cide, they fall and collect in the recesses formed by the holes in the base of the rack. The apparatus is illuminated from above so that unaffected flies are attracted upwards and away from the exit holes. At an appropriate time, the shutter moves and opens the exit holes momentarily so that the affected flies fall out on to the sticky surface of the cylinder, where they are retained in discrete groups. The escapement is then released and allows the cylinder to move 1/16 of a revolution into position for the next record. At suitable times the number of flies in each position on the cylinder is noted, and the frequency results so obtained enable the time for 50 per cent response to be estimated in the usual way for each dose. The time/response curves shown in Fig. 1 are examples of results with this apparatus.

The programme of observations should be chosen so that there are equal grouping intervals for response to different doses and thus the programme used depends on the relationship between time of exposure and response to any given dose. Under our experimental conditions :

$$Y = a + b \log t$$

where Y is the probit of the percentage of flies responding to any given dose at time t, a is a function of dose in any one assay and b is the regression coefficient (Fig. 1). This relationship is that usually found when exposure to the poison is continuous[1,3,4] and it was thus necessary to arrange for observations to be made at equal intervals on a logarithmic, and not linear, time-scale ; the tape was therefore programmed accordingly.

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Physiological Age of Codling Moth Females (*Cydia pomonella* (L.)) caught in Bait and Light Traps

Several recent papers have compared the effectiveness of bait and light traps as means of estimating changes in adult codling moth populations and of timing the application of sprays[1–3]. The comparison of these trapping devices was based, in each instance, on the total number of moths caught over periods considered to have been critical for the subsequent infestation of the crop. In these investigations no attention was paid to the quality of the respective catches beyond noting the difference in the relative frequency of females attracted to each type of trap.

When trap catches are used for recording moth activity as a guide to timing spray application, the age of females in samples may be of little importance if the weather conditions impose a fairly long developmental period on eggs. However, the physiological age of the trapped moths must be carefully considered when interpreting catch results obtained under warmer conditions. This point was emphasized by Nel[4], whose investigations showed that bait trap samples consist predominantly of spent, or half-spent, females.

Some additional information has been gained in the course of an experiment on the performance of bait and light traps carried out in an apple orchard near Canberra, Australia. Four bait traps and one light trap were operated daily in alternating positions from November 1958 until March 1959. A standard lure of fermenting molasses incorporating pine-tar oil[5] was used in the bait traps. The light source was an *HP* 125 W.B.C. mercury vapour lamp. Females obtained from both types of traps throughout the season were fixed and stained according to the method of Hamstead and Gould[6]. Each female was dissected, and an estimate of its physiological age made in strict conformity with Nel's techniques and criteria.

The age distribution of the females caught in bait traps at Canberra was found to be almost identical with that observed by Nel in South Africa. It is thus likely that most females are not attracted to the bait before some of their first-laid eggs have had time to hatch.

Table 1

	Physiological age I (young)	Physiological age II (middle-aged)	Physiological age III (old)	Total
Bait traps	14	39	36	89
Light trap	113	74	11	198

$\chi^2 = 70_{(2)}$ $P < 0{\cdot}001$

The picture is entirely different for the light trap, which drew samples of quite significantly younger females from the field population (Table 1). This feature may be added to the previously recognized advantages of light traps over bait pans in codling moth population studies.

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ANATOMY

A Highly Organized Structure within a Neurosecretory Vesicle

Previous electron microscope studies have demonstrated an abundance of vesicles 1000–3000 Å. in diameter in the terminal branches of neurosecretory axons in the neurohypophysis[1], and in the sinus glands and pericardial organs of crustaceans[2,3]. I have recently observed that some of these neurosecretory vesicles possess a highly organized internal structure.

The pericardial organs of the Mediterranean stomatopod *Squilla mantis* were prepared for electron microscope study by fixation either in buffered