of the dietary amino-acids also increase in the honeydew. No non-dietary amino-acids were detected in the honeydew derived from any of the experimental diets. The non-detection of some of the dietary amino-acids in some of the honeydew samples did not imply a complete absence of these amino-acids. When larger amounts of honeydew were available their presence was, in fact, demonstrable. Comparisons of the amino-acid composition of the diet at the beginning and end of the feeding periods did not indicate decomposition or a relative utilization by micro-organisms of the amino-acids found in reduced amounts in the honeydew.

The results suggest that dietary amino-acids are differentially absorbed by *M. persicae*. In contrast, Mittler[4,5] and von Dehn[6] concluded that there was little or no differential absorption of amino-acids by five other aphid species, on the basis of comparisons of the amino-acid composition of the phloem sap ingested and the honeydew excreted by these aphids.

It is clear from this preliminary work that further chemical comparisons between diets of known composition and honeydew derived from these diets should lead to the elucidation of various absorptive, digestive and nutritional processes in aphids. The results further emphasize that the amino-acid composition of honeydew excreted by aphids feeding on a plant may not always be a reliable guide to the quantitative or even the qualitative amino-acid composition of the phloem sap of the aphids' host plant.

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Control of Ingestion in *Rhodnius prolixus* Stål

Larvæ of *Rhodnius* take very large meals of blood[1]. If they are disturbed when half full they will readily resume feeding, but fully fed larvæ will make no further attempts to suck blood until after they have moulted to the next instar. The following observations provide an explanation of the way in which the extent of feeding is controlled.

The ventral nerve cords of twenty 5th stage larvæ were cut between the prothoracic ganglion and the mesothoracic ganglionic mass. When these insects were fed they would not voluntarily stop even when they had taken abnormally large meals. For example, one such insect fed for 30 min was removed and found to weigh 550 mg, whereas normal 5th stage larvæ feed for about 15 min and their average weight is then 330 mg[1]. For at least a week after such large meals the operated insects would still attempt to suck blood whenever given the opportunity. These effects were also produced by severing the nerves which leave the back of the ganglionic mass to supply the abdomen. During feeding, the cuticle of the abdomen unfolds and stretches to accommodate the swollen mid-gut. It seems probable, therefore, that ingestion is controlled by sensory information as to the volume of the abdomen.

The results of another experiment support this interpretation. By cutting a small hole in the abdominal wall of an unfed insect, a part of the mid-gut could be extruded and held in place with wax. Later, when this part of the gut was gashed and the insect fed, the ingested blood leaked out of the hole in the gut so that the abdomen was scarcely distended. Five such insects continued to feed until they were stopped 15 min after control insects had finished, by which time they had sucked much more blood than had the controls.

It is concluded that the process of ingestion is normally terminated by nervous information as to the size of the abdomen. A somewhat similar mechanism has been invoked for the control of water responsiveness in the blowfly, *Phormia*[2]. It is worth noting that there are stretch receptors in the abdomen of *Rhodnius*[3], which could well be responsible for supplying the required information. The fact that the receptors adapt very slowly, if at all[4], would make them well suited for this task.

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MICROBIOLOGY

Heated Blood Agar Medium for the Growth of *Trypanosoma cruzi* and some Species of *Leishmania*

Diphasic media containing defibrinated blood have been extensively used for cultivation of *Trypanosoma cruzi* and *Leishmania* spp. In these media, the protozoan assumes the flagellate form which occurs in the insect vector. For work which requires large amounts of material such as biochemical investigations, media of this kind are not entirely suitable owing to difficulties of preparation and collecting, but also because the suspensions of flagellates contain erythrocytes derived from the blood. In spite of these objections, these media have been used routinely by von Brand *et al.*[1,2], Chatterjee and Ghosh[3], etc.

Liquid media not containing fresh blood have also been devised for certain species, notably *L. tropica* and *T. cruzi*[4,5]. In our experience, these media will only support the growth of selected strains of *L. tropica* and *T. cruzi* and will not support the growth of *L. donovani*.

We have successfully grown a number of strains on a medium of heated blood agar. This medium is prepared according to the usual Novy–MacNeal–Nicolle (NNN) formula by adding 10 per cent defibrinated rabbit blood to nutrient agar, followed by steaming the mixture for 10–15 min in an autoclave. After the heated blood agar mixture has solidified, an overlay of glucose saline containing 0·85 per cent sodium chloride and 1 per cent glucose is added. Heating the blood agar for a longer time results in a lowering of protein concentration in the overlay and this is associated with a progressive reduction of growth. After autoclaving at 15 lb. for 15 min the overlay still contains some protein, but of the strains examined only *L. enriettii* could be grown prolifically and indefinitely.

The growth of all strains so far tested on the heated blood agar has been equivalent to or slightly less than that obtained with NNN medium. The heated blood medium yields from 4×10^7 to 1×10^8 flagellates/ml. after about 3–5 days' growth. The following protozoa have been successfully grown on the heated blood agar medium: *L. donovani* (3 strains), *L. tropica* (3 strains), *L. enriettii* (3 strains), *L. braziliensis* (1 strain), *L. adleri* (1 strain) and *T. cruzi* (1 strain).