

The adult fly (Fig. 4) on emerging is very soft and makes its way to some sunny spot where it spreads its wings and raises them up and down to facilitate drying. After a few hours the body and wings dry and the colours of the body become evident. For the description of the adult fly reference may be made to Patton and Evans (1929).

Mating takes place within five or six days after emergence and oviposition occurs within a day or so after copulation. The longevity of the flies under laboratory conditions ranged from 25 to 55 days. There are four generations of the fly each year; the first generation beginning from the end of March to the middle of May; second from the beginning of June to the middle of July; third from the beginning of August to the end of September while the maggots of the fourth generation overwinter in October and flies emerge out of them in March next.

The duration of the various stages in the life-history is summed up as follows: Egg, 0.30-0.40 days; Larva, 5-11 days; Prepupa, 3-16 days during summer and 137-162 days in winter; Pupa, 15-21 days during summer and 28-33 days in spring and Adult fly, 25-55 days.

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Bishopp, F. C., *Journ. Econ. Ent.*, 1916, 8, 317.

Gurney, W. B., and Woodhill, A. R., *New S. Wales Dept. Agric. Sci. Bull.*, 1926, No. 27.

Janjua, N. A., *Curr. Sci.*, 1938, 6, 456.

Miller, D., *N. Z. Journ. Agric.*, 1921, 22, 321.

Patton, W. S., *Bull. Ent. Res.*, 1922, 23, 113.

—, and Evans, A. M., *Insects, Ticks, Mites and Venomous Animals*, 1929, 1, 407, 420.

Sinton, J. A., *Ind. J. Med. Res.*, 1921, 9, 150.

Smit, B., *Union of South Africa Dept. Agric. Bull.*, 1929, No. 47.

Surface Structure of Polished Iridescent Shells

ELECTRON diffraction pictures were taken from the polished surfaces of the following iridescent shells:—

(1) *Lamelliderns marginalis*, (2) *Turbo*, (3) *Haliotis*, (4) *Nautilus pompilius*, and (5) *Margaritifera vulgaris*.

30 k.v. Electrons were used. The grinding and polishing were done with wet emery powder. The pictures show one or two diffuse rings, corresponding to a liquid or amorphous state. Thus it appears that here the process of polishing has converted the laminar body structure of the iridescent shells into an amorphous one.

In this connection it is worth recording that these shells in the polished state have been examined optically by Sir C. V. Raman^{1,2,3} and by X-rays by Rama Swamy^{4,5}; they find that in many cases the crystals of aragonite are arranged with considerable regularity so as to build up a laminated structure of nacre. The pieces of shells which are optically examined were about 0.1 mm. thick, and even here a body structure is observed. Thus the present work again shows that the electrons are even more suited for the examination of the surface structure than light.

This work was carried out in the Physics Department of the Indian Institute of Science, and my thanks are due to Sir C. V. Raman, for his kindness in placing the facilities of his department at my disposal.

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^{1,2,3} Raman, C. V., *Proc. Ind. Acad. Sci.*, 1935, 1A, 567, 574 and 559.

^{4,5} Rama Swamy, S., *ibid.*, 1935, 1, 871 and 1935, 2, 345.