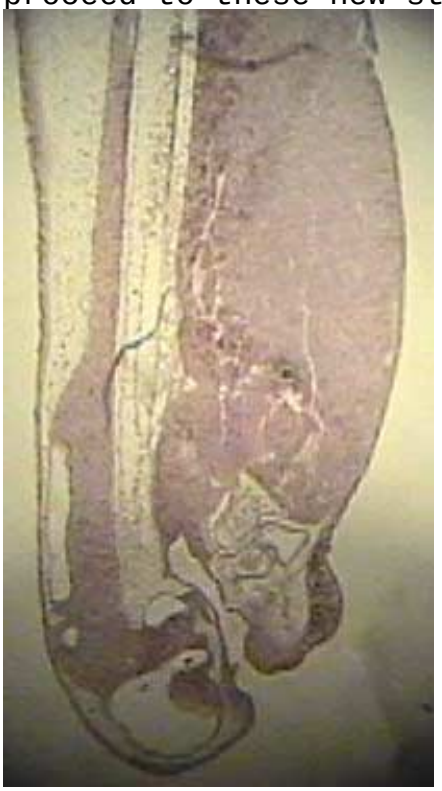
LABORATORY # 5 AND 6 7 MM FROG EMBRYO

Find all the parts previously found in the 4 mm frog. Then proceed to these new structures.



SENSE ORGANS. compare the locations of the olfactory pits, the optic cups and the otic vesicles. The optic cups are

differentiating into retinas. The peripheral layer is the pigmented retina, the neuroretina is divided into three layers, the innermost ganglion layer, the middle bipolar layer, the layer next to the pigmented retina is the photoreceptor layer. The lens vesicle is developing a flat outer layer and a posterior fibrous layer with oriented elongate

cells which will become clear.

Find the chorioid fissure on the sagital section of the eyecup, a groove where the invagination of the eyecup continues down the stalk. Semicircular canals are starting to bud off the otic vesicles.

CRANIAL NERVES. Observe the models and sagital sections first. The cranial nerves are numbered from anterior to posterior.

1. olfactory will grow to the telencephalon from the olfactory pit cells.

2. will grow from optic cup ganglion layer to optic chiasma to roof of mesencephalon.

3,4,6 won't be seen until chick development.

5,7,9,10 arise associated with rhombencephalon, with branches to the visceral arches (5 in VA1, 7 in VA 2, 9in VA 3, 10 in all

the rest.) The 5th nerve can be easily seen just medial and dorsal to the eyecups, next to the optic cup, near the anterior cardinal vein. Nerve 7 can be seen ventral to the otic vesicle. It is hard to distinguish nerves 7 and 8, but 8 is more medial to the otic vesicle. 9 is found behind the otic vesicle, and 10 is behind that. Now find all the nerves in the cross sections (it will be hard to tell 9 and 10 apart.)

GUT. Find the oral plate, pharyngeal pouches, visceral arches,

aortic arches, thyroid. Find the liver diverticulum, and notice the bile canaliculi forming there. Do you see lung buds, lateral to the esophagus? Follow the gut all the way back to the cloaca, a union of the pronephric duct and hindgut at the region of the proctodeum.

HEART. Aortic arches are best seen coming off the conus arteriosus, the most anterior part of the heart They then traverse around the pharynx to the dorsal aorta. The anterior extension of the dorsal aorta from the 3rd aortic arch forward is the internal carotid, found under the forebrain. The ventricle is found ventral to the conus and curving around to the right in the pericardial cavity.The endocardium is distant from the epimyocardium in the conus and ventricle. The heart muscle will develop in that space. As we approach the atrium, proceeding in the heart posterior, the endocardium will be very close to the myocardium, and the atrium is dorsal to the ventricle. Notice that the heart is full of nucleated red blood cells. As we get

into the sinus venosus, we see that the pericardial cavity is almost gone, the space taken up instead by the liver which has branched into this region. You can see the common cardinals (Ducts of Cuvier) entering the sinus venosus from the kidney region, where the posterior cardinal sinus is wrapped around the kidney tubules. Vitelline veins enter the sinus venosus from the ventral liver region.

KIDNEY The nephron of the pronephros is made up of a glomus and the kidney tubule with its opening into the coelom, the nephrostome. Find one of the three pairs. The glomus is an arteriole coming off the dorsal aorta, looking like a clump of grapes, sticking out into the coelom next to the kidney tubules. Notice the pronephric ducts passing posteriorly to the cloaca, entering it in the shape of a T.

ANSWER SHEET FOR LABS 5 AND 6

NAME_____ HAND IN AT END OF LAB 6.

LABEL THE DIAGRAMS.