AV Reviews

Rachel Hays
Department Editor

The dissection and anatomy of the frog. 1988. Nebraska Scientific (Omaha, NE). Video. 20 min. Purchase $149.95

For relatively brief, thorough and efficient coverage of the dissection of a preserved frog, this is a video worth consideration. It focuses entirely on the frog in the dissection pan, and viewers never even see the owner of the hands that manipulate the frog being dissected.

The video is divided into 10 sections, beginning with an external tour of the frog. Toes, eardrums, eyes and skin are viewed and briefly discussed. Next, features of the mouth are clearly shown and explained, and instructions are given for skinning the frog. On a previously skinned specimen, muscles are examined and named on both dorsal and ventral surfaces. Instructions are then given for cutting through the muscles to open the frog for internal dissection. Organs of the digestive system are viewed first, clearly showing how each organ relates to the others. Next, the circulatory system, including the parts of the heart and the vessels leading to and from it, is shown. Organs of the respiratory system are briefly pointed out and followed by a look at the urogenital system. The last system shown is the nervous system, with the cranium cut away to reveal the brain.

Photography in the video is excellent, with clear close ups of organs. Organs are easily seen in their relation to one another. The narrator speaks clearly, if somewhat monotonously. Information is presented in a well organized manner that is easy to follow. Terms which students might find difficult to spell are printed at the bottom of the screen.

This video could be used while students are dissecting so they could see both techniques and organ locations. It could also be used as part of predissection instruction or for clarification of questions during a post-lab discussion.

Because the video focuses solely on the dissected frog in a pan, visually it is rather dull. It presents too much detail on names of muscles and blood vessels which students dissecting during one class period usually don't have time to find. The skeletal system, which is omitted, should be shown and briefly explained. Students would find it more helpful to view normal kidneys than the blue, latex fill ones shown. Diagrams would be useful at several points, particularly when discussing the circulatory system. Several shots of live frogs in their natural habitats at the beginning of the video would be a helpful way of tying reality to the preserved frog.

The video comes with a series of factually oriented questions that require students to pay close attention to the video. Frog dissection will be more understandable if this tape is used before, during, or after the procedure. This video will be an asset both to students and their teachers.

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Nova: children of eve. 1987. Coronet Film and Video, Deerfield, IL Video. 58 min. Purchase $250.

This is a synthesis of classical paleontology and "new method" biology involving protein and nucleic acid chemistries. The title is derived from the concept that all humans, or at least their mitochondria, are descended from one or a small number of women who date from about 200,000 to 300,000 years before present (ybp). The number of specific topics related to human evolution is quite large and the thrust of the video is not confined to the idea of human lineage from a single or few individuals of relatively recent past. Some summaries of case studies so described are:

1. The divergence of humans and anthropoid apes: Classical paleontology has placed this divergence at about 15 to 20 million ybp. Studies by Wilson and Sarich (1967) on immunological relatedness of serum albumins place the divergence at about 4 to 6 million ybp with constancy of mutation test taken into account. DNA hybridization studies among modern forms (humans, chimpanzees and gorillas) suggest 7 to 10 million ybp. A synthetic guess for the event is then placed at 4 to 8 million ybp.

2. The discovery of Lucy (*Australopithecus afarensis*) in 1974 by Donald Johanson at the Hadar region in Ethiopia: The evidence for this oldest biped at 3.5 million ybp is considered from the paleontological points (including the footprints at Laetoli in Tanzania, 3.7 million ybp, Mary Leakey) and current studies of bipedalism (muscle contraction-anatomical studies by Sussman and Stern at SUNY-Stony Brook). Lucy's chimpanzee-like pelvis and other considerations fits a human-primate ape divergence at 5 or 6 to 7 million ybp.

3. *Homo habilis* and *Homo erectus:* Characteristics of these two are described.

4. The lineage of Neanderthal man and Cro-Magnon man: Modifications of our concepts of the hunter-gatherer Neanderthals come from evidence from the Shanidar cave (pollen found in a grave with a deformed skeleton, indicating care and burial of dead). Current and recent studies of embedded fossil and modern bones coupled with computer techniques lead to the model of the Neanderthals as a

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people of movement, strength and endurance, but with little information sharing among the population. Fossils of Cro-Magnon man suggest a major reduction in muscularity with more efficient behavior and developed communication skills. A second migration of modern humans out of Africa after the original migration of *Homo erectus* is put forward to explain the coexistence of Neanderthal and Cro-Magnon in Europe.

5. DNA fingerprinting and parentage: The usefulness of restriction fragment polymorphisms among closely related individuals sets the stage for consideration of who shares mutations and who has a common ancestor. DNA in Egyptian mummies, disproval of Hyerdahl's hypothesis that the Polynesians came from South America and the importance of maternal inheritance of mitochondrial DNA lead to two notable proposals:

a. Asia is the home of modern people and

b.The origin of all humans is a very small population.

A two-page teacher's guide summarizes the video and includes goals, questions, possible activities, a vocabulary list and a five-item bibliography. I highly recommend this excellent and timely effort for high school through adult groups.

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Plants: Parts and processes. 1988. National Geographic Society (Washington, D.C.) 2 sound filmstrips. 13-14 min. each. Purchase $67.

National Geographic photographers and graphic artists have, once again, put together an excellent introductory filmstrip. "Roots, Stems, and Leaves" describes the basic differences of root types and their functions. The differences between woody and herbaceous stems are compared by function and structure. Cross sections of stems help explain the differences in structure. The function of xylem, phloem and cambium is developed using woody stems. Annual rings introduce a method of aging plants. Leaves are shown to be varied in size and shape —from the Amazon water lily (2 m. in diameter) to cactus needles, duckweed and Venus flytrap. Photomicrographs of leaf cross sections and surface stomata help to visualize the site