The Harding Sugar Reagent

THE Harding[1,2] sugar reagent has recently been criticised by Van der Plank[3], who failed to reproduce Harding and Downs'[2] factor for glucose.

In our experience this is one of the most sensitive of the copper reagents and one of the most accurate if prepared from pure chemicals. We have easily and constantly reproduced the factors published by Harding and Downs with many different batches of reagent, and have found the factor for glucose not to vary from day to day over periods up to twelve months. It was found, however, that if chemicals of a grade inferior to AnalaR be used, inconsistent results may be obtained. For example, the use of ordinary quality anhydrous sodium carbonate resulted in an inferior reagent: the defect was at once remedied when anhydrous sodium carbonate of 'analytical' quality such as Shering-Kahlbaum's was used. We would suggest that Van der Plank's findings may be due to a similar cause.

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[1] *Trans. Roy. Soc. Can.*, Section v, **26**, 33 (1932).
[2] *J. Biol. Chem.*, **101**, 487 (1933).
[3] *Biochem. J.*, **30**, 458 (1936).

Ascorbic Acid as a Precursor of Serum Complement

MY experiences (unpublished) are in complete accord with those of Dr. F. Marsh[1].

Some years ago, when working in the Bacteriological Department, Trinity College, Dublin, I was responsible for carrying out weekly routine Wassermann reactions. During the winter months, I had found on several occasions that the serum of guinea pigs was very deficient in complement, and that most of the animals died after bleeding by intra-cardiac puncture. On one occasion the deficiency in complement appeared to be the prelude to an epidemic of pneumonia which swept off most of the stock.

On inquiry, I found that the animals had been receiving neither grass nor other fresh food, and on the addition of mangolds or cabbage to their diet the complement rapidly (within the course of the next week) rose to normal titres. It was interesting also to note that animals with a fresh diet rarely died from the effects of intra-cardiac puncture.

Owing to pressure of routine work, it was unfortunately not possible to carry out a quantitative investigation on this subject.

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[1] NATURE, **137**, 618 (April 11, 1936).

Points from Foregoing Letters

AN arrangement for detecting induced radioactivity of short periods (greater than 0·3 sec.) is described by Dr. T. Bjerge. He finds in beryllium, after neutron bombardment, a strong activity of half-period 0·9 sec. and maximum energy of the order $6–8 \times 10^6$ electron volts.

From the angular distribution of scattering of the slower alpha particles by light and heavy hydrogen and by helium, C. B. O. Mohr and G. E. Pringle calculate that the forces which come into play would be active at distances greater than 10×10^{-13} cm. They conclude that, if the current method of explanation is to be retained, forces of range longer than e^2/mc^2 must also be included.

Three distinct electrical conducting regions in the middle atmosphere (6–60 km. high) from which radio waves up to very high frequencies are returned are described by R. A. Watson Watt, L. H. Bainbridge-Bell, A. F. Wilkins and E. G. Bowen. The lowest is usually at about 6 km. but sometimes at 10 km. and even at 14 km. The second region is at 15–45 km. and appears to be related to local thunderstorms. The third region is about 60 km. high. The existence of an electrically conducting region at a height of 5–55 km. was shown recently by Colwell and Friend; they proposed to call it the *D* region. Prof. S. K. Mitra directs attention to previous work by himself and his co-workers which indicated a conducting region at a height of 55 km., and states that recently Mr. J. N. Barr has observed echoes from heights much below 55 km. Prof. Mitra suggests calling the new region the *C* region.

G. C. Ainsworth reports that the addition of 0·5 per cent sodium sulphite to an extract of chrysanthemum leaf containing spotted wilt virus renders easier the detection of the virus (by inoculating tobacco leaves). Without the addition of sulphite the test is frequently inconclusive; this is due apparently to inactivation of the virus by oxidising enzymes or oxidation products present in chrysanthemum juice.

The cause and occurrence of reduction in the number of ocelli in the compound eye of the fruit fly under the influence of X-rays, and the related chromosome change, are discussed by Prof. N. P. Dubinin and E. N. Volotov. They report that new mutations of this type are connected not only with a break of the chromosome in the Bar region but apparently also with the attachment of some other specific material, since the number of mutations observed is smaller than that of the breaks, and other aberrations were also noticed.

An experiment on the possible effect of cosmic rays in producing lethal mutations in the *X*-chromosome of the fruit-fly is reported by Prof. H. Friesen. The flies were taken on the stratosphere flight of the *U.S.S.R.-I-bis*, and were subjected for two hours to a hundredfold greater intensity of cosmic radiation than control flies left behind. The result was negative.

The mechanism of the thermal decomposition of ethylene oxide vapour has been a recent subject of discussion. A more detailed study of the kinetics than formerly has now been made by Dr. H. W. Thompson and M. Meissner, who are of opinion that the process is of the same general type as the decomposition of acetaldehyde and other related substances, and involves the simultaneous occurrence of several quasi-unimolecular reactions.

Further experiments on rats showing that not only potassium iodide but also the iodides of sodium, lithium and magnesium, counteract to a great extent the chronic toxic effects (such as baldness) due to thallium acetate are reported by Prof. O. V. Hykeš and F. A. Diakov. It appears, however, that iodides are valueless as antidotes in acute thallium poisoning.