In the milkweed bug, *Oncopeltus fasciatus*, two groups of 5 neurosecretory cells each are very conspicuous in the pars intercerebralis region of the brain. In nymphs, as in adults, these so-called *A* cells stain dark purple with the aldehyde fuchsin technique and blue-black with Gomori's chrome hematoxylinphloxin. Due to their bluish-white colour these cells are visible in the living nymphs. In a series of experiments, they were extirpated in 57 last stage nymphs (47 females, 10 males) during the first day after the preceding moult. 19 specimens (17 females, 2 males) survived the operation and moulted again, which resulted in 17 adults and 2 female sixth stage nymphs. As a control, 20 animals (10 females, 10 males) were operated upon in the same way, except that a small piece of the lateral part of the brain was removed. 18 of the controls (8 females, 10 males) made another moult which gave origin to 16 adults and 2 female sixth stage nymphs.

In order to confirm that the extirpation of the *A* cells was being performed early enough, another series of 10 animals (3 females, 7 males) was operated upon within 4 to 6 h after they had reached the fifth nymphal stage. 4 of these specimens (1 female, 3 males) moulted to adults.

It may be that not all *A* cells were successfully extirpated in all specimens. As a control, therefore, some of the operated animals which made another moult, were sectioned and stained with the aldehyde fuchsin method or Gomori's chrome hematoxylinphloxin. The study of this material showed that specimens would moult even when the *A* cells were completely extirpated as early as 4 h after the preceding moult.

Under the present conditions, the experimental animals moulted to adults, on the average, 10 to 11 days after the operation, whereas operated controls made the adult moult, on the average, 8 to 9 days after the experiment. The difference in the rates of mortality among experimental and control animals indicates that the two operations are not quite comparable. The delay of moulting among the experimental animals may therefore be due to the severity of this operation, rather than to the lack of *A* cells.

Most of the mortality was due to specimens which did not feed properly after the operation. 9 individuals, however, survived for 10 to 16 days after the extirpation, but died without any signs of the moulting process. These specimens did feed and it may be that the prevention of moulting was due to the lack of *A* cells. What is of interest, however, is that so many specimens would moult even after an extirpation of these cells early in the last stage. The understanding of the concept of neurosecretory systems may give the explanation to this[2]. As in the bug *Iphita*[3], neurosecretory material in *Oncopeltus* is transported from the *A* cells to the walls of aorta. Before the onset of moulting, large quantities of neurosecretory material is present in the regions of aorta adjacent to the corpora cardiaca-allatum. During metamorphosis a depletion of material takes place. This is also observed in specimens which lack the *A* cells. It gives the most plausible explanation of why moulting is possible in such individuals.

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Zusammenfassung

Exstirpation der 10 neurosekretorischen *A*-Zellen der Pars intercerebralis führt bei *Oncopeltus* nicht zum Ausfall der letzten Larvenhäutung. Es wird angenommen, dass das Neurosekret der *A*-Zellen, welches in der Aortenwand gespeichert wird, die Häutung ermöglicht.

The Gonadotrophic Activity of Date Palm Pollen Grains

It is commonly claimed in Egypt that pollen grains of date palm (*Phoenix dactylifera* L.) are effective in the treatment of both male and female infertility. Previous investigations by Hassan and Wafa[1] indicated the presence of estrogenic activity in this type of pollen. Other investigators were able to isolate substances of plant origin with a gonad stimulating capacity (Friedman and Friedman[2]). In the present investigation it was decided to test for the presence of gonadotrophic effect in the protein moiety of this pollen grain.

20 pods were freshly obtained from Kerdasa during the month of March when the male pollen is ripe. The pollen was separated from the kernels with a fine gauze sieve, they were then weighed, defattened with petrolium ether and dried with acetone. The gonadotrophic principle was extracted by the method adopted by McShan and Meyer[3] for its extraction from acetone dried pituitaries. The extract was dissolved in distilled water and injected subcutaneously into male and female immature rats. Female rats were injected with an extract obtained from 10 g (fresh weight) pollen. The dose was divided into 6 equal parts injected twice daily for 3 days and the rats were killed with ether on the fourth day (Hamburger[4]). Male rats were also injected with extracts of 10 or 20 g pollen divided into 10 equal doses administered daily during a period of 10 days and the animals were killed on the day after the last injection (Deansly[5]). The ovaries, uteri, testes and seminal vesicles of the control and treated animals were dissected, weighed and examined histologically.

A glance at the accompanying tables indicates the presence of a suitable gonadotrophic action induced by pollen grain extracts. The ovary and testes weights of pollen-treated rats were heavier than those of their respective controls. The uterus and seminal vesicle weights were slightly increased by this treatment. This is evidence of a mild LH activity. The estrogenic and androgenic effects are functions of LH (Fevold[6] and Simpson *et al.*[7]). The gonadotrophic activity of pollen grains seems to be mainly of a follicle stimulating nature. When an extract obtained from 100 g pollen was injected intravenously into immature female rabbits, it resulted in an increase in the number of graafian follicles which were at different stages of development. It caused the maturation of the follicles and some of them were atretic, but ovulation did not take place.

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Table I

The influence of pollen grain extract on the reproductive organs of immature female rats

Treatment	No. of rats	Average body weight	Ovary weight in mg/100 g body weight	Uterus weight in mg/100 g body weight
Control	6	44·00	22·64 ± 0·89*	64·72 ± 7·54
Extract of 10 g pollen	6	43·33	33·93** ± 0·92	82·52 ± 6·72

* Standard error. ** Significantly different at the level of 0·1%.

Table II

The influence of pollen grain extract on the reproductive organs of immature male rats

Treatment	No. of rats	Average body weight	Testes weight in mg/100 g body weight	Seminal vesicle weight in mg/100 g body weight
Control	6	64·00	884·38 ± 29·80*	20·23 ± 0·98
Extract from 10 g pollen	6	63·40	1443·16** ± 30·60	32·87** ± 1·26
Extract from 20 g pollen	5	56·50	475·00** ± 9·55	22·89 ± 0·64

* Standard error. ** Significantly different at the 1% level of probability.

The histological picture of the testes of rats treated with pollen grain extract (10 g) showed a mild activation of spermatogenesis. Spermatozoa were universally distributed in the seminiferous tubules. There was also an increase in tubular diameter and Sertoli cells were well developed. The testes weights of the rats treated with extract from 20 g pollen decreased significantly from those of controls and rats treated with 10 g pollen. This is most probably due to the formation of anti-gonadotrophic hormone.

It is concluded then that date palm pollen grains contain a certain amount of gonadotrophic activity which is predominantly a follicle stimulating type with traces of LH. Further investigations are needed to determine quantitatively the different fractions of this hormone and to identify it by comparing its electrophoretic pattern with that of gonadotrophins of animal origin.

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Résumé

Des grains de pollen de palmier-dattier furent libérés de leur matière grasse à l'ether et séchés à l'acétone. Une hormone gonadotrope en fut extraite à l'eau et précipitée à l'acétone. Administrée à des rats mâles ou femelles n'ayant pas atteints leur maturité, cette hormone extraite de 10 g de pollen (poids d'origine), provoque une augmentation de poids dans les gonades et les organes sexuels accessoires. L'examen histologique atteste aussi une activité spermatogénique et un développement folliculaire. Le principe gonadotropique devra être identifié chimiquement. Il semble avoir la propriété de stimuler les follicules et ne contenir que très peu de traces d'hormones lutéinisantes.

The Influence of Oestrogen and Progesterone on Pituitary Function

Recent studies indicated that the oxygen consumption and thyroid function of female rats undergo cyclic variations associated with the phases of oestrous cycle. Oxygen consumption and thyroid function were at their maxima during the phase of oestrus (SOLIMAN[1], SOLIMAN and REINEKE[2]). It was also found that thyroid and thyrotrophic hormone production is increased during oestrus (SOLIMAN and BADAWI[3]). Thyroid function was also at its maximal during oestrus in rabbits (SOLIMAN and GHANEM[4]) and sheep (GHANEM and SOLIMAN[5]). Oestrogen increases thyroid activity in the presence of the pituitary (SOLIMAN and REINEKE[6]). It is also able to increase the oxygen consumption of rats only if the thyroids are present (SOLIMAN and GHANEM[7]). Recently FELDMAN[8] concluded that the stimulating effect of oestrogen on the thyroid is a direct effect which is not mediated through the pituitary. Further more MERCIER and PAROT[9] suggest that this effect is pharmacological rather than physiological.

Administration of progesterone at a low level reduced the I^{131} uptake by the thyroids (SOLIMAN and REINEKE[6]). It was also noted that such doses of progesterone had a stimulating effect on oxygen consumption in the presence or absence of the thyroid (SOLIMAN and

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