

## REMOVAL AND STUDY OF THE CAT BRAIN

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David B. Fankhauser

21 January 1993, 30 Jan 1996, 31 Dec '96, 15 Jan '98, 18 Jan 01, 4 Jan 03, 12 Feb 04, 27Dec04, 4Dec10  
[http://biology.clc.uc.edu/fankhauser/Labs/Anatomy\\_&\\_Physiology/A&P202/Brain\\_Dissection/CAT\\_BRAIN.htm](http://biology.clc.uc.edu/fankhauser/Labs/Anatomy_&_Physiology/A&P202/Brain_Dissection/CAT_BRAIN.htm)

**Tools:** hacksaw blade, wide bladed screw driver, flat jawed pliers, scalpel

1. **Clean the surface of the skull** of a skinned cat of all muscles, especially the temporalis and occipital muscles at the rear of the skull. Clear ***well below the occipital protuberance***.
2. Illustrate and label cuts to be made. **Then make the following seven shallow cuts** with a sharp hacksaw blade. Do not damage the underlying brain by sawing too deeply.

### NUMBERED SAW CUTS:

- a: 1 & 2: **frontal:** make two cuts, one each through the frontal bones above the superciliary ridges, so that the cuts form an X between the eyes, and extend along the side to the temporal bones. (Note that the frontal sinuses have two layers of bone to cut through. Cut the floor as well.)
  - b: 3 & 4: **temporal:** shallow lateral cuts, through each of the temporal bones, connect with the superciliary cuts (1 & 2). ***Make the cuts as low on the side of the head as possible.***
  - c: 5: **occipital:** across the rear of the occipital bone, ***well below the occipital protuberance.***
  - d: 6 & 7: **parietal:** connect the occipital cut with the temporal cuts, again keeping cuts shallow.
3. **Gently pry at the cuts** using a wide-bladed screw driver, exploring where the calvarium is stuck. Saw again until the entire calvarium becomes loose. ***Do not*** poke the underlying brain ***by pushing the screw driver too deeply.*** Cut deeper where. Do not remove yet.
  4. **Lift on the brain-calvarium unit**, taking great care so that as many features remain attached to the brain as possible, including the cranial nerves, and as much of the spinal cord as possible. Pinch off lower bone edges, especially the frontal bone, which may hold the brain in the calvarium. Lift the *front* of the calvarium, reach in and cut ***close to the bone*** the anterior cranial nerves and latex/vessels so that the unit lifts from the front. (The pituitary is 'strangled' in the sella turcica by a constriction of dura mater and usually becomes detached from the brain.) Lift the *rear* of the calvarium slightly and cut the spinal cord as ***deeply as you can*** to leave much attached to the brain. **Lift the brain/calvarium unit out of the cranial floor.**
  5. **Wiggle the brain forward from the calvarium/tentorium cerebelli:** Explore the edges of the brain-calvarium unit. Pinch off any pieces of bone which may inhibit sliding the brain forward, especially around the cerebellum and the sides of the cerebrum. **Pull the brain forward** so the tentorium cerebelli slides out to the rear.
  7. **ILLUSTRATE THREE VIEWS OF THE ISOLATED BRAIN**, label listed features:
    - a) **ventral:** cerebral hemispheres, olfactory bulbs, optic chiasma, infundibulum, mammillary bodies, cerebral peduncles, pons, medulla oblongata
    - b) **posterior:** R&L cerebral hemispheres, longitudinal fissure, R&L cerebellar hemispheres, vermis, dorsal medulla oblongata
    - c) **posterior deep view:** spread the R&L hemispheres, note superior and inferior colliculi (= corpora quadrigemina), pineal gland, corpus callosum.

**NOTE:** Carefully pack away the brain so that next week we can study the brain's **cranial nerves I, II, III, IV, V, VII and VIII.**

Alternative means of removing calvarium (no longer used in 2001)

Then slide the calvarium backwards to free up the cerebellum. In the cat, the tentorium cerebelli is ossified, and is thus a challenge to remove the calvarium without damaging the cerebrum, or alternatively, to get out the cerebellum without damaging it. The best strategy may be to attempt to **slide the calvarium to the rear**, between the cerebrum and cerebellum. Alternatively, two saw cuts may be made, one above and one below the tentorium, so that the calvarium is removed in two pieces.