

OBSERVATIONS ON THE MIGRATION OF BIRDS
IN THE MEDITERRANEAN.

BY
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II.—SPRING MIGRATION AT CRETE.

CRETE, perhaps the least known ornithologically of the large Mediterranean Islands, appears, as might be expected from its proximity to that country, to agree very closely in its avifauna with Greece.

In the winter time, in common with the other Mediterranean Islands to the westward, the bird-life is decidedly scanty; while in summer, judging from the influx of migratory visitors from the south up to the date of our departure on the 29th April, the bird-life seems to be much a counterpart of that met with in the rocky country around Platea, near the Gulf of Arta.

From its geographical position, and knowing that Greece in summer is populated with individuals of many species of birds that winter in Africa, it will be readily inferred that Crete is a migratory highway between the two regions, acting as a stepping-stone to birds from the southward, and enabling them to shorten their over-sea journey by some eighty miles, a diminution which can hardly fail to be welcome.

The only difficulty in such an inference seems to be the point of departure on the North African coast from which the influx might be expected.

Considering the physical features of the strip of country from Alexandria to Tripoli lying between the Sahara and the Mediterranean, it seems out of the question that as a winter base it can provide any but a minute proportion of the migrants that pass through Crete in spring. Furthermore, the majority of the Cretan migrants observed on the present occasion during

February, March and April, 1906, was composed of species known not to winter north of the Tropic of Cancer.

The fact remains, however, that we actually did find a very considerable passage across Crete to the northward, probably towards Greece and her archipelago, and perhaps also to part of Asia Minor ; but the unfortunate absence of *data* as to the direction of arriving migrants leaves it open to doubt whether the birds do actually come from Egypt by a north-westerly course or from the nearest part of the African coast in Barca by a more northerly or even a north-easterly course. Unless the birds wintering south of the Tropic of Cancer cross large areas of desert in spring, it seems as if the bulk of the migrants at Crete might be expected to have come by a north-westerly course from the Lower Nile district.

But perhaps there is a regular migration passage across the Sahara *viá* the oases. Such a journey would seem far less dangerous than a cross-sea passage to most birds ; the food difficulty would be almost the only thing to contend with.

The " Venus " arrived at Suda Bay on the 3rd February, and remained in Cretan waters until the 29th April, with the exception of thirteen days in the middle of the latter month, when she was away at Athens. This made rather an important gap in our migration records, although, as a matter of fact, the only *new* arrivals found on our return from Athens were the Cuckoo, a warbler of the genus *Hypolais*, the Rock-Thrush (*Monticola saxatilis*), Turtle-Dove, Wood-Wren, and the Pied Flycatcher.

On one occasion only did we go to the southward of Crete, and then only to steam along the coast at several miles distance.

In consequence of this, all our bird-observations were made on the north side of the island, chiefly at Suda Bay, but although I made the most of my time by getting ashore whenever duty permitted it, the ship did so

much cruising that several undesirable breaks appear in the migration records, and, in addition, I never got even a glimpse of the country inland.

Considering the orders *Passeres* and *Picariæ* only, from present information Crete seems to possess about thirty winter species, some sixteen of which are resident and breed in the island.

Up to the date of our departure on 9th April, the spring migration had added to the winter list, according to my own observations, only thirty-one more species belonging to these two orders, twelve of which left some of their individuals to breed, the remainder passing on to the northward.

The first indication of the spring migration was the arrival at Suda Bay on the 11th February—a cold rainy afternoon with a strong west wind—of a few Crag-Martins (*Cotile rupestris*). On the 19th and 20th February Crag-Martins were plentiful around Suda village in the afternoon. The 23rd February brought the last two Crag-Martins to this district, and the species then disappeared for the year. Previous to the 11th February I had particularly looked out for the Crag-Martin without success. I felt quite sure at the time that this movement was a migratory and not merely a nomadic one, and concluded that it represented the departure of those birds which had wintered among the mountains in the interior of the island, and not the passage of any individuals from the southern coast of the Mediterranean. Skylarks, also, which were met with on the northern lowlands on the 18th February, we never saw subsequently.

Analysing my notes, I find that these two very early pioneer species of the spring migration were shortly followed by the *departure*—for I firmly believe that the influx of migrants from over the sea had not then commenced—of those species which are purely winter visitors to Crete, so that by the 15th March the island was almost denuded of all its winter visitors; and there ensued a short period of bird-desolation, until the 19th

March brought the first—so I believe—of the spring migrants from the south.

On the 19th March three species of *Limicolæ* and the Black-headed Wagtail, undoubted migrants from Africa, made their appearance.

The spring migration had started in earnest, and from the 20th to 27th March there was a regular rush of birds from the south, followed, up to the middle of April, by a steady arrival of fresh species. Each species in turn at first increasing in numbers and then either spreading to breed or passing on northwards.

Except in the case of one dull-plumaged Wheatear, which I did not obtain and which may have been a young male of the previous year, it was very marked how all the first arrivals were males, the Wheatears particularly being in beautiful fresh-coloured plumage; the females appeared to arrive on an average some ten days later.

The following list gives the order of arrival of the species, the dates being those on which the species was first observed. Specimens were obtained of those species marked with an asterisk :—

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| 19th March. | *Black-headed Wagtail (<i>Motacilla melanocephala</i>). |
| | *Ruff (<i>Machetes pugnax</i>). |
| | *Green Sandpiper (<i>Totanus ochropus</i>). |
| | *Common Snipe (<i>Gallinago cælestis</i>). |
| 20th March. | Swallow (<i>Hirundo rustica</i>). |
| | Greenshank (?) (<i>Totanus canescens</i>). |
| 21st March. | *Common Wheatear (<i>Saxicola ænanthe</i>). |
| | *Short-toed Lark (<i>Calandrella brachydactyla</i>). |
| | Ringed Plover (<i>Ægialitis hiaticola</i>). |
| | Redshank (<i>Totanus calidris</i>). |
| 22nd March. | *Black-eared Wheatear (<i>Saxicola albicollis</i>). |
| 23rd March. | Common Heron (<i>Ardea cinerea</i>). |
| 24th March. | *Ruëppell's Warbler (<i>Sylvia rueppelli</i>). |
| | *Black-throated Wheatear (<i>Saxicola melanoleuca</i>). |
| 25th March. | Common Redstart (<i>Ruticilla phænicura</i>). |
| | *Subalpine Warbler (<i>Sylvia subalpina</i>). |
| 27th March. | *Sedge-Warbler (<i>Acrocephalus phragmitis</i>). |
| | Sand-Martin (<i>Cotile riparia</i>). |
| | *Little Stint (<i>Tringa minuta</i>). |
| 28th March. | *Tree-Pipit (<i>Anthus arboreus</i>). |
| 29th March. | *Nightingale (<i>Daulias luscinia</i>). |
| | *Whitethroat (<i>Sylvia cinerea</i>). |
| | *Lesser Whitethroat (<i>Sylvia curruca</i>). |
| | *Wryneck (<i>Lynx torquilla</i>). |

1st April.	Whinchat (<i>Pratincola rubetra</i>).
	*Tawny Pipit (<i>Anthus campestris</i>).
	*Hoopoe (<i>Upupa epops</i>).
	Marsh-Harrier (<i>Circus aeruginosus</i>).
	Hen-Harrier (?) (<i>Circus cyaneus</i>).
3rd April.	*Blue-headed Wagtail (<i>Motacilla flava</i>).
4th April.	Montagu's Harrier (?) (<i>Circus cineraceus</i>).
	Spotted Crake (?) (<i>Porzana maruetta</i>).
8th April.	*Ortolan Bunting (<i>Emberiza hortulana</i>).
	*Cretzschmar's Bunting (<i>Emberiza caesia</i>).
11th April.	House-Martin (<i>Chelidon urbica</i>).

On the 12th April we left for Athens, not returning thence to Crete until the 23rd April, our last five days at Suda Bay adding six new species to the above list, viz. :—

- *Rock-Thrush (*Monticola saxatilis*).
- Wood-Wren (*Phylloscopus sibilatrix*).
- Tree-Warbler (*Hypolais* sp.).
- Pied Flycatcher (*Muscicapa atricapilla*).
- Cuckoo (*Cuculus canorus*).
- Turtle-Dove (*Turtur communis*).

I have no note of seeing migrants at sea either on the passage to Athens or back again ; on both occasions it was fine, settled weather.

Weather.

Up to the 10th April the weather was very unsettled. Frequently for days together there were squalls of rain and wind, which seemed to have the effect of delaying the migrants on the north coast of Crete from continuing their passage. After the 10th April the weather picked up, and was nearly always fine and sunny.

Unfortunately, material is insufficient to enable a satisfactory connection between the weather and the progress of migration to be formed, but I have a note, made on the spot, that during the very rough and rainy weather of the first week in April there seemed to be a regular banking up of migrants on the north coast, pointing to the fact that they would not, or could not, face the weather. Directly it cleared up, away went the birds.

Times.

The principal time of arrival of migrants on the north side of the island, in the vicinity of Suda Bay, was unquestionably late in the afternoon, about an hour before sunset and onwards.

I am somewhat inclined to think that this represented the result of a small diurnal shifting of quarters from the south side of the island, preparatory to a departure northwards at dusk, rather than the true arrival from over the sea. This surmise could not be verified, however, on account of the entire absence of *data* concerning the south coast. In the early mornings there was never anything like the number of migrants to be seen that there had been the previous evenings, the obvious inference being that the majority had departed at some period of the night.

(To be continued.)