Table 1. Concentrations of Kinetin-like Substances (p.p.m.) in Pea Seedlings as Determined by Colorimetric Tests*

	Kinetin-like substances in Top portions	Middle portions	Bottom portions
English pea, variety 'Laxton's Progress'	3·0–5·0	Less than 1·0	None

* Results include both replications.

This work gives some indication as to the presence of kinetin-like substances in higher plants. It is found that these substances are mainly present in the top portions of the plants. However, the chemical identification requires an elaborate investigation.

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Effect of the Implantation Site on the Development of Grafted Limb Bud Mesoderm in Chick Embryos

A small rectangular block of the mesoderm immediately subjacent to the superficial venous plexus was excised from the wing bud apex in stages 25–26 of chick embryos and replaced with an isolate of mesoderm from the prospective thigh or proximal foreleg region. The graft extended from the dorsal to the ventral surface of the wing bud apex and did not lie in contact with the apical ridge of the ectoderm; it was separated from the latter structure by the mesoderm intervening between the apical ectoderm and the superficial venous plexus, namely, by about 15–20 layers of mesodermal cells of the wing bud (histological control).

Embryos at stages 25–26 only were used for the two following reasons: (*a*) according to the supporters of the thesis of a return inductor activity exerted by the apical ridge, the distal territories of the limb would be "capable of differentiation independently of the influence of the apical ectoderm" by stage 24 (ref. 2); (*b*) the graft inserted at the limb bud apex at stages 25–26 maintains its distal position and is not displaced to more proximal regions in consequence of the distal growth of the bud as occurs when younger stages are used.

In the majority of the operated embryos the more or less complete skeleton of one or two toes and 1–3 fingers of the hand formed in the terminal part of the wing. The toes are covered distally with scales associated with feathers and end with a claw (Fig. 1). The mentioned result is not related to any special orientation of the axes of the grafted material in respect to the axes of the host wing bud. The terminal foot structures in the wing seem to develop from the grafted proximal material of the hind-limb bud; however, the possibility that mesenchymal cells from the wing area surrounding the graft may invade the latter and take part in the development of the foot rays cannot be ruled out at present.

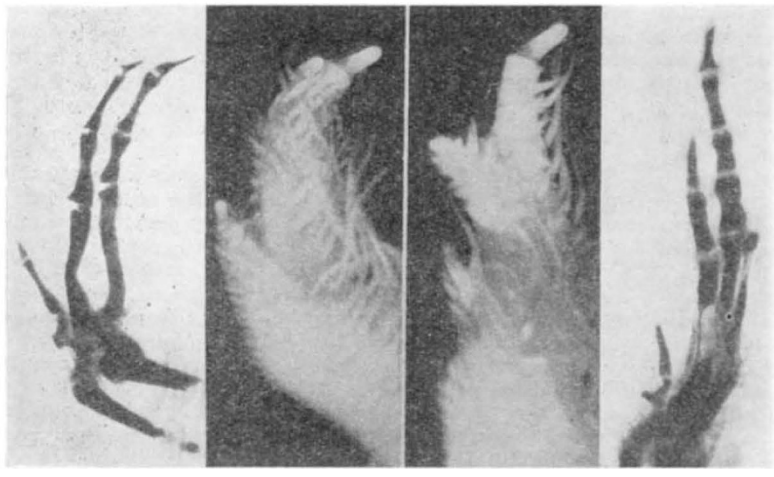

Fig. 1. Embryos of 13 days operated at stage 25–25·5. Notice the phalanges and the claw of the toes developed on the host wing

These experiments and their result bear a close resemblance to those of Saunders *et al.*[1–3], who grafted a small block of prospective thigh mesoderm subjacent to the apical ectodermal ridge of the wing bud in stages 18–23 of chick embryos. Grafts which remained in contact with the apical ectoderm frequently formed typical foot parts terminally on the wing; grafts separated from the apical ridge through interposition of wing mesoderm developed at wing levels proximal to the wrist and did not form toes. According to the authors mentioned, the return inductor activity of the apical ridge of the wing bud affected the regional character of morphological differentiation of the grafted thigh mesoderm and not its specific leg quality.

Our experiment indicates that changes of the regional character of morphological differentiation of prospective thigh or proximal foreleg material grafted to the wing bud apex may take place in stages 25–26 embryos independent of a contact of the grafted mesoderm with the apical ridge of ectoderm. The change in the developmental fate of the grafted hind-limb mesoderm could be related to organogenetic influences exerted by the mesenchymal territories of the wing apex directly on the material of the graft.

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ENTOMOLOGY

Occurrence of Microvilli and Micropinocytosis in Trophocyte of *Bombus*

Recent investigations have suggested that micropinocytosis plays an important part in the formation of egg yolk in insects. Roth and Porter[1] have recently described the occurrence of this process at the periphery of developing oocytes in the mosquito. Anderson[2] has observed a similar process in the oocyte of *Periplaneta*. It has been described in the small milkweed bug *Lygaeus kalmii* by Kessel and Beams[3]. The last-named workers suggest that micropinocytosis plays an important part in the formation of some yolk constituent, but it is questionable whether it is responsible for all yolk production.

Individual follicles of *Bombus* trophocytes were fixed in 1 per cent solution of osmium tetroxide at 0° C buffered with phosphate to *p*H 7–8 for 1·5 h. Following rapid dehydration in a series of cold ethanols the tissue was embedded in 'Araldite'. Sections were obtained with grey interference colours, using the Huxley microtome, and mounted on untreated grids. The sections were stained for 5 min with lead citrate[4] before being examined in an *EM*6 electron microscope. Micropinocytosis occurs at the periphery of the developing oocytes of *Bombus*, where it appears to fulfil a similar role to that suggested above. At the stage of development when microvilli appear at the periphery