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57. 28 Locusta: 16. 5

Notes on Plague of Locusts in North Queensland and its Relation to Sugar Cane.

By A. A. Girault, Nelson. Cairns.

At Mossman, North Queensland on March 22, 1912, the adults of this species of the first generation (parents of a possible second generation) were exceedingly abundant flying about continually during the day; taking position in a field of sugar cane, for instance, and looking over it, one could see them flying across it in all directions, not at all unlike birds; these flying adults were not in swarms but several hundred could be seen at any one time, all single. Along strips of grass, however, they were much more abundant, occurring here and there in densely packed masses of about ten to fifteen square yards, roughly. All of these individuals were not adult, however; at least half of them were in the last larval or nymphal stage and a few in the penultimate larval stage. Many were observed in their final ecdysis and on one individual undergoing this process these notes were made: This individual was observed hanging head downward from a blade of grass, a foot above the ground; its skin had been shed down to the last legs. The shed skin firmly grasped the grass blade by the intermediate and posterior legs. The wings had been freed but were still shrivelled and curled. This was at 10. 40 a. m. Five minutes later, the ecdysis was completed and the soft adult attempted to turn about by grasping the shed skin; in this it failed and fell about eight inches, taking hold of some grass, its head upward. The wings were perfect by 11 a. m., their markings dimly perceptible along the proximal half. During the next quarter hour no change in coloration occurred.

Thus, at Mossman toward the end of March, the first generation since the migration was just coming to maturity. Oviposition had not commenced.

On March 26, 1912 at Nelson I noticed that the adult locusts of the first generation were also very numerous; on April 1, I could find no young but as I sat in the laboratory building on the outskirts of Nelson I could hear the constant clicking sound made by the adults when flying about. At this time, injury to cane was noticeable and rather extensive, apparently all done by these adults of the first generation, now mature. If one took position in the centre of a field of infested cane, standing up and looking over it one could not see that anything was wrong but stooping down and looking along a row, a network of bare leaves was presented. This was an average condition for rows in some fields. Only the lower leaves had been attacked; these were usually stripped bare to the groove-like midrib (more rarely only partially and irregularly eaten to the midrib) but sometimes the whole of the outer, blade portion of the leaf had been eaten away, leaving but a part of the midrib which was sharpened toward its end as if with a knife. In other cases, only long rectangles had been eaten from the margin of the leaves. The elliptical, white pellets of excrement, resembling pieces of dried wood pith were scattered over the soil around the base of each plant while the leaf-axils each contained a little pile of it. Although thus extensively eaten, the general healthy appearance of the plants was not at all affected; the plants were too old and vigorous to show the drain and soon recovered.

I have frequently seen hens chasing the adults of this locust but only on one occasion did I see the insect caught; to all appearances, it was then hurriedly engulfed. Sometimes the locusts commence to fly scatteringly but all in the same direction and one may see them passing for an hour or more during these flights. On April 5 at Nelson an unorganized flight of this kind was observed at two o'clock in the afternoon in an east by south direction; soon thereafter rain came up from behind, overtook the locusts but they continued nevertheless; they were about forty

feet up in the air; the wind would quite frequently stop the progress of some of the individuals which would then seem to be hovering at one point. However, most of them were making moderate speed against it although I judged its velocity to be about twelve miles an hour.

On April 8, I found an eggmass of some locust in sandy soil in a cane field near the Mulgrave River. On April tenth an eggparasite was reared from them (*Scelio ovi* Girault MS.). These eggs were most probably those of *danica* but may have been *Locusta australis* Brunner v. W. There is no way at present of identifying this stage. Later in April, this parasite, together with another species described by Froggatt (*Scelio australis* Froggatt) and known to be parasitic upon the eggs of *australis*, was observed to be common on the ground, usually in meadows, along roadways and in company with the locusts. It continued common in such situations, more especially over places where eggs had been deposited, until about the middle of June when it disappeared. We thus have some reason for thinking that its generation is continued over in the eggs of the locust. On April 11 I made the general observation that the locusts were then becoming decidedly less abundant, correlated with greater abundance at lights at night (this marked attraction to lights seems to be in some way related to their first appearances and final disappearances). Dead bodies were numerous on the ground. In some bare, compact, dark, silt, loam soil in a meadow or paddock, I found a number of eggmasses but the dead females were lying on the soil near them, not mutilated. Nor were any detached abdomens plugging the holes which were open until the mucus plug over the eggmass was reached. It was also noticed then that *Locusta australis* was flying in larger numbers with *danica*. By April 17 at Nelson, the adults of both species had practically died out. Yet near Hambleton Junction on the same day, adults of both were common and abundant in cane fields and what is more a large number of young locusts were encountered. These were in the first postembryonic stage¹⁾. The cane in the vicinity of Hambleton had been considerably injured in the characteristic manner already described; the white excrement about the base of the plants was especially conspicuous here as it contrasted with the red soil and was very abundant, appearing not unlike as if some men had gone along each row with bags of oats or perhaps rice, and allowed the latter to flow out from a small opening as they walked along, directing the flow at the base of each plant. At Nelson, a pair of *danica* were noticed mating and near the town, an occasional flock of adults was encountered, though as stated, practically all had died. On April 22, I had a load of the dark red volcanic soil brought from Hambleton; it was filled with the eggmasses of a locust; these were kept and they aestivated (they had not hatched up to the end of August). On April 29, across the Mulgrave from Nelson, another colony of

young in two stages were encountered, together with a number of the *Scelios*.

On June 6, 1912 I made a note to the effect that no young or old locusts had been seen since May 24. However, on June 15, I saw two separate colonies of young near Nelson both with all of their individuals in the last stage; no adults were observed. Previously, in May, I had obtained specimens from colonies of young on the sixth (second stage of larva), eighth (at Aloomba; second and fourth larval stages), tenth (second, third and fourth stages), eighteenth (fourth larval stage) and twenty-fourth (fourth stage). On July 7 an isolated colony of adults of *australis* and young of the last larval stage were encountered in midforest near Aloomba. The young were colored like the adults but not being quite sure of the identity of the two (since I was under the impression that all of the young met with formed a scattering winter generation of *danica*) I confined a number the following day under a cage over grass; several of these transformed a few days later into adults of *australis*; on August 26 the cage still contained a living adult male.

Thus, from what I have written here, it seems plain that while *danica* was gregarious it bred very slowly, passing through but the single generation. It first appeared in noticeable numbers in the first week of January 1912 in the adult stage. The young of the first and only generation did not appear until the second week in February and did not mature until the end of March; oviposition of the adults of the first generation (parents of a second generation) was probably at its height in the middle of April and the adults then began to die. The eggs deposited in the middle of April did not hatch but aestivated (a large number of locust eggmasses obtained in April have been kept; up to August 31, they had not hatched though still healthy). The colonies of young encountered from the middle of April to the end of the first week in July were *Locusta australis* and not *danica* which passed the winter in the egg stage. The winter generation of *australis* was very slow in developing to maturity (about from April 15 to July 15) but in August the adults certainly were not numerous.

57. 89 Cymothoë (67. 1)

Eine neue Cymothoë aus Kamerun.

Von Arnold Schultze.

Vor etwa zwei Jahren beobachtete ich in der Nähe von Lomie (Süd-Kamerun), ohne des Tieres damals habhaft werden zu können, eine *Cymothoë*, die auf den ersten Blick an *egesta* erinnerte, aber trotzdem einen fremdartigen Eindruck machte. In einer mir kürzlich von meinem eingeborenen Sammler aus Kamerun zugegangenen Sendung finde ich nun eine *Cymothoë*, in der ich jene offenbar sehr seltene Art mit Sicherheit wiederzuerkennen glaube und die ich in folgendem beschreibe:

Cymothoë suavis ♂ spec. nov.

Diese Art steht der *egesta* Cr. nahe, gehört aber

¹⁾ As shewn later, the young of *Locusta australis*.

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