

THE DISSECTION OF THE FROG

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THE DISSECTION OF THE FROG

UNIVERSITY OF EDINBURGH
ZOOLOGICAL LABORATORY.

THE DISSECTION
OF
THE FROG.

BY

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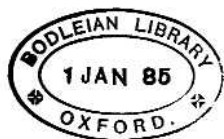


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THE FROG; *Rana temporaria* and *R. esculenta*.

Examine a living frog in an aquarium, noting,—the walking, leaping, and swimming movements; the colour of the skin under different circumstances; the attitude when at rest; the depressed rounded body; the absence of a neck and tail, the short fore limbs and the inverted manus; the sacral "hump" at junction of vertebral column with urostyle; the long femur and crus, and the greatly elongated webbed pes. Study movements of external nostrils and floor of mouth in respiration; the elevation and depression of lower eyelid, and, if possible, the method of feeding; and in the male edible frog the expansion of the vocal sacs during croaking.

A. External Characters.

1. Make an outline sketch of the frog from the side, and indicate—
 - (a) The mottled colour of the skin.
 - (b) The eye, with the semi-transparent lower eyelid half raised.
 - (c) The interocular gland and the dark patch behind the eye containing the tympanic membrane.
 - (d) The extent of the gape, the position of the external nostrils, and the opening of the cloaca.
2. Sketch—
 - (a) The manus (4 times nat. size), showing callosities on palmar aspect, and if a male the swollen cushion at base of index.
 - (b) The pes (2 nat. size), showing the long tarsal region and the webbed digits.
3. Number the digits in both limbs from within outwards, noting the short hallux (I) with a spur at its base, and the long IV. digit of the pes.
4. Examine (low power) and sketch—
 - (a) A portion of the web showing the branched pigment cells and the blood-vessels.
 - (b) A portion of the epidermis, showing openings of unicellular and spherical cutaneous glands.

B. Buccal Cavity.

1. Open mouth, and note—

- (a) The premaxillary, maxillary, and vomerine teeth, the projection of the eyeballs, the internal nares and Eustachian tubes.
- (b) The absence of mandibular teeth, the position, form, and mobility of the tongue, the lingual veins; the glottis and wide œsophagus, and if a male edible frog the openings into the vocal sacs.

2. Sketch—

- (a) The roof of the mouth, showing a bristle passing from one of the external nostrils into the mouth, and another through the drum of the ear along the Eustachian tube.
- (b) The floor of the mouth, showing the tongue connected to the hyoid cartilage, the glottis, and (if present) the openings of the vocal sacs.

C. Circulatory, Respiratory, and Alimentary Systems.

1. Fix the frog on its back by means of pins through the fore and hind limbs, cover with water, and divide with scissors the skin along the middle line from the pelvis to the mandible, noting the large subcutaneous lymph spaces.
2. Pin back the skin, and make a sketch showing—
 - (a) The anterior abdominal vein running along the middle line under cover of the abdominal walls, to disappear behind the large xiphoid cartilage of the sternum.
 - (b) The right and left cutaneous and the brachial veins uniting under the pectoral muscles, the lingual and maxillary veins, and the hypoglossal nerve.
 - (c) The mylohyoid muscle, the sternal and abdominal portions of the pectoral muscle, the rectus abdominis, obliquus externus and obliquus internus muscles.
3. Make an incision along the wall of the abdomen a little to the left of the middle line, and observe under the right portion the anterior abdominal vein which originates from the pelvic veins, and after receiving the small cystic, parietal, and cardiac veins, divides to enter the right and left lobes of the liver.
4. (a) Carefully detach the abdominal vein from the muscles, or make an incision a little to the right of the vein, and reflect the abdominal walls; note the peritoneum lining the body cavity, and covering the viscera.
 (b) Remove the sternum and ventral portion of the pectoral girdle, so as to expose the heart and lungs, taking care not to injure the abdominal or cutaneous veins.
5. Indicate in an outline drawing of the frog—
 - (a) The heart lying within the pericardium.
 - (b) The lungs,—if collapsed, they should be inflated by introducing a blow-pipe through the glottis.
 - (c) The fibres of the rudimentary diaphragm attached to the œsophagus and the pericardium.
 - (d) The entire right and divided left lobes of the liver, and the gall bladder.
 - (e) The anterior abdominal vein entering the lobes of the liver, and its cystic and cardiac branches.
 - (f) The exposed portions of stomach, duodenum, small and large intestine, the mesentery, and mesenteric veins.
 - (g) The bilobed bladder which, if necessary, may be inflated from the cloaca.
 - (h) If a female, the ovaries, corpora adiposa, and the long convoluted oviducts.

