The aneurin content of animal tissues is very small as compared to their cocarboxylase content; for example, normal rat's tissues: liver, 7–13 μgm. cocarboxylase, less than 2 μgm. aneurin; muscle, 1·5–5 μgm. cocarboxylase, less than 0·5 μgm. aneurin; kidney, 11 μgm. cocarboxylase, 0·5 μgm. aneurin; brain, 6 μgm. cocarboxylase, less than 0·3 μgm. aneurin. The results obtained with normal pigeon's tissues were essentially the same. Tissues of rats which had lived for three weeks on a diet free from vitamin B_1 only contain a very small amount of this vitamin; ten minutes after subcutaneous injection of a large amount of aneurin, however, liver and kidney contained again a large amount of cocarboxylase besides an abnormally high amount of aneurin. No increased amount of aneurin was observed in muscle and brain, hence injection of aneurin does not flood the whole organism with this substance.

These investigations are fully described in a paper to be published in *Enzymologia*.

We are much indebted to Prof. K. Lohmann, of Berlin, who kindly sent a specimen of crystalline cocarboxylase to Prof. B. C. P. Jansen, director of this laboratory, whom we wish to thank for his interest in our work.

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Occurrence of Acetylcholine in Nervous Tissue of Crustaceans and its Effect on the Crab Heart

Contrary to the belief of certain investigators[1,2], acetylcholine occurs in some tissues of decapod crustaceans in considerable amounts. Trichloracetic acid extracts of leg nerves and ventral ganglia of *Carcinus* indicate a difference in the distribution of acetylcholine in these two tissues which is in close agreement with the distribution of choline esterase in the ventral ganglia and longitudinal commissures of the lobster, *Homarus*. In this form it has been shown[3,4] that two to four times as much choline esterase is present in the ventral ganglia as in the rest of the cord, which consists of fibres, with few, if any, nerve endings. In *Carcinus* there is approximately five times as much acetylcholine in the ventral ganglia as in the leg nerves.

Studies of neuromuscular transmission in crabs[5] indicate that acetylcholine is probably not the mediator between nerves and skeletal muscle in these animals. It has been found, however, to have a marked effect on the heart, and its action is the reverse of that on the vertebrate heart. In low concentrations it increases the rate of beat of the isolated heart of *Carcinus* and *Maia*, and in high concentrations it produces tetanus and systolic stoppage. The active material from 0·1 mgm. of ventral ganglion or 0·5 mgm. of leg nerve, per cubic centimetre of perfusion fluid, is usually sufficient to increase to more than double the frequency of beat of the isolated heart.

Since adrenalin and acetylcholine both accelerate the decapod heart when administered in small doses, it is possible that the accelerator nerves to the heart normally produce one of these substances.

A more detailed account of this work, which was done at the Marine Biological Laboratory, Plymouth, and the Zoological Laboratory, Cambridge, will appear elsewhere.

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Dormant Life of Tumour Cells in the Animal Body

Working with transplantations of Ehrlich mouse carcinoma (belonging to a strain cultivated *in vitro* in this Institute for nearly twelve years), we observed that tumours developed in general after two to four weeks. These experiments were carried out on ordinary commercial white mice, all of male sex. The body-weight was 13–20 gm. In several cases we found, however, that tumours developed 6 weeks and even 8, 10, 12 and 16 weeks after the inoculation of the carcinoma cells.

These findings seem to be of interest in regard to "The theory of the developmental physiology of malignant tumours" recently put forward by A. Fischer[1]. From his experiments, Fischer has drawn the following conclusion: "The cancer cell may already be present in the body and needs only what may be termed a realization factor in order to develop into a malignant tumour". Such a factor may be, according to Fischer, old age, chronic proliferative activity, influence of hormones, etc. Our observations that cancer cells may lie dormant for a long period of time before they manifest themselves as a tumour, seems to support the theory of Fischer.

The observation of a latent life of tumour cells for a period up to 16 weeks in the body of white mice may be significant in consideration of the fact that it amounts to one sixth of the whole life of a mouse. In comparison with the duration of human life, it would mean a period of dormant life of tumour cells of ten years, a period which is in very good agreement with our experience of the development of X-ray carcinoma.

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A Simple Respirometer for Small Animals

In the course of some work carried on in this laboratory, it became necessary to devise an apparatus that would measure oxygen consumption during the early life of the mouse. Most of the available methods are either elaborate in technique and equipment or ill-adapted for use with small animals. However, a constant-pressure type of respirometer, after the principle used by Winterstein and later described by