have been found in Malta. As a rule the Little Bunting frequents wooded country, and more particularly damp forests. It is said to be the reverse of shy in its habits, and to possess a low sweet song. It breeds in North Russia and Siberia.

There appears to be no record of the occurrence of the Rustic Bunting (*E. rustica*) in North-west Africa. The Black-headed Bunting (*E. melanocephala*) also seems to be unrecorded from that country, but both species not improbably occur there accidentally as stragglers.

EMBERIZA CIA, Linnæus.

MEADOW-BUNTING.

Emberiza cia, *Linn. Syst. Nat.* i, p. 310 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 537; *Loche, Expl. Sci. Alg. Ois.* i, p. 173 (1867); *Koenig, J. f. O.* 1888, p. 232; *id. J. f. O.* 1893, p. 53; *Whitaker, Ibis*, 1896, p. 98; *Erlanger, J. f. O.* 1899, p. 457.

Description.—**Adult male**, winter, from North Tunisia.

Crown pale blue-grey, striated with black, and bordered on each side with a broad stripe of black; lores, patch behind the eye and moustachial stripe black; distinct superciliary stripe white; ear-coverts, throat and sides of neck pale bluish-grey, becoming whitish near base of bill and just below the moustache; nape and back rufous-brown, striped with blackish-brown; rump and upper tail-coverts light cinnamon; tail blackish-brown, two outer pairs of feathers white on the terminal portion of inner web, two middle rectrices pale brown, fringed with whitish; quills brown, the primaries slightly fringed with white, the secondaries and greater wing-coverts broadly fringed with pale cinnamon, the least wing-coverts bluish-grey; underparts pale cinnamon, becoming lighter on the middle of the abdomen and crissum.

Iris dark brown; bill slate-colour; feet yellowish flesh-colour.

Total length 6.50 inches, wing 3.30, culmen .45, tarsus .80.

Adult female resembles the male, but is duller in colouring.

This Bunting, far from being a denizen of the plain, as its English name would imply, is essentially a mountain or hill-frequenting species. It seems to be by no means common in Tunisia, and I have but few examples of it from the Regency. It occurs there in winter as a migrant, but may possibly nest on some of the higher mountains, although I have no knowledge of its doing so. Baron v. Erlanger met with the species on the Djebel Tfel near Gafsa at the beginning of March, when it was doubtless on passage.

In Algeria this Bunting occurs more or less sparingly, as it does in Tunisia. From Marocco I have examples of it obtained in the Atlas districts towards the end of May, when presumably the birds were nesting. The species ranges high in the Maroccan Atlas, being met with at elevations over 5,000 feet above sea-level. In Sicily I have also found this Bunting breeding at considerable altitudes, and there can be no doubt that it is a mountain-loving species, though, when actually on passage, it is naturally often to be met with in comparatively low-lying situations. In Piedmont I have frequently found it, when on migration in October and November, roaming about the lower spurs of the Grajan Alps.

In its habits *E. cia* appears to be somewhat unsociable, and may often be found singly, but when migrating it is generally seen in small flocks, and is then more shy and wary than it is at other times. It is, as a rule, rather a quiet, unobtrusive bird, and its tameness has probably gained for it its French vernacular name of *le Bruant fou*, which, although perhaps not altogether merited, is certainly more appropriate than our English name of *Meadow-Bunting*. It is fond of frequenting broken hilly country, where bushes and trees are abundant, and when suddenly surprised on the ground will fly up into the nearest tree and remain perched there till the intruder has passed by. Like other Buntings, it feeds on the seeds of various wild plants, as well as on insects and their larvæ. Its call note and song are said to be very similar to those of the Yellow Bunting.

Nests of the species found in Europe are generally placed in bushes, or among the rocks on a hill-side, and in their construction resemble those of some other Buntings. The eggs, four or five in number, are dull white or grey, vermiculated at the larger end with fine dark brown or blackish lines. Average measurements 20 × 15 mm.

EMBERIZA SCHÆNICLUS, Linnæus.

REED-BUNTING.

- Emberiza schœniclus**, *Linn. Syst. Nat.* i, p. 311 (1766); *Sharpe, Cat. Birds Brit. Mus.* xii, p. 480; *Koenig, J. f. O.* 1888, p. 232.
Schœnicola arundinacea, *Loche, Expl. Sci. Alg. Ois.* i, p. 176 (1867); *Koenig, J. f. O.* 1893, p. 53.

Description.—**Adult male**, spring, from Algeria.

Crown and nape black; superciliary stripes white, a white stripe extending from the base of the bill backwards and merging into the white collar; cheeks black; throat and fore-neck black, encircled with white; back and scapulars black, the feathers margined with bright rufous; wing-coverts bright rufous; quills brown, margined with whitish; rump ash-colour, slightly striped with blackish; tail black, the two outer pairs of feathers mostly white; underparts white, washed with grey, and striped on the flanks with black and rufous.

Iris dark brown; bill blackish; feet light brown.

Total length 6 inches, wing 3·25, culmen ·40, tarsus ·80.

Adult female duller than the male, with the crown and nape reddish-brown, streaked with a darker shade; throat dull brownish, with scarcely any collar.

In winter the plumage is duller, the black parts, especially in the male, being less pure and having a mixture of brown.

The Reed-Bunting, although perhaps only a winter migrant, probably occurs in most of the Tunisian marshes and in similar wet localities during the colder months. I have met with the species in February in some marshes to the east of Tebessa, where it appeared to be fairly numerous, frequenting the reed-beds and cane-brakes, which were abundant there.

Loche includes this Bunting in his list of Algerian birds, saying that it is common in all the marshy parts of Algeria and in the vicinity of the lakes (*Expl. Sci. Alg. Ois.* i, p. 176.)

In its habits this Bunting is active and a great climber, wending its way in and out among the thick tangles of the aquatic plants it frequents with the greatest facility. It is not particularly shy and may easily be approached. Its food is no doubt composed chiefly of insects, but the seeds of various plants are also eaten by it. The notes of this species are rather loud, and its song during the breeding season is fairly pleasing.

EMBERIZA SCHÆNICLUS PYRRHULOIDES (Pallas).

THICK-BILLED REED-BUNTING.

Emberiza pyrrhuloides, *Pall. Zoogr. Ross.-As.* ii, p. 49 (1811).

Pyrrhulorhyncha pyrrhuloides, *Sharpe, Cat. Birds Brit. Mus.* xii, p. 475.

Description.—**Adult male**, autumn, from Tabarca, North Tunisia.

Differs from *E. schœniclus* in autumn plumage chiefly in having a much thicker and stouter bill.

I have a specimen of Reed-Bunting from Tabarca in North Tunisia, which from its stout thick bill would appear to be referable to this form. It was obtained in the month of November. Like the preceding species, the present form is perhaps only a winter visitor in the Regency.

According to Doderlein, this Reed-Bunting is common and resident in Sicily all the year round, and he found the species nesting at the Pantano di Catania (*Avif. Mod. Sic.* p. 90).

In its general mode of life and habits the Thick-billed Reed-Bunting does not appear to differ from *E. schœniclus*.

Family ALAUDIDÆ.

ALÆMON ALAUDIPES (Desfontaines).

BIFASCIATED LARK.

Upupa alaudipes, *Desf. Mém. Acad. Roy. des Sciences*, 1787, p. 504, pl. xvi.

Alæmon alaudipes, *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 518; *Whitaker, Ibis*, 1894, p. 92.

Certhilauda alaudipes, *Koenig, J. f. O.* 1895, p. 434; *Erlanger, J. f. O.* 1899, p. 449.

Certhilauda desertorum, *Loche, Expl. Sci. Alg. Ois.* ii, p. 43 (1867); *Koenig, J. f. O.* 1893, p. 47.

Description.—**Adult female**, winter, from Oglet-Ouhamia, South Tunisia. Lores and superciliaries creamy-white; a line below the lores, extending

behind the eye and widening on the ear-coverts, greyish-black ; entire crown and nape sandy-grey, shading into sandy-buff on the back and scapulars ; rump and upper tail-coverts pale sandy-grey ; primaries dark brown, with the basal portion white ; secondaries white barred with a dark brown central band ; the innermost secondaries, which are much elongated, greyish brown, fringed with sandy-buff ; upper wing-coverts mostly grey, margined with sandy-buff, and tipped with white ; tail white at the base, the two median rectrices sandy-buff, the remainder blackish, the outer pair margined with white on their outer webs ; chin and throat white, the latter slightly spotted with dark grey ; breast creamy-white, thickly spotted with dark grey ; rest of underparts white.

Iris brown ; bill brownish-grey ; feet whitish.

Total length 9 inches, wing 5·15, culmen 1·15, tarsus 1·25.

Adult female similar in plumage to the male, but rather smaller.

The range of the present species seems to extend throughout the whole of the desert region of North Africa, from east to west. The species also appears to occur in the Cape Verde Islands. On the Abyssinian coast and further east in Asia a closely allied, but fairly distinct, form, *A. a. desertorum* (Stanley), is to be found, which has rightly been separated subspecifically from the present species. This form is distinctly greyer and more ashy in coloration, and the difference in colour appears to be constant within the bird's range.

Of the occurrence of *Alæmon alaudipes* north of the Mediterranean there seems to be no authentic record.

My Tunisian collection includes a large series of specimens of this Lark, both adult and young, obtained at different seasons, and from various parts of the Regency. Among the number may be found individuals varying considerably in colour, some being much greyer, particularly on the head and nape, while others are more sandy-isabelline ; but I look upon this difference as entirely a matter of age, the grey plumage being assumed by the more adult birds, while less adult and immature birds are of a sandy-isabelline colour. I am led to this conclusion by the fact of very young birds in their first stage of plumage being invariably of a sandy-isabelline colour, and even paler than those which have already moulted once. The Alaudidæ, in general, moult during the autumn, but acquire their full spring plumage by shedding the edges of the feathers.

In point of size there is also a considerable variation between individuals, and very small examples of this Lark are occasionally to be

met with, but these are probably nothing more than weak or undersized birds. Canon Tristram's *Certhilauda salvini* (*Ibis*, 1859, p. 428) may perhaps have been founded on one of these small specimens.

In Algeria the present species appears to be of common occurrence in districts corresponding to those in which it is found in Tunisia.

From Morocco I have no specimens of it, but the species probably occurs in some of the more inland desert districts.

From Tripoli I have a large series of specimens of this Lark, obtained from different parts of the country, both inland and coast districts. Mr. Dodson met with it as far south as Mursuk, which lies in 26° N. lat. and the species is probably distributed more or less abundantly throughout the whole of the Vilayet.

A. alaudipes is eminently a desert bird, never, so far as I am aware, occurring north of the Atlas. The most northerly point where I have met with the species has been a few miles to the north of Gafsa, where the high plateaux of Central Tunisia merge into the more desert regions of the south. Here in a very sandy spot at the junction of two "oueds," I found a few of these birds in 1893, and I again met with the species in the very same spot the following year, so that it was evidently not merely of accidental occurrence there. On the western plains between Gafsa and Tozer I have also occasionally encountered the species. South of the Chott Djerid *A. alaudipes* is of more frequent occurrence, and my collection has specimens of it from numerous districts, such as Oglet-Ouhamia, Zamas, Bir-Sultane and Tamerzed.

This Lark evinces a marked partiality for sandy wastes, and is fond of frequenting the dry beds of the "oueds" so plentiful in South Tunisia. It is generally to be found in pairs, particularly during the spring, but at other seasons may be met with in small parties. The bird is a great runner and will often try and elude pursuit by taking to its legs instead of using its wings. When flying it is rather a conspicuous bird, owing to the very distinct marking of its wings, the more noticeable as it flies low, skimming over the ground within two or three feet of the surface. At times, and particularly during the nesting season, the bird may often be seen to rise suddenly from the ground, remain hovering for a short time in mid-air, singing the while, and then descend again. Its song is clear and flute like, and is composed of three or four somewhat plaintive notes. Although a ground bird, it may sometimes be found perching on a bush or desert

plant, whence it will rise vertically upwards, emitting a long-drawn whistle, and then return to the same bush.

Regarding this bird and its song the Arabs have a legend, which is related by Dr. Koenig, to the effect that a "Lefa"—the dreaded Horned Viper (*Cerastes cornutus*) of the Sahara—once offered its friendship and love to this Lark, the union proving a happy and peaceful one for some time. After a while, however, on the Lark one day leaving its young ones in the charge of the "Lefa," the reptile, true to its wicked instincts, fell upon the little ones and devoured them! The grief of the poor mother on returning and discovering what had happened was unbounded, and rising into the air, she bitterly bewailed her sad loss, and to the present day continues to mourn in the same pathetic strains! *Apropos* of this story it is difficult to understand how the ground-nesting birds are able to hatch their eggs and bring up their young broods safely in many of these desert districts, where the ground is literally honeycombed with the holes of small mammals and reptiles. The mere knowledge of the proximity of such neighbours, one might suppose, would be sufficient to deter the birds from nesting in these spots, but such is not the case; on the contrary, the birds appear to be perfectly at their ease, and without apprehension of any danger. Indeed, so far at any rate as the small rodents are concerned, the birds seem to be quite capable of holding their own, and I have seen immature Chats chase and drive away desert rats considerably larger than themselves.

I have never taken the nest and eggs of the present species myself, but the former is said to be rather a bulky, though compactly built structure, composed of small twigs and grasses, lined with finer materials, such as soft vegetable down and spiders' webs, the latter substance, indeed, being a characteristic of the nest of the species. The eggs, of which the complement would appear to be three or four, are of a delicate creamy-white, with grey or violet shell-marks and brown surface spots, sometimes forming a zone round the larger end. They are rather small for the size of the bird, their average measurements being 21×16 mm.

The breeding season commences in March and extends throughout April and May; nests are sometimes found placed on low desert bushes, as well as on the ground.

CHERSOPHILUS DUPONTI (Vieillot).

DUPONT'S LARK.

Alauda duponti, *Vieill. Faun. Franç.*, p. 173, pl. 76, fig. 2 (1820).

Certhilauda duponti, *Bp. Cat. Met. Ucc. Eur.* p. 30 (1842).

Chersophilus duponti, *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 526 ;
Whitaker, Ibis, 1898, p. 126.

Certhilauda dupontii, *Loche, Expl. Sci. Alg. Ois.* ii, p. 42 (1867).

Alæmon duponti, *Koenig, J. f. O.* 1888, p. 230.

Alæmon duponti duponti, *Erlanger, J. f. O.* 1899, p. 368.

Description.—**Adult male**, spring, from Garaar-el-Krechem, Central Tunisia.

Upper parts brown, the feathers with darker centres and lighter margins, giving the bird a mottled or scaly appearance; the nape and sides of the neck rather lighter, owing to the wider white margins; the crown with a median whitish stripe extending from the forehead backward; a whitish stripe over the eye; primaries dark brown, slightly margined with a lighter shade; secondaries the same, but with broader margins; middle pair of rectrices rufous-brown, the rest dark brown except the outer pair of feathers, which are almost entirely white, and the adjoining pair, which have their outer webs white; chin and throat whitish, with a narrow dark streak from the base of the bill downwards, and minute dark spots on the throat; breast whitish, thickly spotted with dark brown; rest of underparts dull white, the sides and flanks striped with rufous-brown.

Iris dark hazel; bill light brown; feet flesh-colour, hind claw almost straight.

Total length 7·25 inches, wing 3·95, culmen ·90, tarsus 1.

Adult female similar in plumage to the male, but rather smaller.

The range of the genus *Chersophilus*, so far as is at present known, is confined to a portion of North-west Africa, Southern Spain, Portugal, and the Balearic Islands. In North-west Africa it is to be found in Algeria and Tunisia, and although not yet recorded from Morocco and Tripoli, it probably occurs in certain parts of those countries as well. Should it be met with in the latter country, the form found will no doubt be the subspecies *C. d. margarite*.

Birds of this genus from Spain, Portugal and the Balearic Isles do not appear to differ in any appreciable way from North-west African examples. Those from Portugal have been separated subspecifically under the name of *C. lusitanicus* (*Cat. Birds Brit. Mus.* xiii, p. 527), but

apparently on insufficient grounds, their measurements and colouring differing in no way from those of many specimens from North-west Africa.

Occasionally, no doubt, *C. duponti* may occur as a straggler or accidental visitor in some country other than those above mentioned, and there is a male specimen of the species, obtained at Piombino near Pisa on December 20th, 1900, in the Royal Museum at Florence. This is the first and, so far as I am aware, the only recorded instance of the species having been obtained in Italy.

In the *Ibis* for 1898 (p. 126) I mentioned having met with *C. duponti* in Tunisia, and pointed out how subject the species is to variation in the colour of its plumage, according to the particular locality it may inhabit. Examples from the more northern and high plateaux districts are dark, and those from the southern and semi-desert regions are paler and distinctly rufous, while those from interlying localities are intermediate in colour.

In size there seems to be no difference between the various forms, the wing measurement varying from 3.90 to 4.10 inches in the case of males, and from 3.55 to 3.75 in that of females. My Tunisian specimens of *C. duponti* are slightly darker in colour than those I have from Algeria, and from Loche's specimens in the Turati Collection at Milan, but the difference is insignificant. On the other hand, the Tunisian birds are not quite so dark as a specimen in my collection from Malaga. Specimens from the Balearic Islands vary somewhat *inter se* in their colouring, but like those from the high plateaux districts of Tunisia are inclined to be dark.

As I have already stated in the *Ibis* I found *C. duponti* not at all uncommon on the plains between Feriana and Kasrin, and I also met with it near El-Oubira on the Algerio-Tunisian frontier. At Bou Chebka, to the north of Feriana, it is also comparatively abundant at an elevation of over 3,000 feet above sea-level, in fact, it seems to occur throughout the greater part of the high plateaux region of Central Tunisia, and I can only repeat what I have already said, viz., that the species is not nearly so uncommon as it is generally supposed to be, and that it is merely owing to the extraordinary capacity the bird has of hiding itself that it escapes notice and is not more often observed.

All the plains on which I met with *C. duponti* were covered with wild thyme and other low-growing plants, affording ample cover for



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Chersophilus duponti.

hiding, and in no case did I ever meet with the species on bare spots; indeed, I generally had the greatest difficulty in catching sight of the bird, although hearing its soft notes within a few yards of me. How often, after having exactly located a bird, as I thought, have I advanced cautiously to the spot where I expected to find it and been disappointed. I remember one day spending some time drawing a rope over a part of a plain where I had heard several of the birds calling in the early morning, hoping by these means to discover a nest of the species, or at any rate to flush one or two of the birds themselves, but the attempt was a complete failure. Probably the surest way to obtain a glimpse of this remarkably shy bird is to wait patiently, and as quietly as possible, in some spot frequented by the species, where the cover is rather thin and patchy, and one may then very likely detect a bird crossing from one patch of herbage to another.

Although a great runner and perhaps more often to be seen on the ground than on the wing, I have sometimes known the species, when disturbed, take to flight at once, and on one occasion, when on the march, I put up the same bird no less than three times. When first flushed, the bird in question got up just in front of my horse, but after that it seemed much wilder, and it was only eventually secured by a long shot.

The flight of this species is, as a rule, rather low, and not prolonged for any great distance, and on alighting, the bird at once runs off and attempts to conceal itself in the thickest cover there may be near at hand. During the breeding season, however, this Lark soars to a great height, and may often be heard in the early morning singing high up in the air.

Its call-notes, uttered by the bird when on the ground, are exceedingly soft and melodious, and so far as it is possible to transcribe them on to paper, may be rendered by a prolonged "twee," followed by a soft "tee-wit-war," the last note in a lower key. No doubt the notes vary somewhat according to the season, but those mentioned, which are uttered in the spring, differ so greatly from the notes of any other bird, that once heard they cannot be mistaken.

C. duponti does not seem to be at all a sociable bird and, as a rule, is to be found singly or, when mated, in pairs. Strange to say, the green plains so much frequented by this species do not appear to be held in equal favour by other birds, an occasional pair of Crested Larks being the only other species likely to be encountered in such

localities. Where, however, the vegetation is varied by patches of Halfa-grass, or other plants, the Lesser Bustard may also be met with, and occasionally even the Houbara Bustard.

The food of this species, like that of other Larks, consists of small seeds and insects.

Judging from the size and plumage of young birds of this species in my collection, I should imagine that the nesting season of *C. duponti* commences about the beginning of April, and is continued throughout May and into June. The nests and eggs which I possess were all obtained between the end of April and the middle of May on the high plateaux lying to the north of Feriana. The nests—placed at the foot of tufts of wild thyme or other low-growing plants—are rather loosely constructed of fine bents and grasses, with a plentiful admixture of the soft filaceous particles of *Anthemis mixta* (L.) and other similar plants, and with little or no real lining.

The eggs, generally three and occasionally four in number, vary considerably in size and shape, as well as in their colouring and marking. Even in the same clutch there is often a good deal of individual variation, as may be seen by the following detailed description of a clutch of three eggs obtained on May 15th, 1897, at Bou Chebka, Central Tunisia. This description was given by me in the *Ibis*, but as eggs of this species are still rare in collections, I think it worth while to repeat it here in full, as follows :—

No. 1, glossy greyish-white ground; plentifully spotted and blotched all over, but particularly at the larger end, with grey shell-markings and yellow-brown surface-spots. Measurements 24 × 18 mm.

No. 2, glossy greyish-white ground; shell-marking grey and very plentiful; surface-spots faint yellow-brown and few, rather more numerous at the larger end; the shape of this egg is more pear-like than the others. Measurements 25 × 17·5 mm.

No. 3, greyish-white ground, very evenly covered all over with minute spots of a grey and faint yellow-brown colour; not a single large spot or blotch, and at a little distance the colour of the egg seems to be uniform greenish. Measurements 24 × 17·5 mm.

Other eggs of the species in my collection resemble, more or less, one or other of those just described. I may also observe that the eggs of this species are indistinguishable from some of those laid by the Crested Larks.

CHERSOPHILUS DUPONTI MARGARITÆ (Koenig).

RUFIOUS DUPONT'S LARK.

Alæmon margaritæ, *Koenig, J. f. O.* 1888, p. 228; *id. J. f. O.* 1893, p. 48.

Chersophilus margaritæ, *Whitaker, Ibis*, 1895, p. 98; *id. Ibis*, 1896, p. 89.

Alæmon duponti margaritæ, *Erlanger, J. f. O.* 1899, p. 370.

Description.—**Adult male**, spring, from Zamas, South Tunisia.

Like *C. duponti* in the disposition of its plumage marking, but of a distinct rufous coloration instead of dark brown.

Soft parts and measurements as in *C. duponti*.

Adult female similar to the male, but rather smaller.

The present subspecies, first recognised and described by Dr. Koenig (*J. f. O.* 1888, p. 228), differs from typical *C. duponti* (Vieill.) in being much more rufous in colour. This difference is very pronounced and constant within a certain zone, and although, as mentioned in the preceding article, intermediate forms between *C. d. margaritæ* and the typical dark-coloured *C. duponti* occur in certain districts, there can be no doubt that the former has a fair claim to rank as a geographical race or subspecies. Examples in my collection from Oglet-Ouhamia, Zamas, Tamerzed, and other places in the south of the Tunisian Regency, are exceedingly rufous in colour; others from Mehamla and the neighbourhood of Gafsa are rather less rufous, but are probably identical with Dr. Koenig's type specimens, which were procured from adjacent districts. Specimens which I have obtained from the country lying between Gafsa and Feriana are only slightly more rufous than typical *C. duponti*, some of them, indeed, being so intermediate in their colouring, that it is impossible to refer them to one form more than to the other.

The present subspecies probably occurs in Algeria in districts corresponding to those where it is found in Tunisia, and should any form of *Chersophilus* occur in Tripoli, it probably belongs to the present subspecies, and not to the darker-coloured *C. duponti*.

The districts frequented by *C. d. margaritæ* being further south and more or less arid and desert-like, are naturally clothed with a somewhat different description of vegetation from those where

C. duponti occurs, and instead of the dark green wild thyme and similar plants of the plains further north, one more often meets with Halfa-grass and semi-desert scrub-plants.

What I have written in the preceding article regarding the song and the habits generally of *C. duponti* will apply equally to the present subspecies. The mode of nesting is also probably the same in both forms, and although I have no nests or eggs of *C. d. margaritæ* in my collection, judging from the description of them given by Erlanger (*J. f. O.* 1899, p. 373) and Alessi (*J. f. O.* 1892, p. 314), I should conclude that neither differ appreciably, if at all, from those of *C. duponti*. According to Alessi, who found the species breeding in the neighbourhood of Gabès, nesting in that district commences earlier than it does further north, as by the middle of March full clutches of eggs may be found, and young birds on the wing are to be met with in April.



Chersophilus dujoui margaritae

ON THE TUNISIAN CRESTED LARKS IN GENERAL.

Before treating of the Tunisian Crested Larks in detail, I think it advisable to make a few general remarks concerning the species and subspecies, or forms, of the genus *Galerida*, Boie, to be noticed in this work.

I may also observe with regard to the generic name for the Crested Larks, that in consequence of the name *Galerita* being preoccupied in entomology, Dr. Madarasz, in 1899, proposed in its place that of *Ptilocorys*, and Mr. Dresser, in 1902, that of *Corydus*. Boie's time-honoured name, however, having a different, though no doubt an incorrect, spelling, should perhaps be allowed to stand.

As I have already had occasion to remark, when writing on Tunisian birds in the *Ibis*, the Crested Larks are extremely puzzling and difficult to deal with, owing to the large number of local forms which occur, and to the fact that these forms intergrade, which renders a satisfactory subdivision of them by no means an easy task. Their separation is, indeed, more or less a matter of opinion, and in making any such subdivision one has to be guided by one's own judgment and discrimination.

This brings one face to face with the vexed question as to what constitutes a genus, what a species, and what a subspecies? A satisfactory answer to this question is not easy to give, and it would be out of place to attempt to do so here. I may, however, briefly observe, as regards the distinction between species and subspecies, that I cannot agree with the opinion held by some zoologists of the present day, that for the constitution of the former, strong or decided characters are required, while for that of the latter slight or undecided characters will suffice. This system makes the distinction between species and subspecies merely one of degree, and offers no rule whatever by which one may be guided. That strong and decided characters are necessary for the constitution of a species is undoubtedly right, that is to say, characters which are clearly defined by hard and fast lines, and which are, moreover, constant; but surely it is not right that we should be content with merely undecided characters for the constitution of a subspecies. Such characters, although they may be slight, should also be decided as far as they go, and constant within the range of the particular form or subspecies under consideration.

In my opinion a better definition of a subspecies would be the following: A local race or form of a species which, while possessing the decided specific characters of that species, differs from it in having one or more of those characters modified to a certain extent, without, however, being completely changed, or over-stepping the hard and fast lines above alluded to. This modification may be one of coloration and marking, or it may even be structural. It is presumably due to local and natural causes, such as climate and environment, and is probably brought about by a gradual process of development, varying according to the greater or lesser divergence in the natural conditions of the habitat of the particular form under consideration from those of that where the species occurs in its typical form.

Apologising for this digression, and returning to our subject, I would say that the genus *Galerida*, owing to certain decided and well-defined differential characters observable in its component members, calls for subdivision into two distinct groups; one including the common Crested Lark of Europe, *G. cristata* (L.), and its allies, the other, the small-billed Crested Lark of Southern Spain, *G. thekla*, (first distinguished by C. L. Brehm [*Naum.* 1858, pp. 210-213]), and its allies. The principal distinctive characters between the two groups are the following:—

G. cristata and allies.

- (1) Bill longer and finer.
- (2) Wing and tarsus shorter in proportion to the general size of the body.
- (3) Bastard primary shorter or not longer than the primary coverts.
- (4) Under wing-coverts rufescent.

G. thekla and allies.

- (1) Bill shorter and stouter.
- (2) Wing and tarsus longer in proportion to the general size of the body.
- (3) Bastard primary longer or not shorter than the primary coverts.
- (4) Under wing-coverts grey.

Besides the above, there are other minor points of difference between the two groups, both in their general coloration and marking, as well as in their habits, but these are subject to more or less modification, according to the particular districts inhabited by the various members of the two groups.

Owing to the varied nature of its territory and climate, which naturally produces a corresponding diversity in its fauna and flora, the Regency of Tunis is particularly rich in forms of Crested Larks, both of the above-mentioned groups being well represented in the country. Of each group forms occur there which are fairly separable

as subspecies, and which, while differing from each other in certain respects, still preserve the distinctive characters of the particular group to which they belong. In their coloration and marking they vary according to the particular district inhabited, thus, roughly speaking, the birds frequenting the mountainous and more humid region of the north are dark in colour, those found in the lower-lying and drier central districts, paler, while those inhabiting the arid desert country of the south are isabelline or sand-coloured. Owing, however, to the fact of the modification in colour being, except where some natural barrier, such as a range of mountains or a "Chott," exists, more or less gradual and not defined by any hard and fast lines, the subdivision of the species into forms or subspecies is extremely difficult, and it is impossible, in some cases, to say where one form ends and another begins, or to draw any precise line of demarcation as regards the habitat of each form. That these forms exist, however, is undoubted, and it would certainly not be right, or to the advancement of science, to ignore them. Wishing, therefore, to distinguish the various forms found in Tunisia as appears most advisable and convenient, I would propose the following subdivision, viz. :—

Galerida cristata (L.) group.

- (a) *Galerida cristata macrorhyncha* (Tristr.).
- (b) *Galerida cristata arenicola* (Tristr.).

Galerida theklæ (Brehm) group.

- (a) *Galerida theklæ major* (Brehm).
- (b) *Galerida theklæ superflua* (Hart.).
- (c) *Galerida theklæ deichleri*, Erl.
- (d) *Galerida theklæ carolinæ*, Erl.

Another form might perhaps be added to each group, but as I am not quite convinced of the claim of either to distinction, I prefer, for the present at any rate, not to separate them.

The reason of the greater variation in the small-billed group as compared with the large-billed group is no doubt due to the fact of the former having a wider and more extended range in the Regency than the latter. The small-billed Crested Larks are to be found almost universally throughout the country, and frequent the hills and high plateaux, as well as the lower ground, whereas the large-billed birds are confined to certain districts and are, as a rule, only to be met with on the plains.

GALERIDA CRISTATA MACRORHYNCHA (Tristram).

TRISTRAM'S LARK.

Galerida macrorhyncha, *Tristram, Ibis*, 1859, pp. 57 and 426; *Koenig, J. f. O.* 1888, p. 217.

Galerita macrorhyncha, *Koenig, J. f. O.* 1893, p. 35.

Alauda macrorhyncha, *Whitaker, Ibis*, 1894, p. 93.

Galerida cristata macrorhyncha, *Hartert, Nov. Zool.* vol. iv. p. 147 (1897).

Galerita cristata macrorhyncha, *Erlanger, J. f. O.* 1899, p. 346.

Description.—**Adult male**, spring, from Kasrin, Central Tunisia.

Upper parts fulvous-brown, the centre of the feathers darker and the margin paler; conspicuous and rather heavy crest blackish, margined with buff; superciliary stripe, extending from the bill to behind the eye, buff-white; quills dark brown; upper tail-coverts, which are considerably elongated, and the middle pair of rectrices rufescent-brown, the remainder of the tail-feathers blackish, with the exception of the outermost pair, which are almost entirely rufescent, and the pair adjoining them, which have their outer webs rufescent; underparts whitish; a few small streaks extending downwards from the base of the bill blackish; breast rather thickly marked with blackish spots and streaks; sides and flanks dusky brown; under wing coverts and axillaries rufescent.

Iris dark hazel; bill greyish-brown; feet yellowish-flesh-colour.

Total length 7.50 inches, wing 4.45, culmen .80, tarsus .90.

Adult female similar to the male, but rather smaller.

G. c. macrorhyncha was first described by Canon Tristram as a new species under the name of *Galerita macrorhyncha* (*Ibis*, 1859, p. 58). Apparently Loche had previously met with this Lark, and included it in his Catalogue (*Cat. Mam. et Ois. Alg.* p. 85, 1858) under the name of *Galerida randonii*, but as he gave no description his name cannot be used. Subsequently Loche described this Lark, and also gave a plate of it (*Rev. et Mag. Zool.* 1860, p. 150, pl. xi. fig. 2).

I have examined the type of *G. randonii* (named after Marshal Randon, a former Governor-General of Algeria) which is in the Museum of the Jardin des Plantes at Paris, and find that it differs in no appreciable way from Canon Tristram's type of *G. macrorhyncha*. The latter, a female, was obtained at El-Aghouat on November 12th, 1856, and is now in the Liverpool Museum.

G. c. macrorhyncha distinctly belongs to the *G. cristata* group, possessing the various characteristic features of that group. Like other Crested Larks, which are sedentary birds, and confine their



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Galerida cristata macrorhynca

range to comparatively limited tracts of country, the present subspecies shows considerable variation in its colouring, according to the particular district it inhabits. To a certain extent it varies in other ways as well, notably in the size and shape of its bill, the modification of which is presumably brought about by the nature of the soil in which the bird finds its sustenance, a soft sandy soil calling for a long fine pointed bill, while a hard gravel or rocky soil requires a stouter and blunter bill. With regard to the coloration of the plumage, I may observe that although, taken as a whole, examples of the Lark from the more northern districts of Tunisia are darker, and those from the south paler, it is not so much the degree of latitude which influences the coloration as the character of the birds' environment, thus we find darker birds occurring in certain districts of Southern Tunisia, and paler birds in some parts of Central Tunisia. Dr. Koenig seems to have noticed this apparent anomaly in Algeria also. In some Tunisian districts, moreover, examples of this Lark occur which have a very distinct rufous coloration, almost sufficient, perhaps, to warrant subspecific separation. This shade of colour is no doubt also due to the character of the soil.

In Algeria the forms of Crested Lark belonging to the *G. cristata* group appear to be identical, or almost so, with those found in Tunisia. In Marocco, however, they differ somewhat, as in the north of the Empire a form occurs which approaches typical *G. cristata* so closely, that when giving a list of the birds in my collection from Marocco (*Ibis*, 1898, p. 602) I referred it to that species. This form, however, differs from typical *G. cristata* in being rather darker in colour, with a more clearly marked plumage, and in having a slightly longer and more tapering bill. It has since been distinguished by Baron v. Erlanger as a subspecies under the name of *G. c. kleinschmidti* (J. f. O. 1899, p. 345). Another form of *G. cristata* which occurs in the neighbourhood of Mazagan, on the west coast of Marocco, and is rather more rufous in colour than the last-named form, has been named by Mr. Hartert *G. c. riggenbachi* (Nov. Zool. ix. p. 333). In Central and South Marocco yet another form occurs, which in its large size and long bill resembles some examples of *G. c. macrorhyncha* from Tunisia and Algeria, but is rather more rufous. I have not, however, thought fit to separate this form from *G. c. macrorhyncha*, and have referred it thereto (*Ibis*, 1898, p. 604).

The fact is, throughout North-west Africa there is an endless

variety to be found in this genus, and almost every district may be said to have its own form of long-billed and short-billed Crested Lark. What Mr. Hartert says (*op. cit.* p. 334) of our possibly having to deal with three different species of Crested Lark in North Africa, viz., *G. cristata*, *G. theklæ*, and *G. macrorhyncha*, each with its subspecies, is worthy of consideration, although, seeing how the first and last agree in their characteristic features, I hardly think they can be separated specifically.

While on this subject I may observe that *G. cristata* (L.) in its typical form, or even in the slightly modified Mediterranean form, does not appear to occur in any part of North Africa, though examples from some districts north of the Atlas approach it closely.

In Tripoli *G. c. macrorhyncha* seems to be less plentiful than it is further west, and in my collection from that country I have but a single specimen, obtained not far from the town of Tripoli. Further south and east in the Vilayet Mr. Dodson does not appear to have met with this Lark. The Tripoli specimen mentioned above is rather rufous in its coloration, but cannot be separated from the present form.

G. c. macrorhyncha is chiefly to be met with in Tunisia, in districts where plains and large tracts of level country occur, and not, as a rule, in the hilly and mountainous parts of the Regency, where the small-billed Crested Larks abound. In certain localities, however, where plains adjoin or are not far distant from mountains, both forms are to be met with side by side, though they do not seem to intermingle, or to consort with each other.

In their nature, and in some of their habits, the two forms differ considerably one from the other. The present form is far more shy and suspicious than its smaller congener; it seems, indeed, to be constantly on the alert, and rarely allows one to approach it, whereas the small-billed Crested Larks are trustful and confiding, permitting one to walk up to within a few paces of them without showing signs of alarm. Although more exclusively a ground bird than the latter, *G. c. macrorhyncha* occasionally perches on low bushes, and I have seen it doing so now and then, though not so often as its smaller congeners.

Throughout the greater part of the year this Lark is to be found in pairs. Its food consists of grain, small seeds, and insects of various kinds. Its notes are less soft and agreeable than those of the small-billed Crested Larks.

It commences to pair early in March, and continues nesting throughout the two following months. The nest is generally placed at the foot of some low shrub or tussock of grass, but may at times be found in an open field or plain bare of vegetation; it is composed of grasses, loosely put together, with little or no lining. The eggs, usually four in number, though as many as five or even six are sometimes found, are of a dull or greenish-white colour, plentifully spotted, chiefly at the larger end, with greyish or pale lake shell-markings and yellowish-brown surface-spots. Average measurements 23×16 mm.

Although, perhaps, no group of birds is more subject to local variation in colour than the Crested Larks, abnormally coloured examples, or "sports," must be exceedingly rare among those occurring in North-west Africa, as among the many hundreds of specimens of these birds that have passed through my hands, I have never seen a single one that could be considered as such. In the common Crested Lark of Europe such "sports," although not common, are more frequent, the isabelline "variety" being, perhaps, the one most often met with.

GALERIDA CRISTATA ARENICOLA (Tristram).

PALE LONG-BILLED CRESTED LARK.

Galerita arenicola, *Tristram*, *Ibis*, 1859, pp. 58, 426.

Galerida cristata arenicola, *Hartert*, *Nov. Zool.* vol. iv, p. 147 (1897).

Galerita cristata arenicola, *Erlanger*, *J. f. O.* 1899, p. 347.

Description.—**Adult male**, spring, from Ras-el-Aioum, South Tunisia.

Upper parts pale sandy-isabelline, the feathers with darker centres and lighter margins; the crest, which is considerably elongate and fine, dark brown, margined with yellowish-isabelline; superciliary stripe extending from the bill to behind the ear whitish; quills pale brown; upper tail-coverts and the central pair of rectrices rufescent-isabelline, with darker centres the rest of the tail-feathers blackish, with the exception of the outermost pair and the outer webs of the adjoining pair, which are pale rufescent; underparts white, a few spots or stripes extending downwards from each side of the base of the bill light brown; breast sparingly spotted with light-brown; flanks pale vinous-brown; axillaries and under wing-coverts rufescent.

Iris hazel; bill pale brown; feet yellowish-flesh-colour.

Total length 7.50 inches, wing 4.35, culmen .75, tarsus .90.

Adult female similar to the male, but rather smaller. .

The pale desert form of long-billed Crested Lark, which occurs in Central and Southern Tunisia, appears to be referable to Canon Tristram's *Galerita arenicola* (*Ibis*, 1859, p. 58), agreeing with the type, which is now in the Liverpool Museum. This specimen, a male, obtained at Rhadma in Algeria on January 13th, 1857, is rather a small example, but the species varies in size, and my Tunisian collection contains both larger and smaller specimens than Canon Tristram's type. In point of colour the plumage of *G. c. arenicola* varies from a pale sandy-grey to a yellowish-isabelline, and birds of both shades of colour are to be met with in the same district; indeed, it is by no means unusual to find the male and the female of a pair somewhat different in colour. It must be noted, however, that this difference in colour is more noticeable in living or freshly killed birds than in dry skins.

Until I met with such pairs, with the sexes differently coloured, I felt inclined to distinguish the isabelline from the sandy-grey birds and make two separate forms of them. This difference in coloration between the sexes is noticeable also in some pairs of the small-billed Crested Larks, as well as in some pairs of the Lesser Short-toed Lark (*Calandrella minor*), but it does not appear to be constant.

G. c. arenicola is not at all uncommon in the Algerian Sahara, and some of my finest and most isabelline specimens come from the neighbourhood of Biskra and the plains to the east of that place, where I found the bird abundant.

From Marocco I have no specimens that can be referred to this form, but it not improbably occurs in some of the inland districts of the south of the Empire.

In Tripoli *G. c. arenicola* appears to be wanting, at any rate Mr. Dodson obtained no examples of it from that country, and, as mentioned in the preceding article, he obtained but a single example of *G. c. macrorhyncha*. This seems strange, considering the physical character of that region, and its apparent similarity to the Algerian and Tunisian Sahara, but there is no doubt some good reason for it, at present unknown to us.

The small-billed Crested Larks also, although occurring there, appear to be less abundant in Tripoli than in Tunisia and Algeria, their range, moreover, in the former country being restricted to certain districts, and not widely extended, as in the two latter. On the other hand, some of the other Larks, for instance the members of the



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Galerida cristata arenicola

genera *Ammomanes*, *Alamon*, and *Otocorys*, abound throughout a great portion of the Vilayet.

In Tunisia the range of the present subspecies seems to be confined more or less to the inland semi-desert districts of the centre and south of the Regency, not extending north of the Atlas, or even, so far as I am aware, to the sea-coast. The bird, indeed, appears to be essentially a denizen of the Saharan region. On all the plains lying to the west of Gafsa I found this form of Lark abundant. Like the preceding subspecies, it frequents open tracts of country and may also be found on the dry salt-marshes of the Chott districts. In its habits generally it resembles *G. c. macrorhyncha*, as also in its song, food, mode of nesting, and in the colour and markings of its eggs.

GALERIDA THEKLÆ MAJOR (Brehm).

GREATER SMALL-BILLED CRESTED LARK.

Galerita theklæ major, *Brehm, Naum.* 1858, p. 213.

Galerida cristata, *Koenig, J. f. O.* 1888, p. 217; *id. J. f. O.* 1893, p. 31.

Alauda cristata, *Whitaker, Ibis*, 1894, p. 93.

Alauda cristata theklæ, *Whitaker, Ibis*, 1895, p. 99.

Galerida cristata theklæ, *Hartert, Nov. Zool.* iv, p. 147 (1897).

Galerita theklæ harterti, *Erlanger, J. f. O.* 1899, p. 332.

Description.—**Adult male**, spring, from Tabarka, North Tunisia.

Upper parts dark greyish-brown, the feathers with darker centres and lighter borders; sides of neck rather lighter; crest blackish; quills dark brown; rump and upper tail-coverts rufescent-brown; central pair of rectrices greyish-brown, the remaining tail-feathers blackish, with the exception of the outermost pair, which are almost entirely pale rufous, and the next adjoining pair, which have the outer web pale rufous; underparts white, tinged with yellowish; a few minute blackish spots extending from the base of the bill downwards on the sides of the throat; breast thickly spotted with blackish-brown; sides of body and flanks streaked with greyish-brown; inside of wings and axillaries vinous-grey; inside of the shoulder greyish-white.

Iris dark hazel; bill dark grey; feet flesh-colour.

Adult female similar to the male, but rather smaller.

Observations.—In the coloration and marking of the present form there is no little variation, even among individuals from the same district, some examples being darker, others paler, and others, again, more rufous.

The yellow tinge on the underparts is not always present, indeed, as often as not, it is totally absent.

In the *Ibis* for 1895 (p. 99) I stated that I considered the small-billed Crested Lark commonly found in North Tunisia referable to *G. theklæ* (Brehm), being almost identical with examples of that species from South Spain.

I had not at that time read Brehm's article on the genus *Galerida* in "*Naumannia*," 1858 (pp. 204-213), in which the author treats of the various species and subspecies, or forms of Crested Larks recognised by him. The conclusions at which he arrives regarding the specific distinctness of his *Galerida theklæ* from *Galerida cristata* (L.) are undoubtedly quite correct, and I agree entirely with him therein, indeed, one almost feels inclined to go still further, and to separate *G. theklæ* from *G. cristata* not only specifically, but even generically.

Dr. Sharpe (Cat. Birds Brit. Mus. xiii, p. 633), very rightly recognised the validity of Brehm's species, according it full specific rank. There is, indeed, not the slightest doubt that *G. theklæ* is a very good species, differing structurally, as well as in other ways, from *G. cristata* (L.) and its allies, and forming a group of its own, the members of which, so far as is at present known, occur in the Iberian Peninsula, the Balearic Islands, and North Africa, including Abyssinia and Somaliland.

As Brehm has pointed out, and as already stated in my general remarks on the genus *Galerida*, the Crested Larks of the short-billed, or what may be called the *Theklæ* group, differ from those of the long-billed, or *G. cristata*, group in many respects. To the characters already enumerated may be added, in the particular case of the present form, that its plumage coloration generally is darker, and its marking more clearly defined, especially that of the breast, which, moreover, often has a yellow tinge, never noticeable in birds of the *G. cristata* group. In its habits and in its habitat it also differs, being far less shy than *G. cristata*, and frequenting hilly and broken country as much or more than plains and open country, as is the case with the latter.

According to Brehm (*Naum.* 1858, p. 213), two forms of this small-billed and very distinct Crested Lark occur in Spain, and he distinguished them by the names of *Galerita theklæ major* and *Galerita theklæ minor*, one being larger and the other smaller in size. Beyond mentioning this difference in size, Brehm tells us little to help us to distinguish the two subspecies, but in any case it is clear that he met with a larger and a smaller form of small-billed Crested Lark, and named each separately as above.



In my collection of Spanish Crested Larks I have two forms which appear, without doubt, to be referable to Brehm's *G. theklæ major* and *G. theklæ minor*. The examples of the former are a little larger, greyer, and not quite so dark in coloration as those of the latter, some, indeed, incline to be slightly rufous; but among the specimens of the smaller form there are also variations in coloration which are due no doubt to local causes. The following are the wing measurements in a fair series of specimens in my collection of each form, viz. :—

G. theklæ major, males from 4·10 to 4·20 inches; females from 3·85 to 3·95 inches.

G. theklæ minor, males from 3·95 to 4·05 inches; females from 3·80 to 3·85 inches.

Coming now to the Tunisian small-billed Crested Larks, I would say that the species occurs in different forms or races throughout the whole of the Regency, its colouring and marking varying according to the character of the particular district it may inhabit, thus, as I have already had occasion to remark in my notes on Tunisian Crested Larks, we find the birds of the more humid and mountainous regions of the north of a dark colour, those of the drier central districts paler, and those of the arid desert districts of the south of an isabelline or sand-colour. Owing, however, as stated in the above article, to the fact of the modification in colouring being, except in certain cases, gradual and not defined by any hard and fast lines, the subdivision of the species into forms or subspecies becomes more or less a matter of opinion, and in separating them one must use one's own judgment and discrimination.

As already stated, the small-billed Crested Larks of the *Theklæ* group found in Tunisia may be conveniently separated into four forms or subspecies, viz. :—

(a) *G. theklæ major* (Brehm), a darkish form, inhabiting North Tunisia, and ranging as far as the southern slopes of the Atlas Mountains.

(b) *G. theklæ superflua* (Hart.), a pale sandy-brown form, inhabiting the country between the above region and the semi-desert inland districts of South Tunisia.

(c) *G. theklæ deichleri*, Erl., an isabelline form inhabiting the semi-desert inland country of South Tunisia.

(d) *G. theklæ carolinæ*, Erl., a bright rufous form inhabiting the rocky inland plains and broken country of the south-east of the Regency.

The first of these subspecies appears to be identical with Brehm's *Galerida theklæ major* from Spain, and I have specimens of Tunisian birds which are absolutely undistinguishable from some Spanish examples.—I therefore refer this North Tunisian subspecies to *G. theklæ major* (Brehm).

Baron Erlanger (J. f. O. 1899, p. 332) has given the name of *G. t. harterti* to the North Tunisian small-billed Crested Lark, but seeing that Brehm's name of *G. t. major* applies to this subspecies, I fear the former cannot stand. So many names already exist, that we ought to be only too thankful when we can avoid creating a new one.

With regard to Brehm's names for the small-billed Crested Larks, it was apparently the smaller form which was first noticed by him (*Naum.* 1858, p. 211), and this form might therefore bear the simple binomial name of *Galerida theklæ*, the larger form bearing the trinomial subspecific name of *Galerida theklæ major*.

G. theklæ major is to be found, more or less plentifully distributed, throughout the greater part of North Tunisia, its southern range, as I have already mentioned, extending as far as the southern slopes of the Atlas Mountains, where this subspecies meets the next. In the more hilly and high plateaux regions, some of which are over 4,000 feet above sea-level, the birds have a darker plumage, while in the lower districts they have a paler, and at times a rufescent or even dark rufous shade of colour.

Occasionally, as exceptions to the rule, one meets with a very dark coloured example in the south of the Regency, or a very pale one in the north, thus for instance, from Metlaoui, which lies between Gafsa and Tozer in the south, I have a specimen as dark as most of the birds to be met with in the north; while from the neighbourhood of the town of Tunis I have a remarkably pale bird, similar to specimens from the "Chott" districts. These, however, are but rare and exceptional cases.

The present subspecies apparently occurs in North Algeria more or less as it does in Tunisia. In North Morocco, however, a darker form of small-billed Crested Lark is to be found, which although rather darker than the generality of specimens from Spain, I referred to *Galerida theklæ* (*Ibis*, 1898, p. 603). An examination of further

material confirms me in my decision not to separate these Marocco birds from typical *G. theklæ*, for I have obtained specimens from Seville and Gibraltar which are quite as dark as those from Marocco. Baron v. Erlanger has referred this Marocco Lark to *G. t. miramaræ* (Hom.), and Mr. Hartert, seeing that the name of *miramaræ* is but a synonym of *theklæ*, has rechristened it *G. t. erlangeri* (Die Vögel der Paläarktischen Fauna, p. 237).

From the Balearic Islands I have two specimens of a short-billed Crested Lark which, while evidently belonging to the *Theklæ* group, differ from typical *G. theklæ* and other forms of it, in being somewhat smaller in size. Should this difference prove to be constant in a fair series, these Balearic Larks may have to be distinguished sub-specifically.

In Tripoli the present form of small-billed Crested Lark does not seem to occur, but this is not to be wondered at, considering the more or less desert character of that country.

G. t. major is abundant in localities where the environment is suited to the requirements of the bird, and being by no means shy or suspicious, it may easily be approached and observed at close quarters.

In the immediate vicinity of the town of Tunis itself this Lark is not at all uncommon, and it may frequently be seen in the fields adjoining the high-roads near that city. At times it may even be seen in farmyards and open spaces near wayside inns, in company with Sparrows, feeding on scattered corn or horse-droppings. In the open country the bird affects hill-slopes and broken ground as well as more cultivated land. Unlike our European Crested Lark, which is almost exclusively a ground-bird, the present form is fond of perching, and it is quite a common sight to see one of these birds on a bush, apparently perfectly at home there, and often singing at the time. Its notes, though bearing some resemblance to those of the common Crested Lark, are sweeter and altogether more pleasing.

The flight of this Lark, like that of others of the genus, is heavy, and rarely prolonged for any distance. Seeds, grain and insects form its principal food.

Pairing commences early in March, and by the beginning of April nests with eggs may be found. The nest is generally placed under a tuft of grass or clod of earth in the middle of a field, or other open

space of ground, and is chiefly composed of grasses, coarser outside and finer inside, often with some particles of vegetable down as a lining. The usual number of eggs appears to be three or four, and these vary a good deal in size and shape, as well as in their colouring and marking. The ground colour, however, is generally a dull white, and the marking consists of grey or pale lilac shell spots, and yellowish-brown surface-spots, sometimes distributed evenly over the entire egg, but more often concentrated at the blunt end, in the form of a zone. Some eggs, however, in my collection, have a distinct ring of spots at the finer end. The measurements of a number of eggs vary from 23 to 25 mm. in length, by from 16 to 18 mm. in breadth.

GALERIDA THEKLÆ SUPERFLUA (Hartert).

PALE SMALL-BILLED CRESTED LARK

Galerida theklæ superflua, *Hartert, Nov. Zool.* vol. iv, p. 144 (1897).

Alauda cristata pallida, *Whitaker, Ibis*, 1895, p. 100.

Galerita theklæ superflua, *Erlanger, J. f. O.* 1899, p. 335.

Description.—**Adult male**, spring, from Tamerza, South-west Tunisia.

Differs from *G. theklæ major* in being a pale sandy-brown instead of dark greyish-brown, and the markings on the breast, as well as the under wing-coverts and axillaries, are also paler.

Soft parts and measurements almost as in *G. t. major*.

Adult female similar to the male, but rather smaller.

Observations.—Although, as stated by me in the *Ibis* for 1898 (p. 603), the present and following forms of small-billed Crested Lark intergrade to a great extent, I find they differ so much from one another in their extremes of variation that I have decided to keep them separate. Were the two to be united, the darker northern form would have to follow suit, as it intergrades with the present form quite as much as the latter does with the isabelline form.

This form of small-billed Crested Lark was first recognised and described by me as a new species under the name of *Alauda cristata pallida* (*Ibis*, 1895, p. 100, and 1896, p. 90). Owing, however, to this name having been previously given by Brehm to some form of Crested Lark from Spain, it was subsequently replaced by the name under which it now stands.

As already observed in the preceding article, *G. theklæ superflua* is a pale sandy-brown form of Crested Lark belonging to the *Theklæ*

group, and inhabiting Central Tunisia and some of the less desert districts of the south of the Regency. In its coloration it varies between *G. thekla major* and the isabelline form, *G. thekla deichleri*, specimens from the north of its habitat resembling more the former, and those from the south being more like the latter, while examples from interlying districts, which may be called typical, are of a greyish or pale sandy-brown colour. As, however, I have before had occasion to remark, the different forms intergrade, and where they meet can hardly be separated.

The range of the present subspecies may be said to extend from the southern slopes of the Atlas Mountains and the high central plateaux to the more desert inland regions of the south of the Regency, where it meets the isabelline form, *G. t. deichleri*. Further east in Tunisia its range extends along the coast right down to the Tripoli frontier, though further inland in that part the rufous form, *G. t. carolinæ*, occurs.

In Algeria *G. t. superflua* is to be found in districts south of the Atlas similar to those where it occurs in Tunisia.

In Marocco, apparently, the form does not exist, its place in that country being occupied by another form of short-billed Crested Lark, which, owing to its rufous coloration, I described as distinct under the name of *Galerida thekla ruficolor* (*Ibis*, 1898, p. 603).

From Tripoli I have but two examples of *G. t. superflua*, and apparently it is not common there.

Further east, in the coast districts of Cyrenaica, another form of short-billed Crested Lark is to be found, which I described as a new subspecies under the name of *Galerida thekla cyrenaicæ* (*Ibis*, 1902, p. 654). This form is of a light mealy-grey coloration, quite different from that of any other short-billed Crested Lark with which I am acquainted.

Like the other members of this group in Tunisia, *G. t. superflua* evinces a preference for broken and hilly country, and seems to avoid the more open, level plains where the long-billed Crested Larks are commonly to be found. Certain districts, however, where stony plains occur, varied by patches of fertile country, seem to attract both species equally, and here I have frequently had the opportunity of observing the two together, and of noticing the great difference between them, both in their nature and in their habits. On such occasions I have also been able to compare the respective notes of the two species,

which differ a good deal, those of *G. t. superflua* being much sweeter and softer than those of its larger congener. During the spring, when the birds are breeding, *G. t. superflua* has some exceedingly soft and plaintive notes, which are uttered by the bird when perching on a rock or bush, and may be very fairly rendered by the syllables "tweeet a tweeet a twee," repeated two or three times, finally ending with "twee-twee." Like other Crested Larks, the present subspecies often sings when hovering in mid-air, and then drops suddenly to the ground. It seems to be very fond of perching on bushes, and even on bare and arid mountains, where vegetation is scanty, it generally contrives to find some scrub plant sufficient to afford it a perch.

In spring-time this Lark is remarkably tame and confiding, allowing one to approach within a few feet of it before taking to its wings. In order to entice the intruder away from its nest it will resort to the device, common to many other birds, of feigning disablement, and running away with drooping and outspread wings.

Its food consists of seeds and insects of various kinds. The pairing of the present subspecies commences rather earlier than that of *G. t. major*, and nests with eggs may be found in March. Between the nests and eggs of the two forms, however, there appears to be no appreciable difference.

GALERIDA THEKLÆ DEICHLERI, Erlanger.

ISABELLINE SMALL-BILLED CRESTED LARK.

Galerida isabellina, Loche, *Expl. Sci. Alg. Ois.* ii, p. 40 (1867); Koenig, *J. f. O.* 1888, p. 219; *id.*, *J. f. O.* 1892, p. 37.

Galerita isabellina, Sharpe, *Cat. Birds Brit. Mus.* xiii, p. 635.

Alauda cristata isabellina, Whitaker, *Ibis*, 1895, p. 102.

Galerita theklæ deichleri, Erlanger, *J. f. O.* 1899, p. 339.

Description.—**Adult male**, spring, from Bir-Zouita, South Tunisia.

Differs from *G. theklæ superflua* in being of a pale yellowish-isabelline colour instead of pale sandy-brown; the underparts are pure white, and the breast very faintly spotted.

Soft parts and measurements as in *G. t. superflua*.

Adult female similar to the male, but rather smaller.



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Galerida theklæ deichleri

To Baron v. Erlanger belongs the merit of having first pointed out that the small-billed isabelline-coloured Crested Lark of Southern Algeria and Tunisia cannot rightly be referred to Bonaparte's *Galerida isabellina*, by which name it has of recent years generally been known.

The Lark described by Bonaparte (Conspectus, i, 1850, p. 245) was stated to be a pale-coloured bird from Nubia, with a bill like that of the Crested Larks, which presumably means like that of the common Crested Lark of Europe.

From Nubia, in fact, we have Crested Larks which agree with Bonaparte's description, being rather large pale-coloured birds, with long bills, and with short bastard primaries, birds evidently belonging to the *G. cristata* group, whereas the short-billed Crested Larks of South Algeria and South Tunisia distinctly belong to the *G. theklæ* group.

The fact that Bonaparte's name of *G. isabellina* cannot apply to these Algerian and Tunisian birds being clearly established, it behoves us to look about and see if any other existing name be applicable.

The only one which might perhaps be so appears to be that of *G. lutea* (Brehm), which according to the description given applies to a short-billed bird, with a long bastard primary, evidently a bird belonging to the *Theklæ* group.

Owing to the uncertainty, however, of what Brehm's *G. lutea* really was, and not having been able to see any examples of it, I cannot, for the present at any rate, do otherwise than accept Erlanger's name of *G. t. deichleri*, and refer the isabelline small-billed Crested Lark of Tunisia to it.

This pale isabelline form, as already stated, inhabits the inland semi-desert districts of the south of the Regency. Its furthest northern limit may be said to be the country lying to the west of Gafsa, though examples from those parts are not quite so pale in colour as those found further south. Specimens, indeed, from districts south of the Chott Djerid are remarkably light-coloured, their pale hues harmonising admirably with those of the sandy wastes which form their home.

Further east or south-east, where the country is more rocky and broken, the rufous form, *G. t. carolinæ*, takes the place of the present one.

I have no specimens of *G. t. deichleri* from the Algerian Sahara, but the form is said to occur there.

From Marocco I have a single specimen which may be referred to it. In Tripoli it appears also to be met with sparingly, though most of the examples mentioned in my list of birds from that country (*Ibis*, 1902, p. 654) as belonging to the present subspecies should be referred, instead, to the more rufous *G. t. carolinæ*.

In its general habits, as well as in its song, food and mode of nesting, *G. t. deichleri* does not appear to differ much, if at all, from the preceding form.

GALERIDA THEKLÆ CAROLINÆ, Erlanger.

RUFOUS SMALL-BILLED CRESTED LARK.

Galerida cristata carolinæ, Erlanger, *Orn. Monatsb.* 1897, p. 186.

Galerita thecklæ carolinæ, Erlanger, *J. f. O.* 1899, p. 342.

Description.—**Adult male**, spring, from Tatahouine, South Tunisia.

Differs from *G. theklæ deichleri* in being of a bright rufous colour instead of pale isabelline; the underparts are not quite so white, and the breast marking rather more pronounced.

Soft parts and measurements as in *G. t. deichleri*.

Adult female similar to the male, but rather smaller.

This bright rufous form of short-billed Crested Lark, though no doubt closely allied to the preceding one, may, I think, readily be distinguished from it, and I therefore follow Baron v. Erlanger in separating it as a subspecies.

My Tunisian collection possesses several examples of both forms, and they appear to be fairly distinct and not to intergrade like some of the other forms. This is no doubt due to the fact that the two forms inhabit districts which differ considerably from one another in their physical character, *G. t. deichleri* being found in the light-coloured and more sandy country bordering the Chott Djerid, and extending southward and westward of it, though how far in these directions appears to be at present unknown, while *G. t. carolinæ* occurs on the darker rocky plains and barren broken country further east, and extending southward probably as far as the Tripoli frontier. From the Vilayet, in fact, as mentioned in the preceding article,

I have several examples of this rufous form of small-billed Crested Lark.

I have no knowledge of its occurrence in either Algeria or Marocco.

In its habits and life generally *G. t. carolinæ* apparently differs in no way from the preceding subspecies.

Its nest and eggs also, presumably, are the same as those of that bird.

ALAUDA ARVENSIS, Linnæus.

SKY-LARK.

Alauda arvensis, *Linn. Syst. Nat.* i, p. 287 (1766); *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 567; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Loche, Expl. Sci. Alg. Ois.* ii, p. 28 (1867); *Koenig, J. f. O.* 1888, p. 219; *id. J. f. O.* 1893, p. 37; *Whitaker, Ibis*, 1895, p. 102; *Erlanger, J. f. O.* 1899, p. 353.

Description.—**Adult male**, winter, from Tunis, North Tunisia.

Upper parts brown, the feathers with blackish centres and fulvous-buff margins, nape and mantle lighter than the rest of the upper plumage; crown with a short though full crest; lores and superciliaries buff-white; quills dark-brown, narrowly bordered with whitish; bastard primary very small; tail blackish-brown, the middle pair of rectrices bordered with buff, the exterior pair almost entirely white, and the next pair with their outer webs white; underparts buff-white; the throat with minute spots extending from the base of the bill downwards; the breast streaked with dark brown; sides and flanks dusky brown, with a few dark brown streaks.

Iris dark brown; bill dark brown, paler below; feet yellowish-brown.

Total length 7 inches, wing 4·50, culmen ·50, tarsus 1.

Adult female resembles the male, but is rather smaller.

Observations.—Examples of this species exhibit a considerable amount of individual variation, not only in coloration but also in size. One of the smallest specimens I have seen is in the Florence Museum; it is a female, and its wing measurement is only 3·40 inches; its bill is large for the size of the bird, being about the normal length of that of *A. arvensis*. This is the specimen alluded to by Professor Giglioli (*Avif. Ital.* p. 67), and for which he suggested the name of *Alauda nana*, should further examples of it be forthcoming, to establish its identity.

“Sports,” or abnormally coloured examples, of the Sky-Lark are frequent, cases of albinism, melanism, and isabellinism all occurring from time to

time. One of the most curious and interesting cases of melanism in this species, or indeed in any species, occurs in the Roman Campagna, where what might almost be looked upon as a distinct race is known. This form is exceedingly dark in colour, even on the underparts, and its dark coloration appears to be perfectly constant. In its measurements it does not seem to differ from normal *A. arvensis*. These dark-coloured birds, of which I have several examples in my collection, are found from time to time in the neighbourhood of Rome, but apparently nowhere else in Italy. The case seems to be analogous to that of the so-called Sabine's Snipe.

There appear to be three forms of the Sky-Lark occurring in Tunisia, which are fairly distinguishable one from the other, viz., the ordinary European bird, *A. arvensis*, L., which is found as a migrant in winter; another form, to be described in the next article, which breeds in the Regency and is probably resident there throughout the entire year; and lastly, a mealy-grey form, presumably referable to *A. a. cantarella* (Bp.), which occurs in the south of the Regency, but may perhaps also be found elsewhere in Tunisia.

Our common Sky-Lark is plentiful throughout the winter months in all the more open and fertile districts of North Tunisia, arriving in the autumn and leaving again in the spring. It is generally to be found in large flocks, frequenting cornfields and cultivated land, where food is abundant. On the high plateaux of Central Tunisia the species may also be met with, and even in the south of the Regency, in districts where patches of corn-land occur interspersed among the more desert surroundings.

In Algeria and Marocco the Sky-Lark seems to be abundant in winter. It no doubt also occurs as a winter migrant in Tripoli, though I have no examples of it from that country.

Near the town of Tunis large numbers of Sky-Larks are netted and brought to the market. The netting of Larks and other small birds in the Regency, however, is fortunately not carried out on the large scale that it is in some parts of Italy, where wholesale slaughter with these "engines of destruction" is so common. According to good authority it seems the proportion of birds taken by these means in Italy is small in comparison with the vast numbers which pass through the country. Taking the present species, Doderlein considers by no means exaggerated Rafinesque's computation that on some days in the height of the autumnal migration as many as one

million Sky-Larks pass across the Bay of Palermo during the twenty-four hours, and over ten millions during the entire season (Avif. Mod. et Sic. p. 94).

Though there is comparatively little bird-netting carried on in the neighbourhood of Palermo, lark-shooting is in great vogue among the native sportsmen of the place, and on certain days in October, when the passage of these birds is in full swing, the Bay of Palermo presents an unusual and extraordinary spectacle; numbers of small boats, each with one or two gunners in them, lining the roadstead, their occupants keeping up a lively fusilade at the poor birds as they arrive in small flocks. This may be carried on for several hours, and any stranger arriving in Palermo by the daily postal steamer might imagine that a miniature naval battle was being waged, or that a revolution had broken out!

In its habits the Sky-Lark is sociable and essentially gregarious. It frequents for the most part open fields and cultivated plains, feeding chiefly on seeds and grain, and also, to a certain extent, on insects.

Its well-known blithe and joyous song is generally uttered by the bird when soaring high up in the air, often so high as to be out of sight, but occasionally the Lark will sing when on the ground.

Its flight is easy and undulating, though by no means feeble, and at times, particularly when suddenly flushed, it is rapid and darting.

Although it seems a pity to keep such a bird in a cage, the Sky-Lark thrives well in captivity, and has actually been known to breed in confinement.

ALAUDA ARVENSIS HARTERTI, Whitaker.

TUNISIAN SKY-LARK.

Alauda arvensis harterti, Whitaker, *Bull. B. O. C.* 1904, vol. xv, p. 20.

Description.—**Adult male**, spring, from El-Oubira, Central Tunisia.

Differs from *A. arvensis*, Linn., in being paler and more rufescent in its plumage coloration generally, and in having a rather longer and more slender bill. Soft parts and measurements as is *A. arvensis*.

Adult female similar to the male, but rather smaller.

The present form of Sky-Lark is apparently a geographical or local race which breeds in Tunisia and is probably resident there throughout the entire year. It no doubt also occurs in Algeria, and perhaps in Marocco.

In Tunisia the form is to be found in the northern and central districts, from both of which I have specimens of it obtained in spring. Whether it occurs in the south of the Regency I cannot say.

In its general life, habits and mode of nesting this Lark does not seem to differ from *A. arvensis*. A nest of this form which I took in the neighbourhood of Kasrin on April 26th, 1902, was rather small, and composed entirely of grass-bents, without any lining. It contained four eggs of a greenish-grey colour, thickly covered all over with minute purplish-brown spots and blotches. The eggs measured 22×16 mm.

ALAUDA ARVENSIS CANTARELLA (Bonaparte).

MEALY SKY-LARK.

Audala cantarella, *Bp. Icon. Faun. Ital. Ucc.* p. 5 (1841).

Description.—**Adult male**, winter, from Tatahouine, South Tunisia.

Differs from *A. arvensis*, Linn., in being greyer and more mealy in the coloration of its underparts, and of a purer white below. It is also rather smaller, its measurements being as follows: Total length 6 inches, wing 4.25, culmen .45, tarsus .84. Soft parts as in *A. arvensis*.

Adult female similar to the male, but rather smaller.

As mentioned in my article on *A. arvensis*, Linn., a pale mealy form of Sky-Lark occurs in South Tunisia which must, I think, be referred to the above subspecies.

So far as I am aware, this form occurs only in the south of the Regency, the few specimens I possess of it having all been obtained in the neighbourhood of Tatahouine, where this Lark appears to be not uncommon in winter. It may possibly also occur further north in Tunisia, but I have no knowledge of its doing so. I cannot say whether the bird breeds and is resident in the country throughout the year.

Regarding its general life and habits I am unable to say anything, having myself never met with it alive, but presumably they do not differ much, if at all, from those of *A. arvensis*, Linn.

ALAUDA ARBOREA, Linnæus.

WOODLARK.

Alauda arborea, *Linn. Syst. Nat.* i, p. 287 (1766); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 11 (1846); *Loche, Expl. Sci. Alg. Ois.* ii, p. 31 (1867); *Whitaker, Ibis*, 1896, p. 96.

Lullula arborea, *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 636; *Erlanger, J. f. O.* 1899, p. 352.

Description.—**Adult male**, winter, from Zarzis, South Tunisia.

Upper parts yellowish-brown, streaked with blackish-brown, particularly on the crown and back; crest very full; a conspicuous buffy-white superciliary streak extending from the base of the bill to the nape, where it meets the corresponding streak on the other side; primaries dark brown; outer greater wing-coverts dark brown, with their bases and tips white, forming rather a conspicuous patch; rump, upper tail-coverts and central pair of rectrices sandy-brown, remaining tail-feathers blackish, tipped with triangular white spots, the outermost pair with more white and tipped with grey on the outer webs; the tail short and square; throat and breast yellowish-white, clearly spotted with dark brown; rest of underparts yellowish-white.

Iris brown; bill dark brown and grey below; feet pale yellowish-flesh-colour.

Total length 6 inches, wing 3·75, culmen ·45, tarsus ·85.

Adult female similar to the male, but slightly smaller.

The Woodlark occurs in Tunisia, both north and south of the Atlas Mountains, but is of somewhat local distribution, and can hardly be considered a common bird in the Regency. I have an example of the species obtained in the cork-woods near Ghardimaou, in North Tunisia, on May 11th, 1895. This bird was evidently breeding, its plumage being much worn and soiled. From the south of the Regency I have an example obtained at Zarzis in the early winter, but the species probably only occurs south of the Atlas as a winter migrant, and even during that season is nowhere so plentiful in Tunisia as it is in many parts of Southern Europe.

In Algeria the Woodlark is not uncommon in certain districts, and I have specimens of it obtained on the slopes of the Djebel Mahmel in the month of May, when presumably the birds were nesting.

Neither from Marocco, nor from Tripoli have I specimens of the Woodlark, but it is stated to occur in the former country, and to be not uncommon in the neighbourhood of Tangier and Larache.

The present species chiefly affects hill-slopes and bushy plains, where trees are scattered about, or generally what may be called semi-forest country. At times, however, it may be met with actually inside woods. Though often seen on the ground, it is also arboreal to a considerable extent and fond of perching on trees.

In its habits it is rather shy and timid. Its song, which may be heard at all hours of the day and occasionally even late at night, is sweet and plaintive. It is uttered by the bird either when on the wing, or when perching. Insects and seeds of various kinds form the food of this species. The Woodlark nests on the ground and lays four or five eggs, which resemble small examples of those of the Crested Larks, being of a greenish-white colour, with grey shell-marks and yellow-brown surface spots. Two broods are usually reared during the season.

AMMOMANES DESERTI ALGERIENSIS (Sharpe).

ALGERIAN DESERT LARK.

Ammomanes desertii, *Loche, Expl. Sci. Alg. Ois.* ii, p. 25 (1867).

Ammomanes isabellina, *Loche, Expl. Sci. Alg. Ois.* ii, p. 24 (1867).

Ammomanes deserti, *Whitaker, Ibis*, 1894, p. 93.

Ammomanes algeriensis, *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 645 ; *Koenig, J. f. O.* 1893, p. 15; *Erlanger, J. f. O.* 1899, p. 451.

Description.—**Adult male**, spring, from Ras-el-Aioum, South Tunisia.

Upper plumage warm isabelline, rather brighter and more rufescent on the rump, upper tail-coverts, scapulars, and upper wing-coverts; superciliary stripes very pale isabelline; primaries pale sandy-brown, their outer webs rufescent on the basal portion; secondaries rather greyer; tail pale sandy-brown, the outermost pair of feathers rufescent, and the adjoining pair with a rufescent outer web; chin and throat whitish, faintly striped with

grey; rest of underparts pale greyish isabelline, flanks and inside of wings rufescent.

Iris very dark hazel; bill greenish-yellow above and yellowish below; feet light brown.

Total length 6·75 inches, wing 4, culmen ·50, tarsus ·80.

Adult female similar in plumage to the male, but rather smaller, the wing measurement averaging about 3·75 inches.

The members of the genus *Ammomanes* occurring in the Western Palearctic region form two distinct groups, which may be at once distinguished from each other by their greater or lesser size, and by the presence or absence of a black band at the tip of the tail. A representative of each group is to be found in the Tunisian Regency, both being non-migratory, and inhabiting more or less desert regions, although, not as a rule, the *sandy* desert, as the generic name of the bird would lead one to suppose.

The larger of the two species, which is without the dark tail-band, occurs in suitable localities throughout North-west Africa generally, and has no doubt rightly been distinguished from typical *A. deserti* (Licht.) from North-east Africa, on account of its more rufous coloration, but as the difference is merely one of tone or shade of colouring, a subspecific distinction appears to be quite sufficient.

The difference in colour seems to be fairly constant, so far as North-west African birds are concerned, though not entirely so as regards North-east African birds, examples from some of the more desert districts of the latter country being less grey than those from other parts, and resembling specimens from North-west Africa in colour.

Some examples of this Lark from Palestine are still greyer than those from most parts of North-east Africa, and are, in fact, distinctly mouse-coloured. They seem also to be slightly smaller, and to have smaller bills. Canon Tristram has separated the Palestine Desert Larks into two species, referring one to *A. deserti* (Licht.), and calling the other *A. fraterculus*, Tristr.

There is no doubt that the present species is subject to considerable variation in its coloration, according to the locality it inhabits, and besides this, there is a certain amount of individual variation, though not to any great extent.

A. d. algeriensis is fairly widely distributed throughout South Tunisia, but restricted to the stony desert plains and the rocky slopes

of the arid mountains, and not found in the sandy desert or in the Chott districts. The most northerly point in the Regency where I have found the species has been the neighbourhood of Feriana, where, somewhat to my surprise, I one day met with two or three of these birds on the banks of a Oued, or dry river-bed, just outside the village. The ground here, I may observe, was very rugged and broken, and just the sort of country this species delights in. On the spurs of all the arid mountains and hills in the vicinity of Gafsa the species is very abundant, and also apparently in the districts near Tatahouine.

From Marocco I have no specimens either of this or of the following species of Desert Lark, but probably both are to be found in some of the more inland desert districts of that country.

In Tripoli Mr. E. Dodson found *A. d. algeriensis* not uncommon in some parts, and in the Wed-Agarib district in Cyrenaica he obtained numerous examples of it, all of the same rufous shade of colour found in North-west African birds. In the Soda range of hills, the so-called "Black Mountains" of the Fezzan, the present form is apparently not to be found, its place being taken by a darker and greyer bird, which, after some hesitation, I decided to refer to *A. phœnicuroïdes* (Horsf. and Moore), its plumage, though varying somewhat in individuals, being on the whole like that of this Asiatic form. Its measurements generally also agree with those of *A. phœnicuroïdes*, though in some cases, particularly as regards the proportions of the bill, slightly exceeding them. Mr. Dodson appears to have met with these Larks only in the Soda Mountains, and nowhere else in the course of his journey. In his diary he wrote as follows regarding the species:

"The range of these birds seems to be confined exclusively to the Soda Mountains; they are only to be seen in the morning and afternoon, and during the heat of the day rest under the shade of the black boulders, which everywhere abound. It is probably the absence of shade that limits their range. Unlike *A. algeriensis*, I have never seen these birds taking long flights."

During the spring, when my visits to South Tunisia have always taken place, I have invariably found this Lark in pairs. At times it is said to be found in small parties, but it is not, as a rule, a gregarious species. The bird is by no means shy, and will allow one to approach close to it, as it sits perched motionless on a rock or stone, for it is eminently a rock-loving bird, and is nearly always to be found in

stony localities. Most of the districts frequented by the species are rich in isabelline or pinkish-coloured rocks and pebbles, which harmonise perfectly with the delicate tints of its plumage, so much so, indeed, that one may easily pass by the bird without noticing it, unless it should happen to move. This, as a rule, it seems loath to do, a providential instinct probably prompting the bird to depend largely on its protective colouring for safety.

Its flight is rather feeble and is rarely prolonged for any distance. The song of this species, which is uttered by the bird when hovering in the air, is fairly pleasing and melodious, though composed of but few notes. Its food consists of insects and seeds.

The nesting of this Lark apparently commences in March, and extends throughout the spring months and until the end of May. The nest, which is generally to be found under a tuft of grass or at the foot of a desert plant, is composed chiefly of grasses, coarser outside and finer inside, while the eggs, three or four in number, are of a delicate milk-white colour, covered all over, but principally at the larger end, with minute shell-spots of a lilac-grey colour, and surface spots of brown or reddish-brown. The spots often form a zone at the larger end. Average measurements 21×16 mm.

Mr. Dresser's objections to Gmelin's name of *lusitana* for the present species (Birds Eur. iv, p. 330) appear to me to be perfectly sound, and sufficient to justify the rejection of that name, which would otherwise have priority over any other.

AMMOMANES CINCTURA ARENICOLOR (Sundevall).

PALE LESSER DESERT LARK.

Alauda arenicolor, Sundevall, *Cefv. K. Vet.-Akad. Förh. Stockholm*, 1850, p. 128.

Ammomanes cinctura, Sharpe, *Cat. Birds Brit. Mus.* xiii, p. 644; Koenig, *J. f. O.* 1893, p. 53; Whitaker, *Ibis*, 1895, p. 102; Erlanger, *J. f. O.* 1899, p. 454.

Annomanes egulus, Loche, *Expl. Sci. Alg. Ois.* ii, p. 27 (1867).

Annomanes elegans, Loche, *Expl. Sci. Alg. Ois.* ii, p. 26 (1867).

Ammomanes cinctura arenicolor, Hartert, *Nov. Zool.* iv, p. 140 (1897).

Description.—**Adult male**, spring, from Tatahouine, South Tunisia.

Upper plumage similar to that of *A. deserti algeriensis*, but rather brighter; tail-feathers distinctly rufescent and terminating in a blackish band; primaries also distinctly rufescent and tipped with blackish-brown, secondaries rufescent; underparts white, the breast tinged with isabelline and the flanks and inside of wings rufescent.

Iris dark hazel; bill yellowish; feet flesh-colour.

Total length 5.50 inches, wing 3.55, culmen .35, tarsus .75.

Adult female similar to the male, but rather duller in coloration, particularly in the dark tips of the tail and primaries.

The small Desert Lark of North-west Africa, with a dark tip to the tail, differs from typical *A. cinctura* (Gould), in its much paler coloration, and the difference being apparently constant, the birds should no doubt be separated subspecifically.

As pointed out by Mr. Hartert (Nov. Zool. iv, p. 140), Gould's name of *A. cinctura* applies to the small Desert Lark of the Cape Verde Islands; the next available name is *A. arenicolor* (Sundev.), to which may be referred the small Desert Lark from North-west Africa, as well as that from North-east Africa, there being no appreciable difference between the two. Examples from Arabia also seem to be referable to this form.

The range of this pretty little Desert Lark in Tunisia is practically the same as that of its larger congener, though, unlike that bird, the present species does not appear to occur on hill-sides, but only on the stony plains and on the borders of sandy desert districts. Numerically, also, it seems to be less plentiful in the Regency than *A. d. algeriensis*.

Though not to be found actually on hill-slopes, I have met with the bird on stony plains at the foot of mountains, one of these plains being that lying a little to the north of Gafsa, where I was somewhat surprised to find the species, not expecting to meet with it so far north. It must, however, be rare there, for I met with no other example of it beyond the single one I secured. On the hard, arid plains near Metlaoui, west of Gafsa, I also met with the species in limited numbers.

From the country immediately south of the Chott Djerid, where the soil is more or less sandy, I have specimens of this Lark, as also from the neighbourhood of Tatahouine and Guermessa further south. Throughout the Regency generally, south of Gafsa, the species may

be said to occur in greater or lesser numbers, although owing to the fact of its plumage harmonising so wonderfully in colour with its environment the bird may often escape notice.

In Algeria *A. c. arenicolor* appears to be not uncommon in the southern districts which correspond with those where it occurs in Tunisia. In Marocco it probably also occurs in some of the inland desert-districts, although I have no positive information as to this. From Tripoli I have numerous specimens of this Lark, obtained by Mr. E. Dodson in districts both in the east and the west of that country. In coloration these are identical with specimens from Tunisia. The species is recorded as having occurred in Malta, Mr. C. A. Wright having obtained an example of it there in April, 1867.

In its habits the present species, though in some ways resembling *A. d. algeriensis*, differs in being more shy and less confiding. It is generally to be met with either singly or in pairs, but at times, after the breeding season is over, it may be found in small flocks. Mr. Dodson, writing of these Larks in Tripoli, says in his diary under date of July 7th: "They are all in flocks now, frequently combining with the Horned Larks (*O. bilopha*)."

The flight of this Lark is rather feeble, but it will at times soar up into the air and may be heard singing there, its song being rather shrill, and unlike that of most other Larks.

I have no nest or eggs of the species in my collection, but according to Dr. Koenig (J. f. O. 1895, p. 281), the former is a neat, compactly built structure, composed of dry grasses and plant stems, lined with wool, and surrounded by small stones. The eggs, usually three in number, are pure white, with rose-brown spots and violet shell-marks, forming a zone at the larger end. Average measurements 19 × 14 mm.

Mr. Hartert (Die Vögel der Paläarktischen Fauna, p. 224) has united the Desert Larks of the genus *Ammomanes* with a dark-tipped tail under the specific name of *A. phænicura* (Franklin), this being the oldest name. I am inclined to think, however, that the small Desert Larks of the Western Palæartic region form a group of their own, and that they should be kept apart from *A. phænicura*, which, although having a dark-tipped tail, appears to belong to a totally different species. The mere fact of the dark-tipped tail being a character common to all is not in itself sufficient to warrant their being united specifically.

CALANDRELLA BRACHYDACTYLA (Leisler).

SHORT-TOED LARK.

Alauda brachydactyla, *Leisler, Wetterau Gesellsch. Ann.* iii., pp. 357-359 (1814); *Malherbe, Cat. Rais. d'Ois. Alg.* p. 12 (1846).

Calandrella brachydactyla, *Kaup, Nat. Syst.* p. 39 (1829); *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 580; *Loche, Expl. Sci. Alg. Ois.* ii, p. 21 (1867); *Koenig, J. f. O.* 1888, p. 219; *id. J. f. O.* 1893, p. 38; *Whitaker, Ibis*, 1894, p. 94.

Description.—**Adult female**, spring, Kairouan, Central Tunisia.

Entire upper plumage pale brown, streaked with dark brown, the rump and upper tail-coverts unstreaked; primaries dull brown, fringed with pale yellowish-brown; central rectrices dull brown, fringed with yellowish-brown, rest of tail-feathers blackish-brown, the exterior pair with their outer webs and part of their inner webs whitish; under parts dull white, washed with yellowish-brown, becoming darker on the flanks; a conspicuous black patch on each side of the lower neck.

Iris hazel; bill and feet light brown.

Total length 5.50 inches, wing 3.45, culmen .35, tarsus .70.

The form of Short-toed Lark usually found in Tunisia, as well as in Algeria, Marocco and Tripoli, is the rufous-headed one which, as stated in the following article, I am inclined to consider sufficiently distinct from typical *C. brachydactyla* (Leisler) to be separated from it subspecifically.

The present or typical form, however, is to be met with occasionally, though rarely, in North-west Africa, and my collection contains specimens of it from Tunisia and Marocco. Cases of its occurrence in these countries must be few and far between, as I have only a single example from each.

CALANDRELLA BRACHYDACTYLA ITALA (Brehm).

RUFIOUS-HEADED SHORT-TOED LARK.

Melanocorypha itala, *Brehm, Vög. Deutschl.* p. 311 (1831).**Calandrella brachydactyla itala**, *Erlanger, J. f. O.* 1899, p. 355.*Description.*—**Adult male**, spring, from Bir-Abdullah, South Tunisia.

Forehead and crown pale rufous, the feathers of the hinder part with darker centres; lores and superciliary stripe whitish; rest of upper plumage yellowish-sandy-brown, streaked with darker brown, excepting the rump and upper tail-coverts, which are unstreaked; central tail-feathers yellowish-brown, with dark shaft-streaks, rest of tail-feathers dark brown, slightly margined externally with whitish, except the outer pair, which are almost entirely white; primaries dull brown, fringed with yellowish; underparts white, slightly washed on the breast and flanks with yellowish; a conspicuous black patch on each side of lower neck.

Iris hazel; bill and feet pale brown.

Total length 5·60 inches, wing 3·80, culmen ·45, tarsus ·80.

Adult female, spring, from El-Hamra, Central Tunisia. Similar to the male, but rather smaller, the wing measuring only 3·65 inches.

Most ornithologists are opposed to the idea of separating what may be called the rufous-headed form of Short-toed Lark from the typical brown-headed *C. brachydactyla* (Leisl.), and the advisability of doing so is no doubt open to question. Considering, however, that the character of the rufous crown appears to be constant in birds from certain localities, and that in addition to possessing that character, these birds differ also from the typical or brown-headed form in their coloration generally, I am inclined to separate the two forms sub-specifically. I have before me a large series of Short-toed Larks from different parts of Europe and North Africa, as well as some from Abyssinia. The Tunis birds (with the single exception referred to in the preceding article), in addition to a clear rufous crown, have a distinct yellowish tinge in their upper plumage, while their underparts are pure white. Birds from North-east Africa and most parts of South-east Europe, besides lacking the rufous crown, are distinctly greyer above and of a duller white below. The Abyssinian birds are most like those from Tunis in their general colouring, but they lack the rufous crown. In their respective measurements there is not

much difference between the forms. The bill, however, of the Tunis birds is generally rather larger and stouter.

C. hermonensis, Tristr., is considered by some authorities to be distinct from *C. brachydactyla* (Leisl.), on account of its larger size and somewhat different coloration, and also, according to Canon Tristram himself, by reason of its totally different habits, flight and notes.

As Baron v. Erlanger has recently correctly pointed out (J. f. O. 1899, p. 355) Brehm was the first to recognise the distinctness of the rufous-headed bird from typical *C. brachydactyla* (Leisl.) and to give it the above name.

This rufous-crowned form appears to occur chiefly throughout the western portion of the Mediterranean subregion, being found in Spain, Italy and North-west Africa, while typical *C. brachydactyla* occurs chiefly in South-east Europe and North-east Africa. In Italy, which may be considered as about the centre of the Mediterranean subregion, both forms are to be found, although *C. b. itala* seems to be the rarer of the two, and occasionally stragglers of either form may be met with in countries outside their usual range. From Tunis, for instance, I have an example of typical *C. brachydactyla* and a second example from Marocco, but these are exceptions to the rule, the rufous-headed form being undoubtedly the Short-toed Lark of North-west Africa, and occurring abundantly throughout that country as well as in Tripoli. I know of no instance of the two forms being found together in the same flock.

This little Lark is abundant throughout the greater part of the Tunisian Regency, being most plentiful perhaps in winter and during the periods of migration, when large flocks may be observed ranging over the country, on their way either north or south, according to the time of year. During the winter months these Larks keep in small flocks, which only break up on the approach of spring, and even as late as the middle of April small companies of the birds may sometimes be seen together. It is, indeed, only for a short time during the year that these Larks are not gregarious, for immediately the breeding season is over, and as early as the beginning of June, they are once more to be found in flocks.

The Short-toed Lark evinces a partiality for uncultivated sandy wastes, where the vegetation is more or less scanty, and the vast semi-desert plains of Central and Southern Tunisia are eminently suited

to its requirements and afford the bird a congenial home. When roosting as these Larks do on the bare ground, they scoop out little hollows for the purpose, and hundreds of these slight depressions in the soil may sometimes be found in spots where a large flock of the birds have passed the night.

This small Lark has a rapid and undulating flight when moving from spot to spot, but it often soars high into the air, and then descends in a series of dips, finally dropping perpendicularly to the ground like a stone. This I have repeatedly noticed in spring-time, when the birds observed have probably had their nests near at hand. During this soaring flight the birds sing very sweetly. When on migration their note is a simple twitter, and they are then usually to be seen flying close to the ground. In Italy I have met with the Short-toed Lark, during the periods of migration, at considerable altitudes, and on mountain-tops over 6,000 feet above sea-level.

The nesting season of this species probably commences towards the end of March, as by the middle of April nests may be found with their complement of eggs. The nests, which are placed on the ground, are chiefly composed of fine dry grasses, and as a rule have little or no lining. The eggs are generally three in number, but I have more than once found as many as four in a nest. At a first glance they appear to be of an uniform pale dull green colour, but on closer inspection they will be found to be of a dull white, covered closely with minute pale greenish-brown spots, often somewhat clouded, and generally more concentrated at the larger end. Average measurements 20×14 mm.

CALANDRELLA MINOR (Cabanis).

LESSER SHORT-TOED LARK.

Calandritis minor, Cabanis, *Mus. Hein. Th.* i, p. 123 (1850); Koenig, *J. f. O.* 1888, p. 220; *id.* *J. f. O.* 1893, p. 42.

Alaudula minor, Sharpe, *Cat. Birds Brit. Mus.* xiii, p. 588.

Calandrella reboudia, Loche, *Expl. Sci. Alg. Ois.* ii, p. 23 (1867).

Calandrella pispoletta minor, Erlanger, *J. f. O.* 1899, p. 359.

Description.—**Adult male**, spring, from El-Hamra, Central Tunisia. Lores and superciliary stripes whitish; upper parts generally pale sandy-

brown, the feathers with dark centres, most marked on the crown and mantle, but only faintly indicated on the rump and upper tail-coverts, which have a slight rufescent tinge; the central pair of rectrices pale sandy-brown, with darker median streaks, the remaining tail-feathers blackish-brown, except the outermost pair, which are almost entirely pure white, and the pair adjoining them, which are bordered with white on their outer webs; primaries light brown; underparts mostly pure white, the breast spotted with small longitudinal dark markings, and the flanks streaked with brown.

Iris hazel; bill pale brown; feet yellowish.

Total length 5 inches, wing 3·60, culmen ·30, tarsus ·75.

Adult female similar to the male, but rather smaller, the wing measuring only 3·30 inches.

Observations.—As in the case of the Crested Larks, pairs of the present species may often be met with in which the sexes are somewhat differently coloured, one being darker and the other paler, but this difference does not seem to be constant.

The Lesser Short-toed Lark of North Africa differs from that occurring in South Russia and the Transcaspiian region in its paler and more sandy coloration, and also in its somewhat smaller size. The above eastern form of Lesser Short-toed Lark, which has long been known by the name of *C. pispoletta* (Pall.), cannot, however, as shown by Mr. Hartert (*Die Vögel der Paläarktischen Fauna*, p. 219), continue to bear that name, and must be called instead *C. minor heinei* (Hom.).

C. minor is abundant in many parts of Tunisia, being found in flocks during the winter months, and indeed during the greater part of the year, these flocks only breaking up on the approach of spring, and forming again as soon as the breeding season is over.

This bird seems to be somewhat more local in its distribution than the preceding species, and is not to be met with quite so often. In certain districts, however, it is of common occurrence and to be found throughout the year. One of its favourite breeding haunts, I am informed, are the shores of the Lake of Tunis, where it is said to be abundant in summer.

In Algeria, Marocco and Tripoli *C. minor* occurs more or less abundantly. In South Spain the darker *C. m. batika* (Dresser), discovered by Lord Lilford, is to be found. The plumage of this form is certainly very dark in some individuals, although I may observe that among the examples in the Lilford collection, now in my possession, including the types, there is a good deal of variation

in colour. Whether *C. m. batica* is migratory, as Lord Lilford seems to have thought probable, I cannot say, but I have no specimens of the form from Marocco. It may, however, be so to a certain extent and within a limited range.

In many of its habits the present species resembles its congener, *C. brachydactyla*, but seems to be less shy and wary, and will often allow one to approach close to it before taking to flight. This is more particularly noticeable in the spring when the birds are pairing, or already paired.

At certain seasons, however, these little Larks are very restless and seem to be constantly on the move, apparently without any reason. Their flight is flitting and rather rapid. Their food consists of small seeds and insects.

Their song, which is uttered by the birds either when on the wing or on the ground, is short but not unpleasing.

In its mode of nesting the present species resembles *C. brachydactyla*, and lays, as a rule, three eggs. I have, however, found as many as four eggs in a nest. The usual site for the nest is at the foot of a small plant or tuft of grass, and the materials composing the structure are dry bents and bits of plant stems, with merely a finer lining of the same materials.

Eggs in my collection are of a glossy white colour, thickly spotted and blotched, chiefly at the larger end, with yellowish shell-marks and grey-brown surface-spots. Average measurements 19 × 14 mm.

MELANOCORYPHA CALANDRA (Linnæus).

CALANDRA LARK.

Alauda calandra, *Linn. Syst. Nat.* i, p. 288 (1766).

Melanocorypha calandra, *Boie, Isis*, 1828, p. 322; *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 551; *Malherbe, Cat. Rais. d'Ois. Alg.* p. 12 (1846); *Loeche, Expl. Sci. Alg. Ois.* ii, p. 37 (1867); *Koenig, J. f. O.* 1888, p. 223; *id. J. f. O.* 1893, p. 45; *Whitaker, Ibis*, 1894, p. 94; *Erlanger, J. f. O.* 1899, p. 362.

Alauda (Melanocorypha) calandra, *Malherbe, Cat. Rais. d'Ois. Alg.* p. 12 (1846).

Description.—**Adult male**, spring, from Kasrin, Central Tunisia.

Upper parts greyish-brown, most of the feathers with dark brown middles, particularly on the crown, back and upper wing-coverts; lores and superciliary stripes dull white; primaries dark brown, narrowly margined on outer webs with white; secondaries dark brown, broadly tipped with white and margined with buff; rump and upper tail-coverts uniform grey-brown; central rectrices brown, the rest blackish-brown, tipped with white, the outermost pair almost entirely white, and those next adjoining with their outer webs white; underparts white, except for a large black patch on each side of the neck and a brownish tinge and a few brown spots on the upper breast.

Iris dark brown; bill brown; feet reddish-brown.

Total length 7.50 inches, wing 5.30, culmen .65, tarsus 1.10.

Adult female resembles the male in plumage, but has the black neck patches less pronounced, and is smaller in size.

This large Lark is extremely common throughout the northern and central districts of Tunisia and occurs, although less plentifully, in some of the more southern parts of the Regency. In Algeria and Morocco it is also a common species.

Like the Short-toed Larks, this species is both resident and migratory in Tunisia, considerable numbers of Calandra Larks breeding in certain districts. During the winter months vast flocks of these Larks may be observed frequenting the cultivated fields and open country interspersed with patches of corn-land, where food is no doubt abundant. Later on, when spring sets in, these flocks break up and the birds pair for the breeding season, but like the Short-toed Larks the present species is eminently gregarious, and as soon as nesting is over the birds congregate together again.

During the breeding season the Calandra Lark sings sweetly, and in spots where the birds are abundant the air is filled with their song. This is remarkably joyous and pleasing, although spoilt to some extent by one or two harsh and grating notes at the end. In Southern Italy the Calandra is greatly prized for its song, and caged birds of this species may frequently be seen. These often acquire the notes of other birds, and I have heard them imitate the notes of the Canary and of the Nightingale. In captivity the Calandra Lark frequently assumes a very dark or melanic coloration, due perhaps to the food given it. I know, however, of one of these birds, at present alive in a cage, which when taken from the nest had the entire plumage black,

except the abdomen, which was white. Its fellow-nestlings were of the normal colour.

The present species, like other Larks, feeds chiefly on seeds and grain, but also to a certain extent on insects and worms.

Its breeding season commences towards the end of March and is continued throughout the months of April and May. Its nest is usually placed in a cornfield, or on similar level ground, and is composed of grass-bents and other plant material, while its eggs, four or five in number, as a rule, are a dull white or greenish-white colour, with grey shell-spots and brown surface-markings and blotches, generally more or less concentrated at the larger end. Average measurements 24 × 18 mm.

RHAMPHOCORYS CLOT-BEY, Bonaparte.

THICK-BILLED LARK.

Melanocorypha clot-bey, *Bp. Consp. Avium*, i, p. 242 (1850).

Rhamphocorys clot-bey, *Bp. Comptes Rendus*, xxi, p. 423 (1851);
Sharpe, Cat. Birds Brit. Mus. xiii, p. 527; *Whitaker, Ibis*, 1896, p. 96;
Erlanger, J. f. O. 1899, p. 366.

Alauda clot-bey, *Malherbe, Faune Orn. de l'Alg.* p. 21 (1855).

Rhamphocoris clot-bey, *Loche, Expl. Sci. Alg. Ois.* ii, p. 32 (1867);
Koenig J. f. O. 1888, p. 225; *id. J. f. O.* 1893, p. 46.

Description.—**Adult male**, spring, from near Gafsa, South Tunisia.

Upper parts sandy-isabelline, the nape greyer, and the crown faintly striped with grey; lores and indistinct superciliary stripes blackish; primaries dark brown, becoming darker at the tips; secondaries blackish, tipped with white; central rectrices rufous-isabelline, becoming brown on the tips, remaining rectrices white, tipped with blackish-brown, broadly on the inner feathers and more narrowly on the outer ones; a white patch immediately below the eye; ear-coverts and sides of the neck black, with a white spot in the centre of the former; chin and centre of the throat white; breast white, thickly spotted with black, this colour extending in a broad median stripe downwards on the abdomen; lower abdomen and crissum white; sides of body and flanks vinous-isabelline.

Iris very dark brown; bill bluish; feet white.

Total length 7 inches, wing 5, culmen .70, height of culmen at base .55, tarsus .85.

Adult female paler than the male and more uniformly isabelline in its coloration, with less black on the underparts, and slightly smaller in size.

Young: underparts uniform isabelline, the primaries and tail-feathers broadly margined with that colour; no black on sides of head or underparts; breast slightly spotted with greyish-brown; bill yellowish; feet flesh-colour.

The present species was first described by Bonaparte (*ex Temminck MS.*) from a specimen purporting to have been obtained in Egypt, but no ornithologist or traveller in recent times appears to have met with the bird in that country.

According to Mr. Dresser (*Birds Eur.* iv, p. 383), the type specimen, which is now in the Leyden Museum, was sent from Egypt by Clot-Bey, Physician-in-Ordinary to Mehemet-Ali, and von Henglin, who himself never met with the species on the Nile, thinks that it may have been procured in the western portion of Egypt bordering the Libyan desert. This is not improbable, as Mr. E. Dodson, when collecting for me in Tripoli and Cyrenaica, met with the species in districts situated not far west of the above desert, and its range may very possibly extend right across that desert into Western Egypt.

This Lark, a true desert species, occurs only in the more southern districts of Tunisia, and even there is somewhat local in its distribution. I have, however, met with the species near Gafsa, and even a few miles further north of that town, where some rocky undulating country and sandy "oueds" are to be found in a dip between the mountains, through which the main caravan route passes from Feriana to Gafsa. This depression or valley, lying between fairly high mountains on each side, seems to be used not only by man, but also to a great extent by birds on migration, and during the periods of their passage is a capital spot for observing their movements and habits. In addition, however, to the migrants, this particular locality, no doubt owing to its varied physical character, appears to attract some of the more southern sedentary species, for besides *Rhamphocorys clot-bey*, I have there met with and obtained specimens of *Ammomanes c. arenicolor* and *Alaemon alaudipes*.

In the neighbourhood of Metlaoui, to the south-west of Gafsa, I also met with the Thick-billed Lark, but it was not at all abundant, although evidently nesting in the vicinity, as I obtained a young bird of the species apparently but a few weeks old.

South of the Chott Djerid this Lark is not uncommon in certain districts, and Mr. Aplin came across it near Bir-Ghezen and Bir-Abdallah, both districts lying to the south-east of that Chott. From the neighbourhood of Tatahouine, still further south, I also have specimens of it, though I am informed the species is not common there.

Dr. Koenig met with the Thick-billed Lark in Tunisia as far north as the Djebel-el-Meda, near Ouderef (J. f. O. 1892, p. 46), and Baron v. Erlanger found it at the foot of the Djebel Bahir, between Gabès and Kebilli, as well as at the Oued Nachla and at Oum-el-Graf, south of Douirat; in the latter district the species would appear to be fairly common (J. f. O. 1899, p. 367).

In Tripoli Mr. Dodson obtained specimens of *R. clot-bey* in several localities, and found it particularly abundant in the vicinity of Sofedjin, about 120 miles south-east of the town of Tripoli. He also met with the species still further east, in the country lying south of the Gulf of Syrtes.

In the Algerian Sahara this Lark has been met with by various ornithologists, and its occurrence there has been recorded by Canon Tristram, Loche, Taczanowski, and Dr. Koenig; but in no part of the country does the species seem to be at all abundant.

From Marocco I have no note of the bird's occurrence, though I cannot help thinking that it must be found there in the more inland desert districts. The species certainly appears to be fairly common in the Province of Oran, and in the year 1889 the Zoological Society of London received living examples of it, which were supposed to have been obtained in the neighbourhood of Ain-Sefra in that Province (Proc. Zool. Soc. Lon. 1889, p. 26). From Ain-Sefra also came the example of this Lark procured by General Cavaignac during the French expedition to the interior of Oran in 1847, and on which MM. Desmurs and Lucas in 1851 bestowed the name of *Hierapterhina cavaignacii*, believing it to be a new species.

Peculiar in its appearance, this Lark is equally so in some of its habits, and differs not a little from most other Larks. As a rule it frequents rocky hillocks and broken, undulating country covered with a scanty scrub vegetation, this being often so scanty as hardly to afford shelter to the bird. In such localities the species is to be found generally in limited numbers, though occasionally fairly plentifully. In spring-time, when I have met with the species, it has been in pairs,

but during the autumn and winter it appears to congregate together, and is then to be found in small flocks. On the few occasions when it has been my good fortune to encounter the bird I have found it far from shy, and instead of flying off on my approach it has allowed me to walk close up to it before taking to flight. On one particular occasion I remember observing one of these birds, which had evidently seen me from a distance coming towards it, crouch down as closely as it could to the bare ground, remaining there motionless, with its head turned towards me, watching me as I slowly walked up to it, and it was only on my approaching within a yard of the spot where it was that it finally took to its wings. The species evidently does not readily take to flight, but seeks to escape detection by concealment and, according to some observers, by running off on the approach of danger, like some other Larks, such as *Chersophilus duponti* and *Alæmon alaudipes*. When the present species does use its wings it rarely takes a long flight, but skims over the surface of the ground for a short distance and then settles down again. Its flight, however, is by no means feeble, but the contrary, and should a strong wind happen to be blowing, it is, indeed, rather swift and somewhat darting. Though not shy, this Lark seems to be generally on the alert, and I have seen it perching on a low rock or stone spying the country round it, after the manner of a Chat.

The food of the species consists of small seeds and insects. In the crop of one of these birds I found a locust almost entire, and in that of another a good-sized beetle, minute seeds being also present in both cases.

I have never heard this Lark's note, but according to Dr. Koenig the bird emits a lark-like twitter when on the wing, though he never heard it utter any real song. To the same author we are indebted for some interesting notes regarding the breeding of this species, together with an excellent plate of a brooding female, with its nest and eggs (J. f. O. 1895, p. 263, pl. xiv). Judging from a specimen of a young bird in my collection from South Tunisia, the species must commence nesting operations early in the year, probably the end of February or beginning of March, but the breeding season is no doubt continued throughout March and April, and perhaps into May. The nest, which seems always to be placed in a depression in the ground, hidden by a tussock of Halfa-grass or some other desert plant, and surrounded by small stones, is large and well-built, being composed of

grasses and plant stems, with a lining of a finer material. The eggs, the complement of which is apparently three, are coloured with a delicate apricot tinge, covered all over with rust-red and rose-violet markings. Measurements about 24×18 mm.

The shell of the eggs is very fine and transparent and has a dull gloss.

Dr. Koenig alludes to the habit the present species has in common with some other Desert Larks, such as *Ammomanes algeriensis*, *Ammomanes cinctura*, and *Otocorys bilopha*, of surrounding its nest with small stones. The object of this is, I think, probably a double one, being partly for the better consolidation and protection of the nest against wind and weather, and partly to render it less conspicuous, and more in harmony with its surroundings. Nature's providential dispositions are here clearly apparent, the delicate cream and pink coloration of the eggs of the above species harmonising so well with the warm tints of the desert stones, and forming another good illustration of adaptative and protective colouring.

OTOCORYS BILOPHA (Temminck).

DESERT HORNED LARK.

Alauda bilopha, *Temm. Pl. Col.* iii, pl. 244, fig. 1 (1823).

Otocorys bilopha, *Bp. Consp. Avium*, i, p. 246 (1850); *Sharpe, Cat. Birds Brit. Mus.* xiii, p. 537; *Loche, Expl. Sci. Alg. Ois.* ii, p. 20 (1867); *Koenig, J. f. O.* 1892, p. 389; *Erlanger, J. f. O.* 1899, p. 455.

Alauda (Otocorys) bilopha, *Malherbe, Faune Orn. Alg.* p. 21 (1855).

Description.—**Adult male**, early spring, from Metlaoui, South Tunisia.

Forehead and broad superciliary stripe white; front part of crown and two long tufts extending backward from it jet-black; top of crown immediately behind the black part whitish; remainder of crown and upper parts generally isabelline, rather more rufous on the upper wing-coverts and secondaries; primaries blackish-brown, the outermost feather with its outer web white, the rest with their outer webs rufescent; central rectrices rufescent, the rest black, the outermost pair with the outer web white; lores and forepart of ear-coverts jet-black; hind part of ear-coverts white; chin, upper throat and sides of neck white; a pectoral gorget jet-black;

remainder of underparts white, washed on the sides and flanks with isabelline.

Iris dark hazel; bill bluish, black at tip; feet purplish-brown.

Total length 6 inches, wing 3.90, culmen .55, tarsus .80.

Adult female resembles the male in general coloration, but has the black or dark parts less intense, these, indeed, being sometimes brownish, while the crown-tufts and pectoral band are smaller. In size it is also smaller, its wing measuring about 3.60 inches.

The young are of a uniform pale yellowish-isabelline, without any black.

The English name of Shore Lark does not seem to be at all applicable to the members of this group, which, far from being denizens of the sea-shore and coast districts, are to be found, as a rule, in inland and often in mountainous regions. A better and more appropriate name for them is no doubt that of Horned Lark, or Tufted Lark.

The graceful little Desert Horned Lark, *O. bilopha*, first described by Rüppell from Arabia, occurs also throughout the desert region of North-west Africa and Tripoli, though apparently not in North-east Africa. It has been said to occur also in Southern Spain.

In Tunisia the range of the present species, like that of *Rhamphocorys clot-bey*, is confined to the more southern parts of the Regency, where, moreover, like that bird, it appears to be somewhat local in its distribution, no doubt owing to its rather exclusive tastes in the choice of the localities it affects. The most northern point in Tunisia where I have met with the bird is the Metlaoui district, lying to the south-west of Gafsa and between that town and Tozer. Here I found the species by no means uncommon, and secured several specimens of it. Baron v. Erlanger met with this Lark on the Phoum-el-Ghadamsi and in the stony desert region further south, where apparently the species is abundant.

In Tripoli *O. bilopha* is most plentiful in some districts, and Mr. Dodson collected examples of it in various parts of the country. In Algeria Dr. Koenig found the species not uncommon between Ouaregla and Ghardaia, as also generally throughout the M'zab districts, in some of which, indeed, it was often the commonest Lark he met with. From Marocco I have no specimens of the bird, but Mr. Drake states that it is found in that country near Rabat and Dar-el-Baida (*Ibis*, 1869, p. 153).

Mr. Dodson, when collecting for me in the Maroccan Atlas, discovered another species of Horned Lark, which I described as new, under the name of *Otocorys atlas* (Bull. B. O. C. vii, p. 47), and subsequently figured in the *Ibis*, at the same time giving some further particulars regarding the bird (*Ibis*, 1898, p. 604, pl. 13). This Maroccan Horned Lark most nearly resembles *O. elwesi*, partaking of the characters of both *O. alpestris* and *O. penicillata*, though like *O. elwesi*, inclining perhaps rather more to the latter.

Mr. Dodson found this rare species in the mountain-valley of Glaoui, at an elevation of about 5,000 feet above sea-level, and secured a pair of the birds, the only ones met with.

O. bilopha, like other Horned Larks, is exclusively a ground bird, and is usually to be found frequenting stony plains, in preference to the sandy desert or the salt marsh-country of the Sebkas. Elevated rocky plateaux are favourite haunts of the bird, and of these there is no lack in Southern Tunisia. The vegetation of these districts is naturally of a desert or semi-desert description and is limited to stunted dwarf shrubs and low-growing plants, which, however, appear to afford shelter to the birds and convenient sites for their nests. According to Dr. Koenig, one of the commonest of these plants is *Helianthemum hirtum*, Pers., and where that shrub grows one may be almost sure of meeting with *O. bilopha*. Half-grass and other graminaceous plants also flourish in some of these districts. In such localities the Desert Horned Lark is to be met with chiefly in pairs during the early spring and in flocks during the remainder of the year, when it is apparently more shy and not so easily approached as it is in the spring. During the breeding season the species is certainly anything but shy and allows one to approach close to it.

In Tripoli Mr. Dodson found the species in small family parties in the late spring, and in flocks, often of considerable size, during the summer, when occasionally he noticed the Horned Larks consorting with the small Desert Lark, *Ammomanes c. arenicolor*. He observed a peculiar habit the present species has of flying in curves when ascending, uttering a short, sharp note while doing so, and then a more prolonged note when descending. The male bird has a rather bright and pleasant though disconnected song. The food of the species consists of small seeds and insects.

To Dr. Koenig, who was fortunate enough to meet with several

nests and eggs of this Lark in the Algerian Sahara, we are indebted for some interesting notes concerning its breeding habits. The nests he found were generally placed at the foot of a desert shrub, often *Helianthemum hirtum*, and were carefully constructed of plant-stems and grasses, lined with little wool and pieces of linen stuff, the whole being surrounded by small stones. The eggs, of which two appear to be the usual complement, although three are sometimes found, vary considerably in tint, the ground-colour being at times cream-colour, at others a pinkish-white, and occasionally bluish or greenish-white; the shell-spots are violet, and the surface-spots brick-brown. Sometimes the entire surface of the egg has a clouded or marbled appearance. The average measurements appear to be 21×15 mm.

END OF VOL. I.









