and in their response to the presence of fluoride warrant further investigations which are now being undertaken in this laboratory.

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Hæmoglobin in *Heterakis gallinae*

A NUMBER of helminths and especially parasitic nematodes are known to possess a hæmoglobin-like pigment[1-3]. In some instances, a detailed study has been made of the pigment after extraction and purification[2,4]. From the discussion in the literature, it is apparent that no general conclusion as to the physiological significance of the hæmoglobin of parasites can be made.

The present investigation adds another nematode, *Heterakis gallinae*, from the cæca of the fowl, to the list of parasites containing hæmoglobin. The following observations were made on adult worms with a reversion spectroscope (Beck–Hartridge): wavelengths in millimicrons.

	Oxyhæmoglobin		Carboxyhæmoglobin		Hæmoglobin	Pyridine hæmochromogen	
	α-band	β-band	α-band	β-band		α-band	β-band
Heterakis	578·3	542	570·0	*c.* 530	555	557	525
Fowl blood*	578·0	541	571·8	537	556		

* There is a slight difference between our results and those of Anson *et al.*[5]: they give 576·4 as the position of the α-band in man and 576·9 in the fowl. We found, with our spectroscope, in man 577·2 and in the fowl 578·0.

It was noted that the hæmoglobin was rapidly deoxygenated by the respiratory activity of the worm, a fact which is in accordance with the high values of oxygen uptake found by Glocklin and Fairbairn[6].

It appears that there is little difference between the position of the bands of *Heterakis* hæmoglobin and those of the blood of the host.

Nevertheless, the hæmoglobin of *Heterakis* is probably an autochtonous pigment because (1) the absorption bands remained in the same position over a period of 24 hr. in washed parasites which were placed in an incubator at 37° C.; (2) adult *Heterakis* feed on the cæcal content and not on tissues or blood, as is possibly the case in the larval stage since there exists a tissue phase in the developmental cycle[7].

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Biological Value of Proteins as influenced by Dietary Vitamin B_{12}

IT has been shown by Frölich[1] that chicks, fed underheated, low-quality soy bean oil meal, were depleted of their vitamin B_{12} reserves and consequently required the supply of dietary vitamin B_{12}, probably due to the antiproteolytic activity[2] or soyin content[3] of the underheated meal. Baliga and Rajagopalan[4] have reported that vitamin B_{12} at 50 μgm. per kilo of the diet containing 10 per cent raw soy bean protein (without any heat treatment) enhanced the biological value of the protein (the biological values for the raw and vitamin B_{12} supplemented soy bean protein being $48{\cdot}6 \pm 0{\cdot}9$ and $77{\cdot}6 \pm 1{\cdot}8$ respectively). This would suggest that vitamin B_{12} has overcome the adverse effect of the proteolytic inhibitor and soyin. These studies were extended to determine the effect of vitamin B_{12} on the biological value of autoclaved soy bean meal. These observations are presented here.

Cold defatted and autoclaved (at 15 lb. pressure for 30 min.) soy bean meal, at 10 per cent protein-level in the diet, was used for the determination of biological value by the method of Mitchell[5]. There were three comparable groups of albino rats, containing six rats in each group and each rat weighing 80–100 gm. After determining the endogenous nitrogen with 4 per cent egg protein, one group (*A*) was given the basal diet[4] containing the autoclaved soy bean meal, the second group (*B*) was given the same basal diet with vitamin B_{12} at 50 μgm. per kilo of the diet and the third group (*C*) received the basal diet with aureomycin at 200 mgm. per kilo of the diet. The figures for the biological values for the *A*, *B* and *C* groups were $78{\cdot}30 \pm 0{\cdot}3$, $85{\cdot}40 \pm 1{\cdot}0$ and $86{\cdot}43 \pm 1{\cdot}40$ respectively. These data clearly show that vitamin B_{12} has a definite function in increasing the utilization of soy bean protein irrespective of the extent of heat treatment. This observation is contradictory to that of Frölich (*loc. cit.*) who, using chicks, did not find vitamin B_{12} to have any beneficial influence on growth with adequately heated soy bean meal. Our results also indicate that aureomycin exerts a significant increase in the biological value of autoclaved soy bean meal.

It was of interest to find out whether an animal protein, like casein, would respond to vitamin B_{12} in the presence of proteolytic inhibitor and soyin. Each of three more groups of rats received 10 per cent casein in the basal diet in place of soy bean meal. Three lots of crude and active inhibitor preparation were made[6] from soy bean the quantity of which was the same as that which formed the 10 per cent protein-