

It was so in the case of two birds in the evening of July 25th near the Button Islands and once more on August 16th in the case of a single specimen in Ungava Bay. But the Killinek Eskimos said that this bird occasionally appeared in great numbers at the beginning of autumn. They said the nearest breeding places of the birds lay in the southeast of Ungava Bay near George River. Macoun calls special attention to the breeding of the species in Ungava Bay because of a communication of Downs (I, p. 52). Kumlien thinks that it was *S. macrura* Naum. which was breeding more or less commonly along the whole

Labrador coast and on the islands in the north of Hudson Strait. In Cumberland Sound district, on the contrary, he observes that the species was occasionally found in quantity, but seemed to breed in only a few places in that locality and not at all regularly. Their movement seemed to regulate itself according to the migrations of the capelin, *Mallotus villosus* (1879, p. 101). The little individuals of this fish, often occurring in immense numbers, seem to be very welcome to the birds as an easy prey. (p. 329).

(To be continued.)

NOTES AND OBSERVATIONS

PERSEVERING ROBINS.—During the last week of April, 1927, a pair of Robins built a nest in an eaves-trough on the second storey of a house in Toronto. The trough on the side of this house is continued across the gable to the pipe which leads to the ground, and, as the nest was placed in this gable trough, it was directly in the path of all water from one side of the roof. The position of the nest made it inaccessible without the aid of special apparatus, so the following observations were made from a window on the other side of the street.

During the incubation of the first set of eggs the weather was about average, and all went well until the young ones were hatched, about May 15. Then we had three or four days of almost continuous rain and the nest was deserted about May 18. The nest appeared to be intact, but it must have been saturated with water, and no doubt this condition proved too much for the newly hatched young.

On May 24 Robins began repairing this nest. I could not ascertain whether the previous nestlings were removed or not, but doubtless they were, either by the Robins themselves or by some other agency. Almost as much material seemed to be used for repairs as would have gone into a new nest. While this work was going on it rained a great deal, and I noticed that the birds, on bringing material, would dip it in the trough beside the nest as though moistening it. Laying was commenced about May 27 and the young hatched June 11 or 12. Despite the persistence of rainy weather, this brood, which seemed to contain four, had no evident trouble, and left the nest in good health on June 24. Their success was due, quite probably, to the fact of one nest being placed on top of another, this allowing the water to work through the bottom without seriously affecting the upper storey.

From June 25 to July 11, I was out of the city but when I returned a Robin was again sitting on this nest. This time there had been little or no repair work and the nest had sunk almost to the level of the rim of the trough. During July there was an abnormal amount of rain. Nevertheless the Robin continued her incubation until July 23, no doubt past the day when the young should have appeared, and then deserted. During this last sitting, on very rainy days, the bird was often seen perched on the rim of the trough with head on one side as though watching the rising water. Perhaps, at such times, she was trying to reason out the situation.

There is an argument here on the negative side of the question, "Do animals think?" The instinct which enables a bird to select a nesting site told the Robins that this was a good spot, protected on the top, bottom and two sides; but reason failed to tell them that the eaves-trough which seemed made for the support of their nest was the indirect cause of its destruction.—R. J. RUTTER.

CLIFF SWALLOW NESTS AND RAIN.—The article on Persevering Robins recalls to mind some pertinent observations made during two separate descents of the Red Deer River in Alberta a few years ago.

This river bed is sunk from two to three hundred feet below the main prairie level and in many cases the valley walls approach the river bank in irregular, and more or less sheer, cliffs. Many wall spaces thus formed are sites of large colonies of nesting Cliff Swallows that plaster their gourd-like nests closely together making continuous mud-incrustations over considerable surfaces. The boundaries of these aggregations of nests are often very definite but to casual obser-

vation often erratically arbitrary in outline and extent. Many groups of nests are obviously under sheltering overhangs but others seem well out in the open and subject to the inclemencies of every weather. Often there is no apparent reason why nests should be huddled closely together as if space were very precious and then cease at an imaginary line beyond which conditions seem equally, or even more, desirable.

When the rains come, however, darkening the exposed faces of the cliffs with their wetness, much of the mystery is explained. In practically every case it is then seen that the nest colonies occupy the only dry spots of the irregular, and generally wet, surfaces and that the soluble, fragile nest-structures often cease almost on the line of moisture. Most of these colonies seem to be occupied only for a single season or a short series of years and new sites are selected at frequent intervals; consequently there are everywhere old and deserted nest groups in various stages of delapidation whose obvious age bespeaks their permanency and the good judgment with which they were founded as regards prevailing weather, wind and rain. One mild shower and wetting would be sufficient to dissolve their clayey structure into its constituent gumbo to drop with unctuous splash to the talus below or to flow away in stalactites of sluggish mud.

It does not seem that this safety of situation is generally achieved by a system of trial and error for few ruins of recent and obvious errors are noted as would be were that the case. By some means Cliff Swallows after nesting under such conditions for countless generations have evolved methods of nest-site selection that nearly unerringly pick out amid the multitudinous wall exposures and tricky wind currents of the canyons the safe situations. There is no necessity here at least to defer nest making until a mud-making rain supplies structural material and coincidentally marks out the safety zones on the cliffs for the river supplies them constantly, irrespective of weather, a source of the choicest mud, and building can be undertaken at any time. Swallows also generally like to carry on their work in bright sun and a drying atmosphere that fixes the growing sub-structure before further accretions are added. It may be however that the site is decided upon during or immediately after a shower and perhaps the foundation is outlined before the drying cliffs lose their tell-tale moisture and is then left to be completed in better building weather. However it is, whether occult instinct or empirical methods guide the birds, there is here shown a

most interesting adaptation to environment.—
ORNITHOLOGICAL EDITOR.

OBSERVATIONS ON THE RUFOUS HUMMING-BIRD (*Selasphorus rufus*), 1927.—The male hummer was the first to arrive here (Crofton, B.C.), but he seemed to be in such terrible haste that I did not at first have much opportunity to observe him until some time later when his ladies had arrived. I say "ladies" because I saw at least four females to one male.

Each male had his own territory, and this particular one chose the topmost bare twig of an apple tree as his throne or watch-tower. Occasionally the neighbouring gentleman would intrude, but would be chased off immediately in a most vindictive manner, both birds seeming to use very harsh words!

When the fruit trees came into blossom, Mr. Hummer was in the orchard every day. One does not have to see him in order to know that he is there, as he has his own particular song or "drumming". It is uttered as he swoops past one or shoots swiftly overhead and might be written *ch-ch-ch-chut-churrr* or *tut-ut-ut-ut-turrrre*. Immediately after making this sound he darts straight upwards until reaching the desired height when he comes to a sudden and complete full stop, remaining stationary in the air like a glittering ruby set in the blue sky. Whilst in this position he will repeat the ordinary call note of *tchik* which is common to both the sexes, then dropping suddenly he flies back to his "watch-tower". I think that the drumming sound is probably produced by the tail feathers. The male hummer has the monopoly of another and quite different sound also. This sound is produced continually as long as the bird is on the wing, and only varies by increasing in volume each time the bird moves from its position in the air. The sound is difficult to describe, but might be likened to tiny beads vibrating regularly in a thin metal box. Although, as far as my own observations go, the male rufous never flies without making this vibrating sound, the female never at any time produces it.

Mrs. Rufous is the architect and builder of the home; she gathers lichens from the trunks and branches of trees after the same manner that she gathers honey from the flowers, and having built a frame work of this material, which appears to be fastened together with spider's web, she lines it well with down from willow or other plants, the result being a deep though very tiny, perfect cup-shaped nest—an artistic ornament, one of



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