O. circumcincta than against *Trichostrongylus* spp.[6]. The extended pre-patent period observed in many of the sheep may be significant in the epidemiology of *O. circumcincta*. Larvæ acquired in any one month may not contribute to the contamination phase, as recorded by worm-egg counts, until several months later, but meanwhile may damage the mucosa.

The observations recorded here concern sheep which were given a single dose of larvæ. Whether a similar picture will be presented by sheep receiving repeated doses (as is assumed to occur in the field) is to be the subject of further investigation. Immunological phenomena may modify the pattern of development and may account for the findings of Morgan *et al.* that the number of larvæ occurring in the mucous membrane of the abomasum and small intestine were always surprisingly low.

A more detailed account of this work will be published elsewhere. The help of my colleague, H. McL. Gordon, is gratefully acknowledged.

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Differences in the Vitamin B_{12} Content of Cow's Milk during the Last Month Indoors and the First Week at Pasture

There is not much information available regarding the amount of vitamin B_{12} in the milk of individual cows[1]. The present work was undertaken to obtain a quantitative idea of the vitamin B_{12} activity in cow's milk during the period of indoor feeding, and during the first week at pasture.

For assaying the vitamin B_{12} potency of the milk, samples were taken twice a week from ten healthy animals of Friesian breed. The cows were milked twice a day, in the morning and in the evening. The morning and evening milk of each cow were analysed separately.

The determination is carried out by the microbiological method using the strain *Lactobacillus leichmannii* A.T.C.C. 4797. The response of the organism to vitamin B_{12} activity was measured in terms of titratable acidity, and the experimental conditions necessary for obtaining consistent results were standardized. The results are shown in the accompanying table.

Average Vitamin B_{12} Content of Milk in μgm. per Litre

Cows	Morning milk	Evening milk	Daily production
Indoors	5·96	6·65	6·31
At pasture	10·52	12·00	11·10

The vitamin B_{12} level in the morning milk is in all cases evidently lower than that of evening milk. Indoors, the average production of milk in the morning was 10·98 lit., and in the evening 9·37 lit.; for animals at pasture, it was 9·53 and 6·90 lit. respectively for the first week. In the second week, the average production was the same as indoors. The morning milk showed an average vitamin B_{12} content of 5·96 μgm. per lit. for cows indoors and 10·52 μgm. per lit. for cows at pasture, while the highest values observed were respectively 7·60 and 20·40 μgm. per lit. and the lowest 4·10 and 6·8 μgm. per lit. for morning milk indoors and at pasture.

The average vitamin B_{12} activity in evening milk of cows indoors is 6·65 μgm. per lit. and of cows at pasture 12·00 μgm. per lit. Indoors, the maximum and minimum values found were 9·6 and 5·2 μgm. per lit. respectively, and at pasture 15·50 and 8·50 μgm. per lit. respectively. The daily production showed an average value of 6·31 μgm. vitamin B_{12} per lit. for cows indoors and 11·10 μgm. per lit. for cows at pasture.

In agreement with the observation of de Heus[2], the increase in vitamin B_{12} activity of milk of cows on grass is approximately twice that of cows indoors. All animals showed this increase in the first week on grass. It may be suggested that the micro flora of the rumen of cows at pasture changes to the advantage of the micro-organism producing vitamin B_{12}.

A detailed account of this work will be published elsewhere.

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Thyroid Activity in Teleosts

The available evidence suggests that a calorogenic effect of the thyroid is doubtful in Teleosts. There has been a failure to modify the oxygen consumption, and therefore the heat production, by increasing or decreasing the amount of thyroid hormone available. Furthermore, the gland, as demonstrated in *Phoxinus lævis* and *Lebistes reticulatus*, unlike that of the higher animals, shows a regression with low external temperatures, and an increase of activity with high. This is emphasized by treatment with thiourea, for immersion of the fish in 0·05 per cent thiourea (changed twice weekly) results in an increase in epithelial height and a decrease in the amount of colloid present. These changes are more rapid when the treatment is applied at a constant high temperature. In this instance the activity has been measured arbitrarily by the epithelial height. For example, in October 1951, the gland of *Phoxinus lævis* showed a maximal structural effect after ten days at 25° C., whereas at 3° C. there was only a slight rise after three weeks (see graph).

It is unlikely, therefore, that the Teleost thyroid is functioning as a thermo-regulator, and it would not be expected to exert a calorogenic effect.

Terrestrial animals live in an environment of low thermal capacity and are exposed to great changes of external temperature; in addition, if the internal temperature becomes too great, there is a danger of death by desiccation, so that animals with a thyroidean type of thermo-regulator would have a selective advantage. The Teleost, in an environment of high thermal capacity, would not be subjected to such selection and so provides an example of physiological evolution.