

GERALD T. EVANS

THE GLYCOGEN CONTENT OF THE RAT HEART.

The glycogen content of the rat heart has been found not to be lowered by fasting, exercise, the administration of epinephrine, or by marked changes in the $\text{NaHCO}_3/\text{H}_2\text{CO}_3$ ratio of the blood; it can be raised by the administration of glucose and insulin.

Anoxaemia readily lowers cardiac glycogen. On release from anoxaemia the glycogen promptly returns to the normal level. Cardiac failure was found to be the cause of death in anoxaemia; hearts taken at the time of failure contained much less glycogen than the unfailing hearts of animals subjected to the same conditions.

The current glycogen method was found satisfactory for $\frac{1}{2}$ to $1\frac{1}{2}$ gram samples of muscle.

The literature on the chemistry of the heart has been reviewed.

WILLIAM FERGUSON

SOME STUDIES ON THE PHYSIOLOGY OF
COLD RESISTANCE IN PLANTS.

Hardened plants show higher osmotic pressure in their cells and much greater bleeding when cut than unhardened plants. Young plants, particularly annuals, cannot be hardened without light.

During hardening there is evidence of a conversion of insoluble to soluble colloids. Results indicate that the insoluble material becomes more acidophil on hardening and that the soluble becomes more basophil. There are also indications of an increase in the buffer action of the colloids as hardening proceeds. More ammonium sulphate was required to saturate a solution made from hardened plant tissue than one from unhardened, which seems irreconcilable with the theory that there is an increase in the amount of hydrophilic colloids during hardening.

GORDON HAMILTON FINDLAY

STUDIES ON MAPLE SAP AND SYRUP.

A review of the various factors influencing the composition and flavour of maple syrup is given. It is shown that the development of the characteristic flavour involves a change in the composition of unknown material present in the sap, but is not an oxidation process. Evidence is obtained of the presence of a glucoside in the sap and wood of the maple and this may be the source of the flavouring material. The results of an analysis of a chloroform extract of maple syrup indicate that the flavour depends to a large extent on a phenolic resin and a possible source of this is suggested. An unidentified substance (M. P. 120°C .) was isolated.

GEORGE HARVEY HAMILTON

STUDIES ON HALO-BLIGHT OF OATS CAUSED BY
BACTERIUM CORONAFACIENS ELLIOTT.

Halo-blight caused by *B. coronafaciens* was found to play an important part in the blighting of oats, which occurs on some Quebec soils during certain years.

The appearance of the disease in the field and greenhouse, variations in symptomatology, effects of meteorological conditions on its development, economic importance, prevalence and geographical distribution, nature of damage, and methods of overwintering and dissemination of the organism, have been discussed.

The pathogen is considered to gain entrance to the internal plant tissues by means of hydathodes, as well as by stomata and wounds. Moreover, it was found to cause a severe killing off of the plants when seed-borne.

Control of halo-blight in the field was obtained by the application of a fertilizer containing nitrogen, phosphorous and potassium. Potassium and phosphorous decreased, and calcium and possibly nitrogen increased the amount of disease. Control was effected by the application of sulphur dust to the plants. The best results were obtained when the plants received the combined dusting treatment and recommended fertilizer application. Fertilizers were shown to produce certain physiological and anatomical changes in the host, which possibly accounted for the alteration in disease resistance.