

It will be observed that the three characteristics named in (1), (2) and (3) above are specifically the same as those of the applied electric current which is necessary for the control of growth in *Obelia* internodes. In view of the above facts we are forced to a consideration of the possible rôle of such inherent bioelectric currents in the phenomena of inhibition and orientation of growth processes.

In brief the facts suggest a possible new type of mechanism for cell correlation which could conceivably be operative in the early development of animals and plants where neither a visible structural nervous system exists, nor any known specialized mechanism for the transport of chemical substances (hormones).

The detailed experimental facts upon which the statements in this note are based will be and have been in part presented in the *Journal of Experimental Zoology*.

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Experiments with an active extract of parathyroid.

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(by invitation).

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Recently, H. W. C. Vines has shown that calcium in normal unclotted blood is present in two forms. He found that approximately one-third of the calcium is present in a combined or non-ionized state, while two-thirds are in the ionized form. He also observed that chronic septic infections do not heal rapidly unless the ionic calcium is increased. Vines observed that the administration of dried parathyroid increased the relative ionic calcium and lead to rapid healing of ulcers.

The present authors have also observed similar effects, using an extract of parathyroid made in the following manner: 30 gm. of finely divided ox gland are boiled in 500 cc. of dilute hydrochloric acid (10 parts per thousand), cooled, filtered, and

then made up to 500 cc. again. This extract which we know as hydrochloric X seemingly contains the active principle of the parathyroid. Dogs which had been completely parathyroidectomized and which were showing symptoms of tetany, recovered. Sometimes on injection, the symptoms increased at first before recovery took place.

This extract we have also found beneficial in the treatment of chronic inflammations such as gastric, duodenal, and varicose ulcers as well as cystitis or osteomyelitis.

From this hydrochloric X the active constituent may be precipitated by phosphotungstic acid, but we have not been able to redissolve the active constituent from this precipitate.

141 (2373)

The respiratory wave in arterial blood pressure.

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The problem of the causation of the respiratory variations in blood pressure is an old one, but one that has resisted solution surprisingly long. Examination of the literature on the subject shows that diametrically opposite observations have been made upon the relation between the phases of respiration and the rise and fall of blood pressure. About half of the workers have found an inspiratory rise, and half an inspiratory fall.

In examining the factors heretofore mentioned in explaining the phenomenon it is apparent that the possibility that factors tending to change blood pressure might not be immediately effective, has been neglected. In other words, the possibility that the effects of inspiration might show up in expiration, has been neglected.

In experiments in which the inferior vena cava, the superior vena cava and the azygos vein were clamped separately and in combination, it was found that there was absolutely no sign of these changes on the arterial pressure trace for a period, on the average, of three heart beats. Very evidently there is a latent period of three heart beats in this process.