

continuous dark brown median line on terga 7-10, interrupted posteriorly on each tergum; anterior margins of terga 7-9 with a pair of broad, dark brown, transverse maculae extending to median line, elevations at mid-dorsum of terga 7-9 prominent and pointed; posterolateral spines present on segments 6-9. Color and markings of sternum as in seventh instar nymphs; submedian plate slightly cleft apically. Caudal filaments: basal 1/3 smoky brown, remainder pale; posterior 2/3 of caudal filaments with long brownish hairs.

The eighth instar lasted for 14-16 days, averaging 14.8 days.

Ninth Instar Nymphs (Fig. 14 A): Body length of male 4.50-6.50 mm; width of head 1.40-1.90 mm; thoracic notal shield: length 2.70-4.30 mm, width 3.80-5.50 mm; caudal filaments 1.40-1.50 mm. Body length of female 4.70-6.60 mm; width of head 1.40-1.80 mm; thoracic notal shield: length 2.80-4.30 mm, width 3.90-6.20 mm; caudal filaments 1.60-2.07 mm. Head: brown with numerous minute black stipplings; black macula near anterior base of compound eyes partly covered dorsally by the anterolateral margins of eyes; lateral borders of genae crenulated; anterior projection of frontal process of head greatly extended forward; basal 1/3 of frontal prominence of head dorsally covered by the frontal process. Compound eyes: black, larger than those of the eighth instar nymphs; shape of inner margins of posterolateral corners of eyes of males and females as in eighth instar nymphs. Ocelli greatly reduced, inconspicuous. Antennae: yellowish; 7-segmented. Thorax: thoracic notal shield light brown with numerous dark brown tubercles and minute black stipplings, areas adjacent to median carina darker in males, dark brown tubercles more abundant on males; elevations of median carina and paired dorsal spines as in Figure 13 IX; lateral borders of shield crenulated and serrated near base of lateral spines; basal 2/3 of margins of lateral spines serrate; lateral spines light brown except reddish-brown at apex; lateral extensions more prominent than those of eighth instar. Hind wing pads with longitudinal tracheae and numerous small tracheal branches (Fig. 12 D). Sterna brown with minute dark brown setae. Legs: light brown, coxae darker, apex of tarsal claws reddish-brown; a prominent broad dark brown macula near base of dorsal surface of tibiae; tarsi with a broad, median, transverse, dark brown band. Inner margins of tibiae and tarsi with one row of spines. Abdomen: terga 1-5 pale; posterior 1/2 of tergum 6 dark brown, almost black around base of pyramidal structure, remainder pale; posterior border of tergum 6 with small black tubercles; terga 7-10 light brown with dark brown tubercles; a prominent continuous dark brown median line on terga 7-10, interrupted posteriorly on each tergum; anterior margin of terga 7-9 with a pair of dark brown transverse maculae extending almost to median line; elevations at mid-dorsum of terga 7-9 pale, more prominent than those in the eighth instar nymphs; posterolateral corners of terga 6-9 with spines. Sterna light brown; lateral borders of sterna 1-6 brown with minute setae, base of setae dark brown; sterna 1-7 with a network of black stipplings; a dark brown macula near anterolateral corners of sterna 7-9; subanal plate cleft apically. Caudal filaments: pale except basal 1/3 of median filament and lateral margins of cerci reddish-brown; posterior 2/3 of caudal filaments with long brownish hairs.

The ninth instar molted after 14-16 days, averaging 15.2 days.

Tenth Instar Nymphs (Fig. 14 B): Body length of male 5.40-7.50 mm; width of head 1.60-2.00 mm; thoracic notal shield: length 3.20-4.60 mm, width 4.60-5.90 mm; caudal filaments 1.70-2.20 mm. Body length of female 5.70-7.50 mm; width of head 1.70-2.10 mm; thoracic notal shield: length 3.30-4.60 mm, width 4.70-6.10 mm; caudal filaments 1.80-2.20 mm. Head: brown, except borders of genae and anterior projections of frontal process pale; head with numerous small dark brown tubercles; a black macula near anterior base of compound eyes, partly covered by anterolateral margins of compound eyes; genae expanded, anterolateral corners angular and borders weakly crenulated; frontal process of head greatly extended beyond anterior margins of head; a distinct median carina on vertex and extended anteriorly through base of frontal process of head, continuous posteriorly to median carina of thoracic notal shield. Compound eyes: black, larger than those of the ninth instar nymphs;