enzyme and in *in vivo* experiments, a rapid decomposition of hexosemonophosphate was observed. In the course of an hour and a half, more than 99·9 per cent of labelled hexosemonophosphate injected into the vein of a rabbit left the circulation. As mentioned in a previous communication[2], no labelled phosphatides, or at most only a minimal amount, was formed in the blood, these substances being liberated from the liver and other organs into the circulation.

A detailed report of our experiments is being published in the proceedings of the *Kgl. Danske Videnskabernes Selskab. Biol. Medd.* We wish to express our thanks to Profs. Niels Bohr and Einar Lundsgaard for putting numerous facilities at our disposal, and to Miss Hilde Levi for making the determinations of activity of the preparations.

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[1] Cf. Hevesy, G., *Enzymologia* (in the Press).
[2] Hevesy, G., and Rebbe, O., NATURE, **141**, 1097 (1938).

Bone Tumours and Œstrone

RECENT experiments on mice from our sarcoma strain are producing results of sufficient importance to be communicated now, although the experiments are by no means complete.

We have shown[1] that there is a very marked sex-difference in the incidence of bone tumours, 77·3 per cent of the females and only 29·6 per cent of the males dying from this cause. The mean bone tumour age for females is 15·3 months and for males is 17·7 months; the youngest tumour-bearing female was five months, and the youngest tumour-bearing male was six months old.

In an attempt to increase the tumour incidence in males, experiments with œstrogenic compounds were begun less than three months ago. Through the generosity of the Organon Laboratories, we were supplied with a number of 5 mgm. tablets of œstrone. Young males, between three and four weeks old, each received one tablet implanted subcutaneously into the left flank.

During this last week, a number of these animals have shown symptoms of retention of urine, causing death in two cases; five other mice were killed before the symptoms became too pronounced. Both the dead mice had enlarged pituitary glands, but the others seemed to be normal in this respect. All the animals were undersized, and showed atrophy of the genital organs; retention of urine seemed to be due to prostatic enlargement. One mouse had bilateral hydronephrosis.

Three of the animals which were killed had bone tumours; one had osteomata of the right femur and right tibia; another had an osteoma of the right femur and two osteomata on the ribs; the third had an osteoma on a rib and early neoplastic changes in the right femur. These mice were all 3–3·5 months old; the implants had been in position for about 2·5 months. Another animal of the same age showed signs of early neoplastic changes in the femora, and the fifth mouse, only two months old, and implanted with a tablet one month previously, had definite alterations in the right femur. It is impossible without microscopic examination to say anything concerning the bones of the two mice which died, yet they appeared to be abnormal. All the bones suspected of neoplastic changes will be examined microscopically, but there may be some delay before this can be done; of the gross changes there is no doubt.

The implanted tablets were recovered from each animal and weighed: it was found that each mouse had absorbed 20,000–30,000 international units of œstrone.

Painting experiments are also in progress in which the animals receive a much smaller dose of œstrone. An adequate number of control mice is being kept; so far, these show no sign of tumour formation.

It is not suggested that, as is probable in the case of mammary carcinoma, these bone tumours arise directly by the action of œstrone on the tissues concerned. In this respect, it is worth noting that the sarcoma strain has a much lower incidence of mammary tumours (14·1 per cent) than its parent Simpson stock (50–73 per cent). Recent work by Cramer and Horning[2], Zondek[3], and others shows that there is a close relationship and balance maintained between the different endocrine glands, and a large overdose of one hormone may upset the balance and alter the rate of hormone production in other glands. These experiments may provide evidence as to which gland is responsible for the formation of the hereditary bone tumours.

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[1] Pybus, F. C., and Miller, E. W., *Amer. J. Cancer*, **33** (in the Press).
[2] Cramer, W., and Horning, E. S., *Lancet*, i, 247 (1936).
[3] Zondek, B., *Amer. J. Cancer*, **33**, 555 (1938).

Polarographic Proof of Proteolysis in Diagnosis with Enzyme Reaction

DURING recent years, Fuchs's reaction has been widely applied for the diagnostics of malignant tumours. Fuchs[1] has found that normal serum is able to decompose the fibrin prepared from carcinomatic blood; on the other hand, serum from a patient suffering from a malignant tumour decomposes the fibrin obtained from the blood of a normal individual. He proved the proteolysis by the increase of the non-protein nitrogen—a method proposed already by Abderhalden[2]—or by determining the ratio of carboxylic and amino-groups before and after the proteolysis.

The determination of the non-protein nitrogen increase due to the proteolysis is the most delicate problem of this procedure, and often leads to difficulty in interpretating the experimental results. On the basis of the polarographic investigations of proteins as carried out by R. Brdička[3], a new way has been made possible by which the proteolytic cleavage can be followed exactly[4]. Thus we applied Brdička's test which indicates the disulphidic or sulphydryl groups of proteins and their decomposition products, for the proof and measurement of the proteolysis.

We followed in our experiments a modification of the original Fuchs reaction described by Chrometzka and Gottlebe[5], in which method the aseptic ultrafiltrate of the serum is used instead of serum. We filtered the sera in the Tisen apparatus, which was