

"live" and "dead" lungs showed no consistent difference with respect to either phenol red or chlorphenol red. On the other hand, different rates of passage of urea from inside-out (A) and from outside-in (B) were observed.

Time min	A		B	
	"live" outside	"dead" outside	"live" inside	"dead" inside
	mm/ml		mm/ml	
30	1.92	.0005	0.196	0.192
60	3.66	.0009	0.177	0.168
90	4.62	.0013	0.140	0.165
120	6.20	—	0.002	—

These data suggest that the "live" pleural surface differs in its transport characteristics from the "dead" pleural surface.

Renal Function During Frog Metamorphosis

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The primary objective was to determine whether renal tubules of tadpoles could actively secrete exogenous urea before Stage XX, a period during which, as previously demonstrated by others, the rate-limiting component in urea synthesis by the liver (arginine synthetase) shows little or no activity. The adult bullfrog actively transports urea across renal tubular epithelium by an energy demanding process which is subject to competitive inhibition. Carriers in such secretory processes exhibit an order of specificity similar to that of enzymes, and the tentative hypothesis could be proposed that for developing tadpoles the simultaneous onset of urea secretion by the renal tubule and urea synthesis by the liver might point to the rate-limiting synthesizing enzyme, or one of the others known to be involved in urea synthesis, as the carrier in the renal transport process.

Our current studies show that Stage XX (leg to tail ratio of 1.0), the same developmental stage that was critical for the onset of urea synthesis in *Rana catesbeiana*, is also the stage at which urea urine/plasma concentration ratios exceed those of exogenous creatinine. The latter was used here in locally collected *Rana clamitans* to assess the fraction eliminated solely by glomerular filtration. Nine tadpoles ranging between Stage X and IXX (leg:tail ratios of .05 to .85) had urea to creatinine U/P ratios which averaged 1.0, while six between Stages XX to XXIII (leg:tail ratios of 1.0 to 3.0) averaged 1.82.

Glomerular filtration rates in a few experiments on tadpoles with an average weight of 10 grams ranged between 0.4 and 0.8 ml/hr, when measured as inulin or creatinine clearances with the animals maintained in measured quantities of bath water.

Preliminary Studies On Auditory Organs Of Saltatory Orthoptera

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Collections of saltatory Orthoptera were made on Mt. Desert Island and the adjacent mainland. Eight species of Tettigoniidae, two of Oceanthidae, two of Gryllidae, and eleven of Acrididae were collected and identified. A few other species were collected, but not identified fully. About 1,500 specimens were fixed and preserved for later comparative macroscopic and microscopic study of the auditory organs, using a new fixing agent developed during the summer. Methods were devised for maintaining the animals easily in the laboratory and for obtaining eggs for rearing. Recordings of sounds produced by most of the sound-producing species were made for later analysis, and photographs and photomicrographs of the auditory organs were made.

Protein Binding of 1 — C¹⁴ - Palmitic Acid In The Marine Dogfish (*Squalus Acanthias*)*

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Hypoalbuminemic human plasma binds fatty acids to the B-globulin fraction (Physiological Reviews 40, 1960). This experiment was designed to determine the protein binding site of 1 - C¹⁴ Palmitic acid in *Squalus Acanthias*, an analbuminemic fish. 0.25 to 1.0 μ c of 1 - C¹⁴ Palmitic acid was incubated with 1 milliliter samples of adult and pup dogfish plasma for one to two hours. Thirty microliter aliquots of the above plasmas were electrophoresed using a barbitol buffer at pH 8.6. The strips were evaluated on a paper scintillation scanner to determine peaks of radioactivity and were later scanned by an Analytrol automatic densimeter after staining with Bromphenol blue dye to identify protein fractions. Peaks of radioactivity were found to coincide with the B-globulin fraction in both adult and pup plasmas. Pup plasmas, however, had both a larger B-globulin fraction and a greater amount of protein bound 1 - C¹⁴ - Palmitic acid.

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