## 1962 #1

## BILE PIGMENT METABOLISM IN THE DOGFISH, Squalus acanthias

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Virtually all of the bilirubin present in freshly obtained mammalian bile is bilirubin glucuronide or sulfate. Because approximately 5-15% of the bilirubin in freshly obtained dogfish bile is unconjugated, the mechanism whereby dogfish liver excretes unconjugated bilirubin was studied.

The common bile duct of adult male dogfish was cannulated. Bile was collected on ice and in the dark at hourly intervals for four to eight hours while a continuous intravenous infusion of unconjugated bilirubin bound to dogfish plasma was administered. The proportion of conjugated and unconjugated bilirubin present in the bile samples was estimated by diazo reaction and paper chromatographic separation of azopigments.

In each of six experiments the plasma concentration of unconjugated bilirubin increased during the infusion period; however, the excretion of bilirubin conjugates in the bile remained at a plateau of 50-60 gamma of bilirubin excreted/100Gm. of fish/minute and the excretion of unconjugated bilirubin remained at a plateau of 5-10 gamma of bilirubin excreted/100Gm of fish/minute.

These observations suggest that dogfish can transport both unconjugated and conjugated bilirubin from liver cell to bile by mechanisms which have transport maxima. Mammals apparently lack the ability to transport unconjugated bilirubin from the liver cell into the bile.

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## 1962 #2

SOME EFFECTS OF THE FOOD OF <u>Strongylocentrotus droebachiensis</u> ON THE DIVISION OF ITS ENDOCOMMENSAL CILIATES

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The study deals with the ciliates <u>Entodiscus borealis</u>, <u>Madsenia indomita</u>, and <u>Biggaria</u> <u>gracilis</u>. In adult urchins collected in nature <u>B. gracilis</u> is almost always dividing. However, dividing specimens of <u>E. borealis</u> and <u>M. indomita</u> can be found in only about 3% of such urchins, and it was concluded earlier (Beers, 1948, <u>Biol. Bull.</u>, 94: 99-112) that cycles of division are inherent in them.

Urchins were deprived of food for 2 weeks; dividing ciliates were absent in them. Groups of them were then supplied with generous amounts of food (the kelp <u>Laminaria</u>). The urchins were opened hourly and the condition of the ciliates with respect to division was recorded. By using numerous groups, which amounted to 294 urchins, and by starting the examinations at various times after the addition of food, records were compiled for most of the hours of 5 days of feeding. The records were then arranged by successive 8-hour periods and the percentage