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Class #5: Ethology and CNS Friday, Sept 16, 2005.

Reading:

Graham Scott (2005), ch 2, "Controlling behavior: The role of the nervous system", pp 19-41.

Study questions:

1. Yawning is a human "fixed action pattern" (FAP). Name three other FAPs shown by humans.
2. Unlike Graham Scott, many ethologists distinguish FAPs from reflexes. How do you think these types of actions can be distinguished? Give examples. (Scott uses "reflex" to mean automatic and at least initially unlearned.)
3. Give an example of a "supernormal stimulus" that acts as a releaser of a fixed action pattern in herring gull chicks. (See p 21)
4. Define: Primary sensory neuron, secondary sensory neuron, motor neuron, interneuron (neuron of the great intermediate net). [This textbook is not as clear as I would like in discussing the nervous system. Do not depend on this book for neuroscience information.]
5. What are the major specializations of nerve cells, compared with other cells of the body? (Use 9.01 information, or the equivalent.)
6. How can a "wandering spider" catch its prey without using a web, by a kind of touch sensitivity that does not involve direct contact?
7. What two features of a moving visual stimulus are detected by the visual system of a toad in the triggering of prey-catching behavior?
8. Where in the central nervous system of a toad could an electrical stimulus elicit a prey-catching FAP? What would change if the electrode were moved a short distance parallel to the brain surface?
9. Contrast "command neuron" and "motor neuron". You may want to check the definition of motor neuron in your 9.01 text or the equivalent – see above, Q4.
10. What is the main advantage of a "giant axon" in the triggering of an escape response, as in a squid or crayfish?