## 1963 #19

## EFFECTS OF HYPOPHYSECTOMY, GONADECTOMY AND ADRENAL CORTICAL INHIBIT-ING DRUGS (AMPHENONE AND METOPIRONE - CIBA) ON THE REGENERATION OF THE PECTORAL FIN IN <u>Fundulus heteroclitus</u> (KILLIFISH)

R. A. Liversage and B. M. Burnet, University of Toronto, Cana.a

Originally Schotté, '26 and more recently Schotté and collaborators (1951-1961) have demonstrated that an intact pituitary (presumably the pituitary-adrenal axis) is essential for the initiation phases of forelimb regeneration in the adult urodele (<u>Triturus</u>). Contrary to this, hypophysis extirpation in urodele larvae has no inhibitory effect on the degree of forelimb regeneration; only the rate is retarded slightly (Schotté '61; Liversage, '63 [in press]).

The first experimental series is a continuation of research from the summers of 1961 and 1962 and now includes 323 young and adult, male and female, <u>Fundulus</u> and consists of: a) hypophysectomy followed immediately by fin amputation; b) hypophysectomy followed in 5 days (recuperation period - Liversage '59; '62) by fin amputation; and c) fin amputation followed in 5 days by hypophysectomy. Pituitary extirpation in <u>Fundulus</u> results in hormonal imbalances (Pickford & Atz '57); nevertheless, in these experiments, normal regeneration ensued in all cases. Pectoral fin regeneration in killifish appears, therefore, to be completely independent of the presence of the pituitary gland.

There is the possibility that partial or complete inhibition of fin regeneration (Gorbman and Bern '62) occurs during the non-reproductive period in <u>Fundulus</u> due to variations in the normonal background.

Preliminary experiments were undertaken, during July (1963), to test this possibility and involved: 1) gonadectomy; 2) gonadectomy and amphenone (CIBA) injections (0.7 mg/day); 3) gonadectomy and hypophysectomy; 4) amphenone injection (0.7 mg/day); and 5) metopirone injection (0.7 and 0.35 mg/day) followed by immediate or delayed (3 to 5 days) amputation in respect to injection of adrenal corticosteroid inhibitors and/or surgery.

In these preliminary experiments, fin regeneration ensued in the great majority of cases and appears to be independent of influences from the pituitary, gonads and adrenal cortices. Presumably, it is independent also of the combined influences of these endocrine organs.

Supported by grants from the National Research Council of Canada and the University of Toronto.

## 1963 #20

DISTRIBUTION AND EXCRETION OF AN ANIONIC DRUG IN <u>Squalus acanthias</u> T. H. Maren and D. K. Maren, University of Florida, Gainesville, Fla.

Our primary question was whether a typical anionic drug is concentrated and secreted by the gill, in the same manner as shown classically by uptake of para-aminohippurate and congeners into the mammalian and fish kidney.

The drug used was 2-benzenesulfonamido-1,3,4-thiadiazole-5-sulfonamide (CL 11,366). Its pKa is 3.2 and in the dog its renal excretion and uptake closely resemble that of PAH (Travis