

The branchial epithelia of the Cyclostomes, *Myxine glutinosa* and *Amnocetes*, have been described by Cole ('12) and Wallin ('12) respectively. Both of these authors mention the presence of a specialized epithelium. Cole definitely ascribes to this tissue a secretory function. The writer's observations confirm the presence of glandular epithelium in the gills of *Myxine*.

In *Squalus acanthias*, it was observed that there were two types of specialized epithelium. The first is situated in the interbranchial septum and arranged in numerous crescentic patches. It is a tall columnar type of cell free from granules and is probably concerned with mucous secretion. The second type of cell occurs in the region between the afferent and efferent branchial vessels of the gill filament. These cells are very numerous and are in intimate association with the blood vessels. They are somewhat cuboidal in shape and contain numerous granules.

The Teleost gill shows the presence of mucous cells, but as yet no definite indication of the cuboidal cells described above has been ascertained. A more detailed study will probably be necessary.

From the standpoint of structure, the evidence at hand indicates the presence of a secretory type of cell in the gills of Cyclostomes and Elasmobranchs. It is therefore highly probable that the gills of these two classes of fishes are in part, at least, concerned with water regulation.

#### LITERATURE CITED

- Cole, 1912, *Trans. Roy. Soc. Edinburgh*, p. 293-346.  
Smith, H. W., 1932, *Quart. Rev. Biol.*, 7, 1.  
Wallins, I., 1912, *Anat. Rec.*, 14, 205.

### THE SPECIFICITY OF MONKEY PROTOZOA

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Material collected in June and July in the province of Chiriqui in Panama was studied at Salisbury Cove. This consisted of the intestinal contents, fixed either in bulk or on slides, of 71 red spider monkeys, 23 titi monkeys and 8 white face monkeys. The monkeys were shot in the jungle several miles from any human habitation and were autopsied within a few hours after being shot. It was found that the intestinal protozoa present remained in a viable condition and active for 8 hours or more after being killed. The three species of monkeys studied differed as regards their intestinal fauna. No protozoa were observed in the material from white face monkeys. Every specimen of titi monkey was parasitized with a trichomonad flagellate. A high percentage of red spider monkeys were infected with three species of protozoa belonging to the genera *Balantidium*, *Trichomonas* and *Endolimax*. Although these three species of monkeys were living in

the same locality and under similar conditions their intestinal fauna was thus shown to be distinctly different. Whether this is due to differences in infectibility, failure of the different species of monkeys to become contaminated with the various species of protozoa or to some other factor is not known. The most probable explanation seems to be one based on differences in diet. The white face monkeys have well-developed canine teeth and a very small cecum,—characteristics of carnivorous animals. The titi monkeys have less well-developed canine teeth and a somewhat larger cecum,—characteristics of omnivorous animals. The red spider monkeys have poorly developed canines and a very large cecum,—characteristics of vegetable-feeding animals. These data confirm laboratory observations and experiments on other animals which indicate that a diet consisting largely of carbohydrates is favorable for the growth and multiplication of intestinal protozoa, whereas a diet high in animal proteins is disadvantageous. The morphological difference between the protozoa that live in monkeys and man are so slight or little known that, although separate specific names have been proposed for some of the monkey protozoa, no satisfactory evidence of specific differentiation has been advanced. Studies of the material obtained in Panama were in progress during the summer but were not completed, hence the data and conclusions arrived at regarding specificity cannot be presented at this time.

## RENAL FUNCTION IN ELASMOBRANCH FISHES

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I. *Measurement of Glomerular Filtrate.* Jolliffe, Shannon and Smith ('32) advise the use of non-metabolized sugars as a means of measuring glomerular filtrate. This assumption was based upon various theoretical considerations, and upon the finding in the mammal (dog) that xylose, sucrose and raffinose are excreted quantitatively the same relative to the plasma concentration. Also that in the completely phlorizinized dog there is no increase in the glomerular clearance as calculated by these sugars either absolutely or in relation to a third, indifferent substance (urea), although there is exact correspondence between them and glucose.

Clarke and Smith ('32) have found agreement between xylose and glucose in the phlorizinized dog-fish (*Squalus acanthias*) as was expected from the work on the dog. This work was completed in the summer of 1932 by showing that sucrose and xylose, in the normal dog-fish, and sucrose and glucose in the phlorizinized dogfish are excreted quantitatively the same relative to the plasma concentration. It was also shown that raising the blood sucrose to the extreme level of 1000 mgms. per cent had no effect on the amount of glomerular filtrate.