*iso*alloxazine part of the molecule. It has a partition coefficient of 0·54 between benzyl alcohol and water (compared with 3·2 for riboflavin, 0·010 for flavin mononucleotide and 0·004 for flavin adenine dinucleotide[3]), of which fact use is made during the isolation of the material. Comparison of the absorption spectra of riboflavin and of the flavin under investigation reveals no significant differences.

Recently a new flavin, flavin-X, has been reported in the literature[4], but the possibility that the flavin here described may be identical with flavin-X is eliminated by the fact that it does not contain phosphorus, whereas flavin-X is reported to be a flavin dinucleotide.

The possibility that this new flavin may be lyxoflavin[5] has not yet been excluded; it is, however, considered unlikely that so small a change in structure can account for so many differences in properties. Investigations are continuing on the nature of the compound, and they will be published in full elsewhere.

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Anticoagulant Activity of the Indian Cattle Leech

The anticoagulant activity of leeches has been known for a long time. Haycraft[1] obtained a saline extract of the anticoagulin from the head of a leech, and found that a dose of 0·01 mgm. would prevent the normal coagulation of 50 ml. blood for four and a half hours. Various investigators have since employed different techniques in their study of the anticoagulant action of leech extract. In our experiments with the common Indian cattle leech (*Hirudinaria*), an extract of the anticoagulant substance was prepared from the first eight segments of the body of the leech. The tissues were pounded with pure quartz sand in a mortar and the solution filtered through a cotton plug, freed from protein and buffered to *p*H 7·2 with Sørensen phosphate buffer.

Preliminary observations on the effect of freshly prepared extract were made on human and other mammalian blood *in vitro* and on white mice (weighing 60–100 gm.) *in vivo*. The coagulation time recorded in each experiment was much prolonged, and no case of hæmolysis of blood, as noticed by some previous investigators, was met. The extracted solution in most cases seemed to retain its anticoagulant property up to three weeks when stored at room temperature, with a maximum range between 95° and 100° F.

Furthermore, it was found that the fresh extract was absolutely non-toxic (unlike the one found by Marshall[2]) when administered to white mice by the intravenous, intramuscular or oral route.

There was a considerable increase in blood coagulation-time in white mice when freshly prepared extracts were administered by an intravenous or an oral route. The results of intramuscular injection in white mice were variable and require further elucidation.

The two important anticoagulants which have been used therapeutically are heparin and dicumarol. Whereas heparin is only effective when given intravenously, dicumarol is useful only when given orally. The extract from the Indian leech appears to act as an effective anticoagulant both by the intravenous and oral routes.

Further work is in progress to evaluate the comparative yield and the therapeutic anticoagulant effect of the extract from *Hirudinaria*.

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Dielectric Properties of the Human Body for Wave-lengths in the 1–10 cm. Range

A summary of the results of measurements of the dielectric properties of a representative selection of body tissues at a wave-length of 3·18 cm. has already been published[1]. These measurements have now been extended to two other wave-lengths, namely, 1·27 cm. and 10·0 cm., the method used being similar to that already described. All specimens, with the exception of bone, were taken from surgical operations, and measurements were made in each case with the minimum of delay and at a controlled temperature of 37·0 ± 0·5° C.

In Table 1, the results for these wave-lengths are tabulated, each being expressed in terms of an absorption constant (α) and a phase constant (β) for the tissue filling the aperture of a wave-guide appropriate to the wave-length used. The figures given are the average values obtained from two or more measurements on sections from one source, and the averages for sections from different sources are included, where possible, to indicate the variations encountered in practice. The measurement accuracies are estimated as ± 10 per cent in α and ± 5 per cent in β for 1·27-cm. wave-length and ± 5 per cent in α and ± 2 per cent in β for 10·0-cm. wave-length.

In Table 2, the real and imaginary components of the complex dielectric constant $\bar{\varepsilon} = \varepsilon' - j\varepsilon''$, calculated from the measured constants for a number of tissues, are compared at the three wave-lengths 10, 3·18 and 1·27 cm.

As with the 3·18 cm. wave-length, the measured constants for the two wave-lengths 1·27 and 10·0 cm. may be compared with those for water, the latter being present in a high percentage in all the tissues other than fat and bone. Determined in the same equipment, the constants for water at 37° C. were $\alpha = 12 \cdot 3$, $\beta = 34 \cdot 2$ for 1·27-cm. wave-length, and $\alpha = 0 \cdot 3$, $\beta = 5 \cdot 4$ for 10-cm. wave-length.

The general conclusions to be drawn from the measurements at the two wave-lengths are the same as those for 3·18-cm. wave-length, namely, that many of the body tissues behave very similarly to water in respect of their dielectric properties, that fat and bone, having much lower water contents, are relatively transparent to the radiation and that malignant and normal tissues do not differ significantly. One difference between tissue behaviour relative to water