future with the vague and foggy generalities which so often pass for a wide humanistic outlook. Any professionalism is narrowing in the wrong hands.

Surely few things are better for redressing the dangers of specialization in research than teaching. It is true that some teachers are bad research workers, and some research workers bad exponents; but it is my opinion that we do not want now a further separation of teaching and research; rather we should encourage our leaders of the future to aim at the higher ideal of serving both with efficiency. It is the harder path; but it could be made more possible if university and other authorities were reasonable in their teaching demands, and relieved their men of the really soul-destroying work, the endless board meetings and administrative checks.

By the above, I do not mean that encouragement should not be given to the development of the research institute under the right direction; but I think that sufficient research funds should also be in the *independent* hands of universities in Great Britain. This would enable them to support adequately by efficient technical assistance and otherwise their own research enterprises, which so will form a nursery for new ideas and the kind of lively stimulus required by the rising generation.

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## The 'Specific Action of Ultra Short Wireless Waves

IN a recent issue of NATURE[1] there appeared a criticism by Prof. W. E. Curtis, Dr. F. Dickens and Mr. S. F. Evans of this topic. These authors mention experiments on tumour metabolism *in vitro* and state that the results claimed by Dr. Reiter[2] are due to heat, adequate precautions against this not having been taken by him. One of us had already come to the same conclusion and published[3] his results on the growth of rat tumours *in vivo*. Furthermore, in a subsequent paper[4] he had shown that there is no sudden change in dielectric constant of tumour tissue at 3·4 m. as might be expected if Dr. Reiter's observations were correct.

We had further shown and published[5] the fact that the frog heart, cilia and muscle, when exposed in a field of ultra high frequency, are affected only when the temperature rose to that level which is known to cause arrest of physiological action.

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[1] W. E. Curtis, F. Dickens and S. F. Evans, NATURE, **138**, 63 (July 11, 1936).
[2] T. Reiter, *Deut. Med. Woch.*, **59**, 1497 (1933).
[3] H. J. Taylor, *Brit. J. Radiol.*, **8**, No. 95, 718.
[4] H. J. Taylor, *Brit. J. Radiol.*, **9**, No. 103, 467.
[5] L. Hill and H. J. Taylor, *Lancet*, Feb. 8, 1936, p. 311.

## Points from Foregoing Letters

MEASUREMENTS of the refractive index and the angle of a glass prism on exhibition in the British Museum, said to have been the property of Isaac Newton, show that, while it may have belonged to him, it is not the one to which he referred in connexion with his famous experiments on the spectrum.

The coat characters of New Zealand Romney sheep in relation to the density of hair follicles on different parts of the fœtus at various stages of growth are discussed by Dr. Nancy Galpin, who states that changes in follicle density in a given region are associated with changes in growth-rate.

Oats soaked in a solution of a growth promoting substance previous to planting produced stronger plants and 55 per cent more grain than untreated seeds, according to Prof. N. G. Cholodny.

From experiments on wheat seedlings it appears that natural ascorbic acid (vitamin C extracted from paprika) exerts an optimal stimulation of growth at a concentration of 1 : 10,000. László Havas and Imre Gál report that the beneficial effect is still observed at a concentration of 1 : 1,000, but when the concentration is increased to 1 : 200 there is an inhibitory effect. With synthetic ascorbic acid the inhibitory effect appears at a concentration of 1 : 1,000, and the authors believe that it is due to an impurity.

Experiments are reported by Dr. J. M. Macaulay which show that, if water is allowed to creep in from one edge of a rectangular glass plate which is held by seizure forces to another glass plate distant from it $1{\cdot}5 \times 10^{-5}$ cm., the shear strength of the interspace is increased from about 100 gm. to 1,700 gm. per sq. cm., provided there is no surplus water round the edges. By observing the time for the water to creep in between plates ($2{\cdot}5 \times 10^{-5}$ cm. apart), a value for the coefficient of viscosity of the water film is calculated and found to be about ten times the normal value for water.

In connexion with the problem of the constancy of the velocity of light, G. C. Omer, jun. and J. L. Lawson have kept under observation for four weeks the mercury line of wave-length 4358 A., and found it constant within two parts per million.

It has been stated that in the colorimetric determination of silica with ammonium molybdate in acid solution, only the molecularly disperse ('crystalloid') silica reacts. From experiments with silica sols which have been ultra-filtered, treated with alkali, etc., Dr. A. R. Tourky and Prof. D. H. Bangham conclude that the silica which reacts with the molybdate is mainly colloidal. The reaction, however, gives approximately correct results provided the silica has been held in solution for a sufficient period.

Graphs showing the rate of oxidation of phosphogluconic acid (in yeast macerate), in presence and in absence of oxygen, are given by F. Lipmann. In the absence of oxygen the formation of carbon dioxide is very slow. The behaviour in presence of bromoacetate suggests that a primary oxidation and decarboxylation is followed by a reaction which may be of a fermentative nature.

Dr. R. M. Love records the occurrence of two haploid pollen mother cells, amongst some 320 normal diploid cells, obtained from one flower of a seventh generation hybrid wheat, which suggests that reduction of chromosome number has occurred in the division preceding normal meiosis.