

THE MIGRATION OF SOME NATIVE LOCUSTS.

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We read from time to time, and have done so for many years past, of vast hordes of locusts darkening the sky, as they sweep onward, from unknown breeding grounds; how they devastated the crops and ate up every living leaf in any locality they happened to make a stopping place, and in fact left behind a desolate and leafless waste where a few hours previous all had been luxury and beauty. Such is said to be the case, at times, in parts of Africa, India and certain South American countries. There is, however, no longer any mystery connected with these visitations. Science has explained all that; has discovered the breeding grounds and is doing much to eliminate the injury by guarding against attacks and providing for them when they occur.

We are not, as a rule, apt to associate our common grasshoppers—many of which, however, are true locusts—with those devastating species. In fact, of all our many different kinds we usually claim but one as truly migratory, namely, the Rocky Mountain Locust, *Melanoplus spretis*, the locust made famous by having a special commission appointed to investigate its ravages. This species, in the past, has done immense damage to vegetation mostly in the United States, but it also invaded a great portion of Manitoba in the seventies, and is specially remembered on account of its having practically swept the Red River Valley clear of vegetation. Since then there have been two minor outbreaks confined to southern Manitoba, the locusts having evidently flown from somewhere south. In spite of the prevalence of this species in Manitoba at times it is very doubtful whether it can be classed as a native, a distinction which, after all, we are not anxious for.

Leaving out *M. spretis* we have still several destructive species, foremost among them being the Lesser Migratory Locust, *Melanoplus atlantis*, with several minor lights such as *M. gladstoni*, *M. femur-rubrum*, *M. angustipennis*, *M. packardii*, *M. minor*, *M. bivittatus* and others, all of which are very injurious at times and migrate regularly during the months of July and August.

It is a wonderful thing this migration. Few animals are free from a desire or instinctive stimulus to move to other parts and so spread the species. Plants, also, are constantly doing it by means of their seeds, and those that cannot go far by their own exertions, fasten themselves to such as can, and so, as with ourselves, air, land and water, are all made use of for the purpose of travel.

With regard to grasshoppers, it is strange that their regular periodic movements have been largely overlooked, though no doubt this is partly due to a lack of knowledge as to where to look. At Aweme, Man., where locusts have been troublesome of recent years, one instinctively looks up towards the sun, taking care to get behind some building, or in some way hide the sun's disc and then, if there are any flying, they will be easily observed within a radius of from one to fifteen diameters from the sun.

When a locust has the instinctive incentive to fly it is said to inflate the air sacks along the side of its body; it then rises with a spiral movement, round and round, higher and higher, until reaching a height of some hundred feet or more and feeling the resistance of the wind, it sails slowly away, usually flying with its head facing the breeze if it is at all strong, and gradually getting higher as it moves along with it, until it becomes a mere speck of glistening whiteness, when close in line with the sun and invisible elsewhere. When there is no breeze it will return obliquely to earth to await a more favourable opportunity.

That this desire, or instinct, to fly elsewhere is no sudden impulse is shown by the fact that a locust when disturbed seldom flies any great distance, and in fact seems incapable of doing so, while those that are prepared rise easily. Nor is the movement due to lack of food, as one often sees them rise in the midst of plenty. No, it is Dame Nature's way of spreading her children over the country, and she has taught them, through the law of natural selection, to go and also how to prepare for their journey.

The migratory season commences soon after locusts reach maturity, that is when they have passed their final moult, and some three or four weeks before they commence laying eggs. It lasts almost a month. There is not, however, a continual movement, only hot sunny days are chosen and even then the locust is dependent on the wind which not only carries it along but also indicates its direction. The days most preferred are those when the breeze averages some fifteen miles an hour, though lesser winds, as well as higher, are used to advantage; locusts seldom fly, however, when the wind is blowing hard.

It is interesting to watch these movements on a gusty day, when calm one moment and breezy the next. Then every fresh gust is taken advantage of and one sees hundreds of locusts rise on such occasions, as if having waited their opportunity. It is the same while looking up towards the sun, one moment will only discover a few, the next a perfect swarm moving at different angles owing to the breeze having slightly different directions at

different heights. And so the journeys continue, first east, then west, south or north, as the wind varies. At night they apparently drop to earth* to infest new neighbourhoods or perchance rise and move elsewhere next day. But not all go, among the Orthoptera especially Nature has made a wise provision. Some are endowed with long wings; these are built specially for locomotion and conveying the insect long distances. Others of the same species have short or rudimentary wings which oblige them to stay at home. So that while the long-winged forms seek new homes, there are enough short-winged brothers and sisters to carry on the family at home and incidently the work of destruction also.

BOOK NOTICE.

DISTRIBUTION AND MIGRATION OF NORTH AMERICAN SHORE BIRDS. By Wells W. Cooke, U. S. Department of Agriculture, Biological Survey, Bulletin No. 35, 100 pages and four half-tone plates, by Fuertes.

This publication is another valuable contribution towards a knowledge of the habits of North American birds. It deals, as the title indicates, with distribution, breeding range and migration, and also touches upon the economic side of the question which has hitherto received very little attention. The author claims that, so far as present knowledge goes, the evidence of food eaten is wholly in the birds favour, as no shore bird has yet been discovered to do harm to any appreciable extent; while many, such as the Upland Plover and Killdeer are of very great use to agriculture in destroying noxious insects. A special plea is made for the general protection of all shore birds in spring time, especially the Golden Plover, which is in a fair way to joining other extinct species.

The book is throughout an extremely useful work, covering, as it does, the range—both winter and summer—of birds inhabiting the whole of North America.

N. C.

*It is well known that some grasshoppers travel throughout the night. Such an instance is related by Prof. S. J. Hunter of *Dissosteira longibennis*, and though I have no direct evidence, it is possible that some of the Manitoba species are also nocturnal during the migratory season.



Criddle, Norman. 1910. "The Migration of Some Native Locusts." *The Ottawa naturalist* 24(9), 164–166.

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