

1962 #18

OXYGEN ELECTRODE MEASUREMENTS ON SEA URCHIN SPERMATOOZA

W. G. Lindsay, University of Pennsylvania, Philadelphia, Pa.

The covered-electrode technique has been analyzed for its suitability in measurements of O_2 uptake of dense suspensions of Echinarachnius parma spermatozoa. Good and reproducible viability of the spermatozoa is obtained, and a linear relationship between O_2 uptake and suspension density exists over a wide range of conditions. The drawback of this technique, which offers considerable technical difficulties to overcome, is the extreme mechanical instability of the electrode membrane. This flaw makes itself particularly felt when additions of metabolites and inhibitors are attempted.

1962 #19

EFFECTS OF HYPOPHYSECTOMY ON PECTORAL FIN REGENERATION IN Fundulus heteroclitus*

R. A. Liversage, University of Toronto, Canada

Presence of the pituitary gland is essential for the initiation phases of forelimb regeneration in the adult urodele Triturus viridescens (Schotté, et al., 1951 to 1961). The situation in urodele larvae, regarding hypophysis extirpation in relation to forelimb regeneration, is contrary to the findings in adults that is, normal regeneration ensues; only the rate is slightly retarded (Schotté, 1961; Liversage, 1963 (in press)).

This work is a continuation of research started in July, 1961 and now includes 296 adult killifish (Fundulus heteroclitus) followed by histological verification of hypophysectomy.

The experimental approaches involved consist of: (1) hypophysectomy followed immediately by fin amputation; (2) hypophysectomy followed within 5 days (recuperation period—see Liversage, 1959, 1962) by fin amputation; and (3) fin amputation followed in 5 days by hypophysectomy.

Hypophysis extirpation resulted in hormonal imbalances within the organism (Pickford and Atz, 1957); nevertheless, normal fin regeneration ensued in all cases. Pectoral fin regeneration appears to be completely independent of the influences of the pituitary gland in adult killifish; a situation similar to that found in forelimb regeneration of urodele larvae. One possibility that exists, however, is under identical experimental conditions, but during different seasons of the year, partial or complete inhibition of fin regeneration might occur (Gorbman and Bern, 1962) due to seasonal variations in the hormonal background of the organisms. This has not been studied, as yet.

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