in certain regions is governed by the moisture content of the epidermis.

Measurements of emissivity using a Hilger double-beam spectrograph indicate that beyond 6μ the epidermis acts as a black-body, in agreement with the foregoing calculations, thus indicating that in general these conclusions are correct (Fig. 2).

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Thiocyanate-level in the Serum and Thyroid of Cows from Areas with Different Intensities of Goitre in Human Beings

THE results of recent investigations suggest that the genesis of endemic goitre in different countries is caused not only by iodine deficiency in food, but also by antithyroid compounds contained in different plants. Several goitrogenic compounds are so far known: 1-5-vinyl-2-thiooxazolidone (goitrin)[1], polysulphides[2] and thiocyanates[3,4]. These last-named can be formed from cyanoglucosides contained in larger quantities in some species of white clover[5].

The following compounds may be considered also as being goitrogenic: 'arachidoside' glucoside in groundnut shells[6]; cheiroline in wallflowers (*Cheiranthus cheiri*) which, in the rumen of sheep, can be transformed into thiourea derivatives[7].

Although the action of polysulphides and thiocyanates is considered as being less goitrogenic than, for example, that of goitrin, they can be just as dangerous owing to their presence in large amounts.

Šilinik and Maršiková[8] found an increase in thiocyanate content in the blood serum of inhabitants of goitrogenic areas. Podoba *et al.*[9] discovered a positive correlation between the SCN^- content in investigated vegetables and the thyroid weight of animals consuming them. Greene *et al.*[10] examined the goitrogenic action of milk from cows fed on white clover.

Our investigations were carried out on 200 cows destined to be fattened, originating from areas of varying intensities of goitre in human beings.

Thiocyanates were estimated in blood plasma and in the thyroid extract. This extract was obtained in the following manner: twice-distilled water (1 ml.) was added to 1 g of freshly prepared thyroid tissue and then homogenized. A small amount of this homogenate was centrifuged for 15 min at 15,000 r.p.m. at room temperature. 0·5 ml. of liquid from the sediment was collected for analysis. Thiocyanates in the blood plasma and thyroid extract were determined by means of Aldridge's method[11,12].

Some of the results are presented in Table 1.

Table 1. THIOCYANATE CONTENT IN BLOOD PLASMA AND THYROID EXTRACT FROM AN AREA WITH VARYING INTENSITIES OF GOITRE IN HUMAN BEINGS

Area	% of goitre in humans (%)	No. of investigated cows (ind.)	% of thyroids weighing more than 24 g in cows (%)	SCN^- content in blood plasma of cows* (μg/ml.)	SCN^- content in the thyroid extract of cows† (μg/ml.)
I	0–31	70	25·7	3·1 ± 1·7	3·4 ± 1·7
II	31–50	100	33·0	3·1 ± 2·0	4·3 ± 2·0
III	51	30	70·0	4·5 ± 1·4	5·8 ± 1·8

Statistical analysis: * I and III, $P < 0·001$; II and III, $P < 0·001$. † I and II, $P = 0·012$; I and III, $P < 0·001$; II and III, $P = 0·002$.

An increased amount of thiocyanates was noted in thyroids in which cysts appeared. Their content was $7·49 \pm 1·4$ μg SCN^-/ml. of thyroid extract. Statistical analysis showed a high significance difference ($P < 0·001$) between the thiocyanate content in cystoid thyroids and those without cysts. The correlation coefficient for thyroid weight (the ratio: $\frac{\text{thyroid weight(g)}}{\text{100 kg live weight}}$ was used for analyses) and thiocyanate content in the thyroid extract was $r = +0·67$. The correlation coefficient for the SCN^- level in blood plasma and the SCN^- content in the thyroid extract was $r = +0·44$. The last correlation coefficient turned out to be highly significant ($P < 0·001$).

It should be noted that well-known goitrogenic plants, such as Swedish turnip, appear frequently in the investigated areas. Earlier investigations[13,14] have also shown a lower iodine content in water and milk from areas with a greater goitre intensity in human beings (Table 2).

Table 2. MEAN IODINE-LEVEL IN WATER AND MILK FROM AN AREA WITH VARYING INTENSITIES OF GOITRE IN HUMAN BEINGS

Area*	Iodine in water (μg °/₀₀)	Iodine in milk (μg °/₀₀)
I	4	3
II	2–4	2–3
III	0–2	0–2

* See Table 1.

The results obtained suggest that thiocyanates—among other factors (as, for example, the lack of iodine)—provoke an abnormally enlarged thyroid in cattle, or that they can appear as an accompanying compound and an indicator of other sulphuric compounds having goitrogenic effect[3].

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Action of γ-Aminobutyric Acid on *Cancer borealis* Muscle

IN several crayfish preparations[1–5] γ-aminobutyric acid (GABA) mimics the natural inhibitory transmitter. Moreover, it has recently been found in large amounts in *Cancer borealis* peripheral nerve and muscle[6], suggesting a possible role as inhibitory transmitter. The action of GABA on *C. borealis* muscle has not been examined. It has been reported that GABA has no inhibitory effect on *C. anthonyi* muscle[7] and that it blocks excitatory junctional potentials in *C. magister* muscle while scarcely changing membrane conductance[8]. Thus, it seemed of interest to investigate the action of GABA on *C. borealis* muscle.

Two microelectrodes were inserted into the superficial muscle fibres of the 'opener' or 'closer' of the dactyl of the walking leg. One, filled with 3 M potassium chloride, recorded resting potential; while the other, filled with 3 M potassium citrate, altered membrane potential by