an average value for the amount of blood consumed per day per recovered worm. Thus:

Let R = total radioactivity in excreta.
C = concentration of radioactivity in red cells.
W = total worms.
D = total days.

$$L = \left(\frac{\text{Average loss of red cells}}{\text{worm}}\right)/\text{day}.$$

Then

$$L = \frac{R}{C\,W\,D}.$$

The fact that very little iron derived from red blood cell hemoglobin is normally excreted in feces would probably make it unnecessary to correct this formula by a determination of the base line fecal iron output after vermifugation.

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Prevention of Dietary Fatty Livers by Exposure to a Cold Environment[1]

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In studies of the lesions which develop due to a deficiency of the lipotropic factors, it has been shown on numerous occasions that the development of fatty livers or of hemorrhagic kidneys is closely linked to caloric intake and to metabolic requirements. Severe lesions are more easily produced when growth is rapid and when food intake is high. Inanition may protect the liver and kidneys of an animal subsisting on a deficient diet. In an environment one or two degrees above freezing, the caloric requirement is increased greatly, as indicated by increased oxygen consumption and increased food intake. When rats weighing more than 150 g are exposed to such an environment they usually survive and some growth occurs, but at a slower rate than normal.

Two groups of ten male rats (Wistar strain), bred locally and weighing from 170 to 200 g, were given a diet ad libitum which permitted good growth but was deficient in choline and its precursors. One group was exposed to a temperature of $2.5 \pm 1°$ C for a period of two weeks, while the other was maintained for the same period under similar conditions but at a temperature of $25 \pm 2°$ C. At the end of the two-week period the animals were sacrificed, and their livers were examined chemically and histologically.

As might be expected, the fat content of the livers of the control group was high, averaging $24.8 \pm 4.90\%$ (total lipid expressed as % of wet weight). The average value found in the group maintained at 2.5° C was $7.2 \pm 1.24\%$. The average weight of the livers was approximately the same, but the weights of dry fat-free residues of the livers of rats kept in the cold environment were significantly higher than those of the control group. Although rats in the cold room ate more (average 22 g/day) than the controls kept at room temperature (average 15 g/day), their increase in body weight was less (average 1.3 g/day) than that of the control group (average 3.5 g/day).

The prevention of excessive deposition of fat in the liver in spite of increased consumption of a severely hypolipotropic diet would seem to be associated with the greatly increased total metabolic rate. The results of further study of this finding may throw light on the mechanism of action of choline, and perhaps on intermediary metabolic pathways which may be affected by exposure to a cold environment.

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Films from Hemicellulose Acetates[1]

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Up to the present time, cellulose has been the only plant polysaccharide which has been acetylated for the production of commercial films and fibers. Commercially, hemicelluloses are separated from their natural mixture with cellulose and are regarded as undesirable impurities in pulp destined for esterification. Yet the major proportion of the hemicellulose mixture present in plants consists of xylan, a linear polysaccharide which should produce strong films. Consequently, an investigation was undertaken to obtain further information on the film-forming characteristics of hemicellulose acetates.

The hemicelluloses are sometimes isolated from crude plant material by extraction with alkaline solutions. However, lignin interferes, not only because it retards complete solution of the hemicelluloses, but also because some of it dissolves in the extract, causing difficulty in purifying hemicelluloses. These disadvantages are avoided largely through selective removal of lignin with a maximum retention of unchanged polysaccharides. Such delignified pulps are termed holocellulose (*6*).

The corncob is a typical example of hemicellulose-rich material. Approximately 80% of the corncob consists of polysaccharide material, one-half of which is cellulose, whereas the remainder is made up of a mixture of hemicelluloses. The entire polysaccharide mixture or holocellulose can be prepared by a modification (*3*) of the

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