

The large intestine is located along the median line, except when displaced by an abundance of food, or by eggs in gravid females, and it extends straight to the cloaca without any bends or loops.

The major digestive glands are the very large liver and the small pancreas. The liver is an elongate organ extending posteriorly from the transverse septum and, in most species, terminating near the posterior end of the stomach. It lies mainly to the right of the stomach, filling practically all of the anterior part of the peritoneal cavity not occupied by that organ. The exterior lobing of the liver is usually not very obvious, but the lobes are pronounced in *C. alleganiensis*, *N. maculosus*, *S. lacertina*, and *Notophthalmus viridescens*. In all the species examined, the pancreas is a relatively inconspicuous organ, being thinly scattered within the ligaments which support it. Its main part usually lies dorsal to the duodenum, extending into the narrow space between the duodenum and stomach and anteriorly along the hepatoduodenal ligament.

THE FORM OF THE LIVER.

The liver of *C. alleganiensis* is plainly divided into two major lobes (Figure 1), but in all other species studied this organ is basically a single mass. Among the latter there are usually from one to five, or occasionally more, fissures at various points around the border (e. g., Figures 2 and 6). Thus, some authors, e. g., Hyman (1942), speak of the liver as having small "lobes" around the margin. In some species the main fissures of the liver are long, penetrating deep into the liver substance, but in others lobing is much less in evidence. Of the species having the liver as a single mass, *N. maculosus* and *N. v. viridescens* show the most pronounced lobing. Some species possess a left anterior lobe and/or a postcaval lobe (Figure 5), while others do not. Other variations of the form of the liver are: General shape and proportion, position and arrangement of the hepatic veins and the postcaval vein, and location of the gall bladder.

In all species the liver is an elongate organ with its anterior end attached to the transverse septum, and extending at least as far posteriorly as the duodenum. In every case the major part of the liver lies on the right side of the body cavity, leaving room for the stomach on the left. The gall bladder lies near the posterior end of the main liver mass. The liver regularly possesses a groove on its dorsal side, along the line of attachment of the gastrohepatic ligament. The falciform ligament arises from the ventral surface of the gland.

Even though there is disagreement among various authors as to what constitutes a "lobe" of the liver, there is good evidence that the fundamental - though not the detailed - external form of the amphibian liver is determined at an early stage of embryological development (Siwe, 1937). The details of external form are influenced by the position of the surrounding organs, since the liver tissue has a tendency to fill available spaces. Because of the early embryonic determination of the form of the liver, it is reasonable to expect a somewhat distinctive shape and lobing of this organ among the various groups of caudates. This expectation was realized, for in the present study, each genus had a liver distinct in form from all other genera studied (see Table III and Figures 1-12). In table III below, the comparison of a number of features of this organ gives a different complex for each genus. See Wonderly (1961) for a detailed description of the form of the liver in each species.

INTRASPECIFIC VARIATIONS IN THE DIGESTIVE SYSTEM.

An appreciable amount of intraspecific variation is present in the morphology of the liver, in the relative lengths of the parts of the digestive system, and in the junction of the esophagus and stomach. Most of the features of intraspecific variation in the morphology of the liver may be seen in Figure 12 (G, H, I, J, M, N).

In six of the twenty specimens of *Desmognathus f. fuscus* dissected, the left anterior lobe is of the type shown in Figure 12 (I). In the other specimens the lobe