

*XL. A Supplement to the Account of an Amphibious Bipes ; by John Ellis, Esq; (Art. XXII.) being the Anatomical Description of the said Animal, by Mr. John Hunter, F. R. S.*

Read June 5, 1766. **T**HE tongue is broad and has very little motion. It has a bone similar to that in birds, turtles, &c. On the posterior and lateral parts of the mouth, are three openings on each side; these are similar to the slits of the gills in fish, but the partitions do not resemble gills on their outer edges, for they have not the comb-like structure. Above\* and close to the extremity of each of these openings externally, so many processes arise, the anterior the smallest, the posterior the largest; their anterior and inferior edges, and extremity are serrated, or formed into fimbriæ: these processes fold down and cover the slits externally, and would seem to answer the purposes of the comb-like part of the gill in fish.

At the root of the tongue, nearly as far back as these openings reach, the trachea begins much in the same manner as in birds. It passes backwards above the heart; and there divides into two branches, one going

\* To avoid the confusion in our ideas, which might arise from the use of the words anterior, posterior, upper, lower, &c. in the whole of this description, the animal is considered in its natural horizontal position, so that the head is forwards, the back upwards, &c.

to each lobe of the lungs. The lungs are two long bags, one on each side, which begin just behind the heart, and pass back through the whole length of the abdomen, nearly as far as the *anus*. They are largest in the middle, and honey-combed on the internal surface through their whole length. The heart consists of one auricle and one ventricle. What answers to the inferior vena cava, passes forwards above, but in a sulcus of the liver, and opens into a bag similar to the pericardium; this bag surrounds the heart and aorta, as the pericardium does in other animals; from this there is an opening into a vein which lies above, and upon the left of the auricle, which vein seems to receive the blood from the lungs, gills, and head, is analogous to the superior vena cava, and opens into the auricle which is upon the left of the ventricle. The aorta goes out, passing for a little way in a loose spiral turn, then becomes straight, where it seems to be muscular; at this part the branches go off, between which there is a rising within the area of the aorta like a bird's tongue, with its tip turned towards the heart\*.

\* This account of the *venæ cavæ* opening into the cavity of the pericardium may appear incredible; and it might be supposed, that, in the natural state of the parts, there is a canal of communication going from one cava to the other, which being broken or nipt through in the act of catching or killing the animal, would give the appearance above described. I can only say, that the appearances were what have been described, in three different subjects which I have dissected; and in all of them the pericardium was full of coagulated blood. But, besides the smallness of the subjects, it may be observed that they had been long preserved in spirits, which made them more unfit for anatomical enquiries. They had been in my possession above seven years.

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The liver is principally one lobe, pretty close to the heart at the fore part, and passes back on the right of the stomach and intestines; at its anterior extremity on the left side, there is a very short lobe, ending abruptly. The gall-bladder lies in a fissure on the left side of the liver near its middle; there is no hepatic duct; the hepato-cystic ducts, which seem to be three in number, enter the gall-bladder at its anterior end or fundus, and the cystic duct passes out from the posterior end of the gall-bladder, and terminates in the gut, about half an inch from the pylorus. The œsophagus, which is pretty large, passes back, and is continued into the stomach in the same line. The stomach, at the posterior end, bends a little to the right, where it terminates in the pylorus. The intestines pass back making many turns; at the posterior end they become pretty straight, forming what may be called the colon, or rectum, where they are a little larger and run to the anus in a straight direction. At the beginning of this larger part of the intestinal tube, there is no valvular structure. The spleen is a very small but long body; its anterior end is attached to the upper surface of the stomach, and it is continued back along the left side of the mesentery, to which it adheres. The pancreas is a small body lying above the duodenum, and is attached also to the left side of the mesentery. The kidneys are situated in the upper and posterior part of the abdomen, having the rectum passing below and between them as in the snake, &c. Below the rectum lies a long bag, like a bladder; it adheres all along to the inside of the abdominal muscles, and its mouth opens into the rectum; but whether

ther it is the bladder of urine, or not, I cannot tell. On each side of the rectum, close to the lungs, there is a body, the posterior end of which rests upon the anterior end of the kidney: whether they are testicles or ovaria, I cannot pretend to determine; but should imagine that they are either the one or the other.