WALL-BUILDING BIRDS.

BY

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MANY years ago I read in Irby's fascinating book on the *Ornithology of the Straits of Gibraltar* that the Black Wheatear (*Œnanthe l. leucura*), which nests in holes and clefts of rock, had the extraordinary habit of making a sort of wall or screen of stones in front of its nest. He describes and figures one exceptionally perfect case where there was a barrier of stones about 9 inches long, the same in width, and 2½ inches high. Colonel Verner removed the stones and counted them, and found 76 in the foundation of the nest, while the wall contained 282 more, total 358! The largest stone was 2 inches long by ¾ inches wide and ½ inch deep, and the total weight of the stones was 4½ lb. The Black Wheatear is large for a Chat, but is by no means a big bird, and one wonders how the stones are carried to the hole. As far as I know no one has seen the Black Wheatear engaged in this task and it would be an interesting piece of research work to see whether the bill or the feet are used. Although Dr. Hartert states that the Falcon-billed Lark (*Rhamphocorys*) uses its bill for this purpose it would seem more natural for the Chats to use their feet, as the weight of a stone would destroy their balance in flight. But this is a point which can only be settled by observations on the nesting bird. When I first began to work among the birds of north Africa, it did not take long to discover that the African Black Wheatear (*Œ. leucura syenitica*) has the same habit as its Spanish ally, but even more strongly developed. Time after time we found old nests in pot holes or crannies in the face of cliffs, and wherever there was room there was invariably a glacis of loose stones, sometimes only twenty or thirty, but often rising to enormous numbers. One which I saw during last year was the largest I have ever met with, and formed an embankment of loose stones near the foot of a cliff which would have filled a couple of buckets to the brim. There is no reason to suppose that this was the work of one season; the old sites are used over and over again, and in that dry climate the action of the weather hardly affects them at all. One nest of *Œ. l. syenitica* contained no stones, but it was in a very unusual site: placed a few inches down a hole in the steep face of a mud bank in a dried-up river bed, and stones would either have blocked up the entrance to the hole or fallen outside. Other Chats in north-west Africa have the same habit. Hartert has recorded it

of *Œ. leucopyga* and I have noticed it also in *Œ. lugens halophila*, though not to the same extent as in the larger Black Chats.

It is, however, even more surprising to find that the habit is not confined to the rock-nesting species in north Africa; it exists in a somewhat modified form among the Larks. The Brown Desert Larks (*Ammomanes deserti*) build their nests under the shelter of a stone or tiny bush, but on the open side one generally finds a little wall of stones arranged loosely at or below the level of the nest. During the spring of 1926 I made the acquaintance of another species of Desert Lark on the stony deserts south of Biskra and in south Tunisia (*A. phœnicurus arenicolor*), and here again was the wall in a primitive form, but in both cases the stones were not loose but wedged well into the sandy soil. Of course it is possible that these little birds use the same sites year after year, and in that case it would not be surprising to find that blown sand had accumulated round the stones and given them the appearance of being built into the ground; but Koenig appears to have also met with similar cases of Desert Larks' nests in which the stones were, as he says, "plastered" into the ground. Other species which "wall in" their nests are the great Falcon-billed Lark (*Rhamphocorys clot-bey*) and the north African Horned Larks (*Eremophila alpestris bilopha* and *E. a. atlas*). In connexion with these last an interesting parallel occurs. The Shore-Lark of northern Europe (*E. alp. flava*) frequently nests on the tundra, where there are often no loose stones and only boulders embedded in the ground. Moreover, the habit of wall-building appears to be confined to Mediterranean species. When looking through the illustrations in H. J. Pearson's *Beyond Petsora Eastward* recently, I noticed in a photograph of a Shore-Lark's nest (facing p. 76) some peculiar objects arranged roughly in two rows on one side of the nest. Referring to the letterpress (p. 79) I found the following interesting note: "On examining the photo of this nest . . . there will be noticed a number of pieces of light brown shale on one side; these were the only stones within a circle of many feet, and I have little doubt were brought by the bird to divert attention from the light-coloured eggs and nest." It is an interesting coincidence to find an arctic subspecies adopting the same habit which is characteristic of the Saharan and Atlas races.

With regard to the object of these walls there is still considerable divergence of opinion. Irby's surmise that they may be of use in draining the nest of superfluous moisture

may be summarily dismissed, as the Spanish birds generally breed in places to which rain cannot penetrate, and in any case the risk of damage by wet during the nesting-season is very slight. In north Africa, where the rainfall, as Hartert has already pointed out in an article on this subject in the *Beiträge zur Fortpflanzungs-biologie der Vögel*, I., pp. 2, 21, is practically negligable, the theory is still more untenable. Another explanation is that it is for protection against the visits of *Uromastix* and other lizards. Hartert points out that the *Uromastix* is a vegetable feeder and would hardly be stopped by so small an obstacle, while the small lizards are themselves as light of foot as birds. In default of any better explanation he is inclined to think that the walls are for protection against the frequent and severe wind storms of the desert. This is probably true as regards the nests of the desert-breeding Larks (*Rhamphocorys*, *Eremophila* and *Ammomanes*), but seems to have little bearing on the case of the rock-nesting Chats. It seems more probable that the loose glacis of stones, forming a scree of a foot or even two feet in height, is a useful protection against the unwelcome visits of the smaller snakes, which in all countries are deadly foes to nestling birds and also to eggs. The whole subject is one which deserves fuller investigation, and furnishes an excellent field for anyone who wishes to do some bird-watching with a definite object in the country south of the Atlas and Aurès ranges.