

and IV larger, the two latter being greater than a spiracle; on joint ten IVa is as large as IV, and I and II are more quadrately placed than occurs anteriorly; on twelve these are especially large and almost confluent; anal and its preceding plates black, and form a heavy armature to the posterior extremity.

This instance of a black anal plate becomes a specific feature paralleled only with *cerussata*. The larval period seems about sixty days.

The pupa is of the stout, active form normal to the group, with a period of about thirty days. The dates for emergence in a series of fifty-five specimens are Aug. 26 to Sept. 5.

The male genitalic modifications, noted already by Smith, might be suggestive of departures with the female structures to meet some special requirement in placing the egg, but other than a slightly longer ovipositor, there seems no change from the prevalent type. This modification exists in the peculiar two pronged clasper, which is unique absolutely. The eggs which are placed in September hibernate and are likely deposited near the extremity of the branches so the emerging larva may be near the food supply. Parasitism has not been observed so far. The sap beetle, *Ips quadriguttatus*, occurred numerously in the deserted galleries.

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#### EXPLANATION OF PLATE IV.

Fig. 1—*Papaipema furcata*, male.

Fig. 2—*Papaipema furcata*, female.

Fig. 3—*Papaipema furcata*, larva, stage IV.

Fig. 4—*Papaipema furcata*, larva, mature.

Fig. 5—*Papaipema speciosissima*, male.

Fig. 6—*Papaipema speciosissima*, female.

Fig. 7—*Papaipema speciosissima*, larva, stage IV.

Fig. 8—*Papaipema speciosissima*, larva, mature.