

**BIOLOGY OF *CONTHEYLA ROTUNDA* HAMPSON,
A PEST OF COCONUT**

Contheyla rotunda Hamp. (Cochliidiidae: Lepidoptera) is a sporadic pest of coconut. Previous studies made on the insect by Fletcher (1919), Pillai (1919), Ayyar (1940) and Nirula *et al* (1954) do not provide adequate information on its biology. Hence a reinvestigation on the life history and biology of the pest was undertaken, the results of which are presented in this paper.

Mating and oviposition: The moths mate on the same day of their emergence and start oviposition on the same night of mating or on the next day. Eggs are laid singly or in small clusters of 5 to 10. Egg laying continues for 4 days and the number of eggs laid per day progressively decreases from first to the fourth day, the average number of eggs laid on the successive days being 90.0, 75.4, 49.2 and 27.4 respectively. The number of eggs laid by a female ranges between 120 and 420 (Table 1).

Table 1

Number of eggs laid by *Contheyla rotunda*

Replications (Moth)	No. of eggs laid on successive days				Total	Number hatched	Percent hatching
	1st	2nd	3rd	4th			
1	182	148	60	30	420	350	83.3
2	58	42	20	—	120	112	93.3
3	127	73	49	56	305	225	73.8
4	22	69	60	17	168	160	95.2
5	61	45	57	34	197	135	67.3
Average	90	75.4	49.2	27.4	242	196.4	82.6

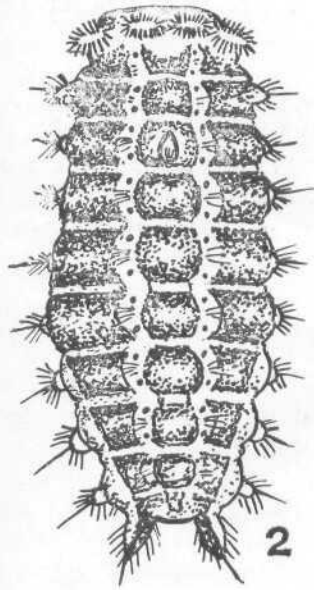
The egg measuring 1.2–1.5 mm X 0.8–1.0 mm

The egg (Fig. 1) is elliptical, highly flattened and scale like and glued to the substratum; chorion shining, semitransparent and light yellowish. Incubation period lasts from 5 to 7 days, viability of the eggs being on an average 82.6% (Table 1).

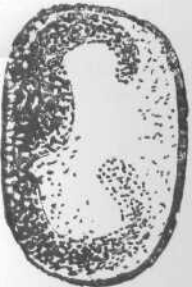
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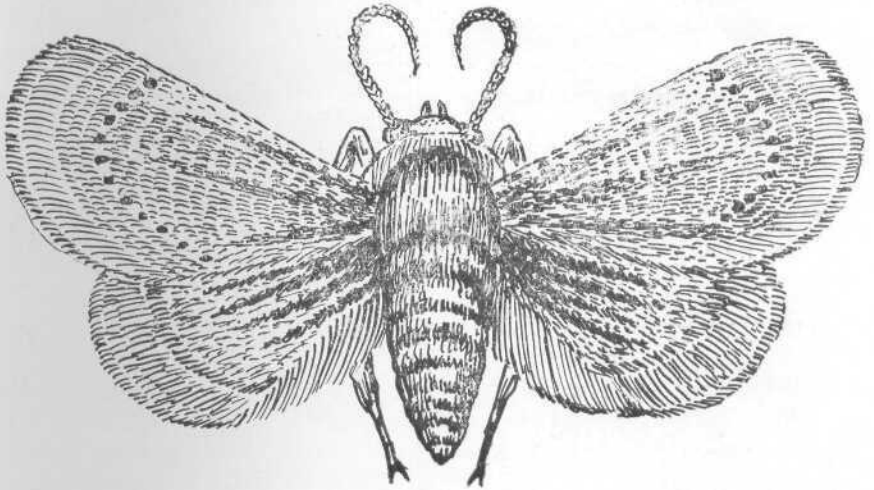
1



2



3



4

Fig. 1 Egg
Fig. 2 Grown up larva
Fig. 3 Pupa
Fig. 4 Adult moth

The larva (Fig. 2). The first instar larva is dorsoventrally flattened and cream coloured measuring 1.5 mm X 0.8 mm. Head is covered by the prothoracic flap. The body has a narrow pink streak mid-dorsally and 3 pairs of thoracic and 8 pairs of abdominal scoli mid-dorsally and 3 pairs of thoracic scoli laterally. The abdomen bears 8 medium sucker discs ventrally. The larva develops a brown colouration in the third instar. The prothoracic flap bears a row of 4 scoli forming an arch and the body has 11 pairs of lateral scoli the first pair being very prominent. The colour of the larva turns black dorsally in the 5th instar, the mid dorsal streak being deep black. The 6th (final) instar larva measures 11 mm X 4.5 mm and is uniformly black or grey dorsally and dorsolaterally. Head is 2.8 mm X 2 mm in size and mouth parts black coloured. Those caterpillars destined to emerge as male moths are small in size with dark brown colour, whereas those becoming females are larger sized and grey coloured.

The range and average (in paranthesis) duration of larval instars 1 to 6 are 3-5(4.0), 5-6(5.5), 7-10(8.2), 5-7(6.1) and 6-10(7.5) days respectively.

The larva during the first 3 instars feeds on the leaves by scraping the green matter from the lower leaf-surface. From 4th instar onwards it feeds on entire leafblade starting from the edge and proceeding towards the mid-rib. The 6th instar larva is a voracious feeder and the entire leaflet may be eaten up leaving only the mid-rib.

The Pupa: (Fig. 3). Prior to pupation the larva becomes sluggish and remains inactive for 12 to 24 hours. It then makes a cocoon of silken threads which is in the end made hard and shell like by the larva depositing on it a white secretion which dries up. The cocoons are spun on the ventral side of the leaflets along the mid-rib. The male pupa measures 3.5-5.0 mm x 2-3 mm and female pupa 5-7 mm X 4-5 mm. Pupal period ranges from 8 to 14 days (average 11.9 days).

The Adult: (Fig. 4). The adult emerges out by pushing open the operculum of the cocoon. The female moth has a body length of 10 to 12 mm and a wing expanse of 14 to 16 mm. The male is dark coloured and slender with a body length of 7 to 9 mm and a wing expanse of 14 to 16 mm. The longevity of the moth ranges from 4 to 6 days and 5 to 6 days for male and females respectively.

Natural enemies: A species of *Chrysis* is found parasitising the pupa of the insect to the extent of 15 to 30 percent.

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