

Teaching Biology: Why it's Important, and Strategies for Relevance, and Keeping Student Interest

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An understanding of basic biology is fundamental to being a responsibly educated citizen in the modern world.

Real World Issues at Students' Doorsteps:

- Evolution (yes, Evolution)
- Medicine
- The Environment and Climate Change
- Biomedicine (a redundant term)
- Recreation
- Entertainment

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I believe in evolution, and I believe there's a difference between science and faith. That doesn't make faith any less important than science. It just means they're two different things. And I think it's a mistake to try to cloud the teaching of science with theories that frankly don't hold up to scientific inquiry.

Barack Obama

Evolution is [simply , merely] change in genetic frequency in a population over time.

Why is this important?

Why does it threaten some? (It takes a lot of time. It isn't directed.)

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Why is this important? (We must understand its mechanisms to deal with an enormous number of environmental, social, and medical issues that face us today.) **It is the basis of all biology.**

Why does it threaten some?



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Why is this important? (We must understand its mechanisms to deal with an enormous number of environmental, social, and medical issues that fact us today.)

Why does it threaten some? (It takes a lot of time. It isn't directed. It demands *UNIFORMITARIANISM*.)

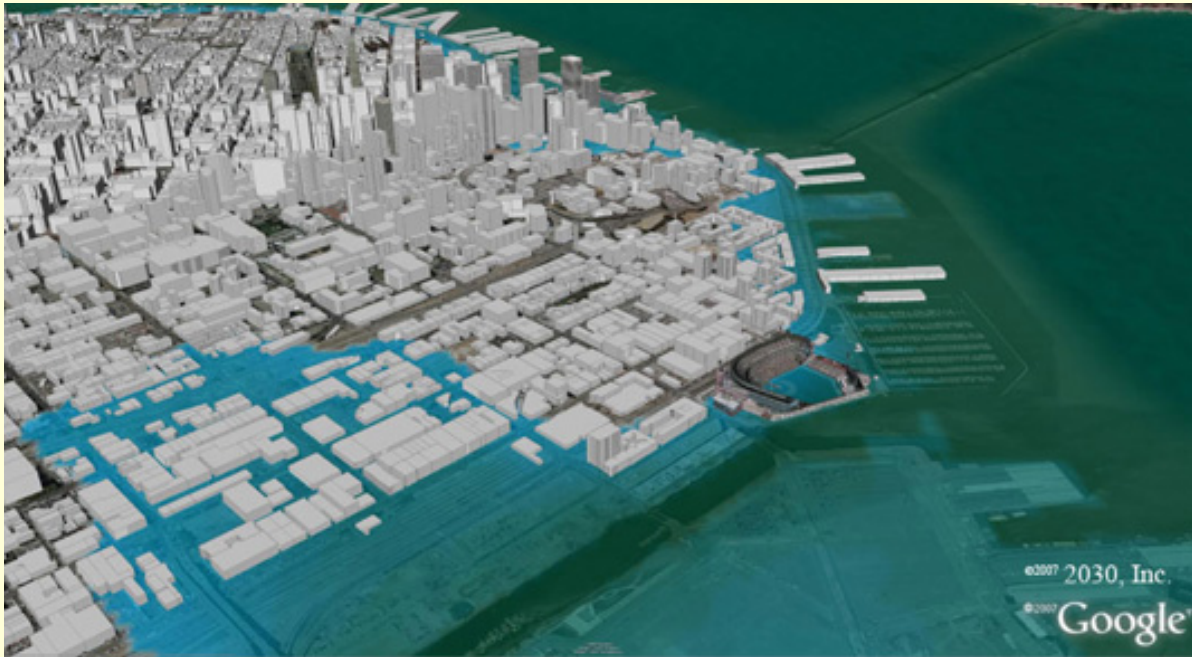
William Buckland:
professor of geology,
Oxford University and
ordained minister in
very rich parish.

Adam Sedgwick (left)
earned more from his
church appointment
than he did as a
professor.



Fig. 4.1. Adam Sedgwick in 1833, from
a portrait by Thomas Phillips.

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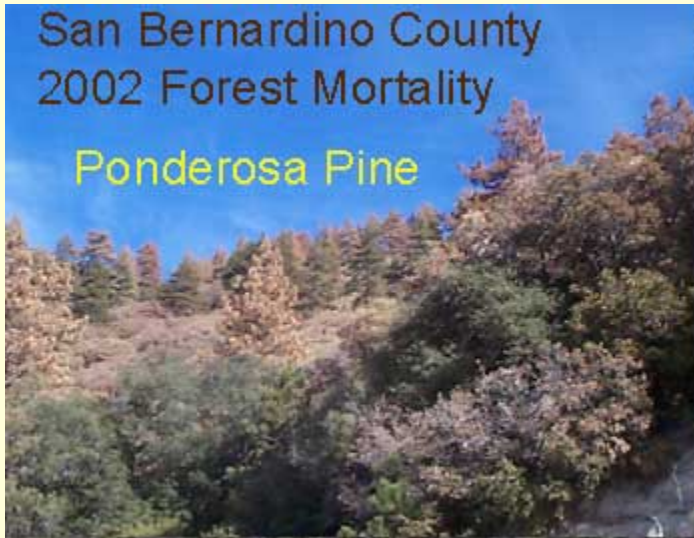
Present-day San Francisco under 2.25 meter sea-level rise.



Present-day New York under 3.5 meter sea-level rise.

San Bernardino County
2002 Forest Mortality

Ponderosa Pine



Big Cone Douglas Fir



Canyon Live Oak





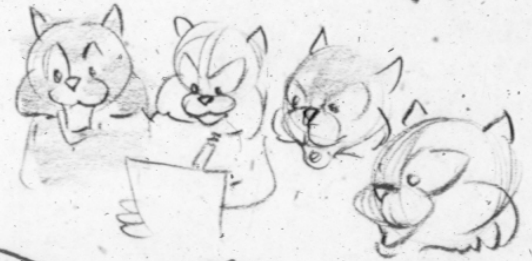
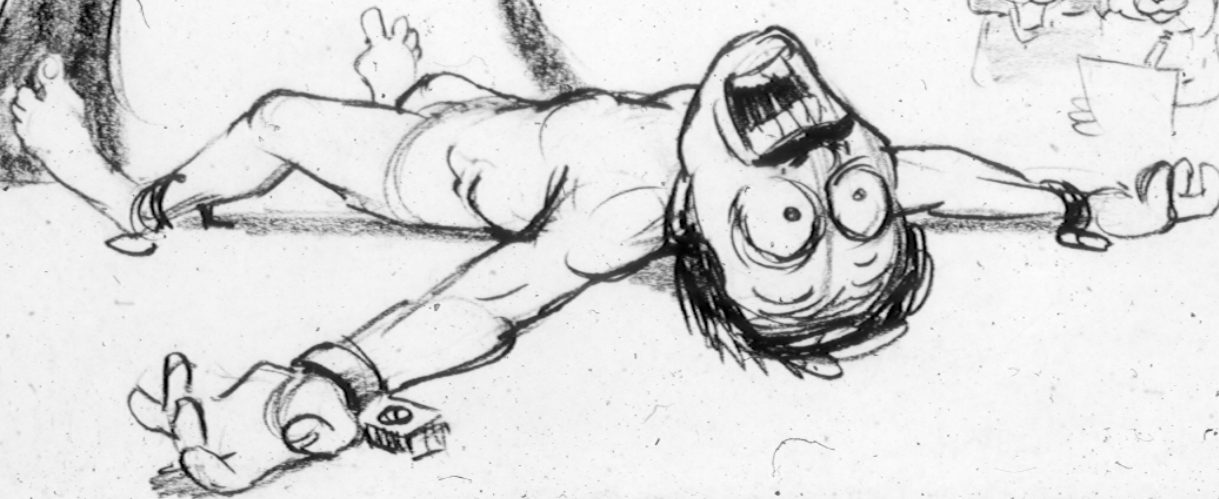


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TODAY'S LESSON:

**HUMAN
ANATOMY!!**



SWOFFORD '91



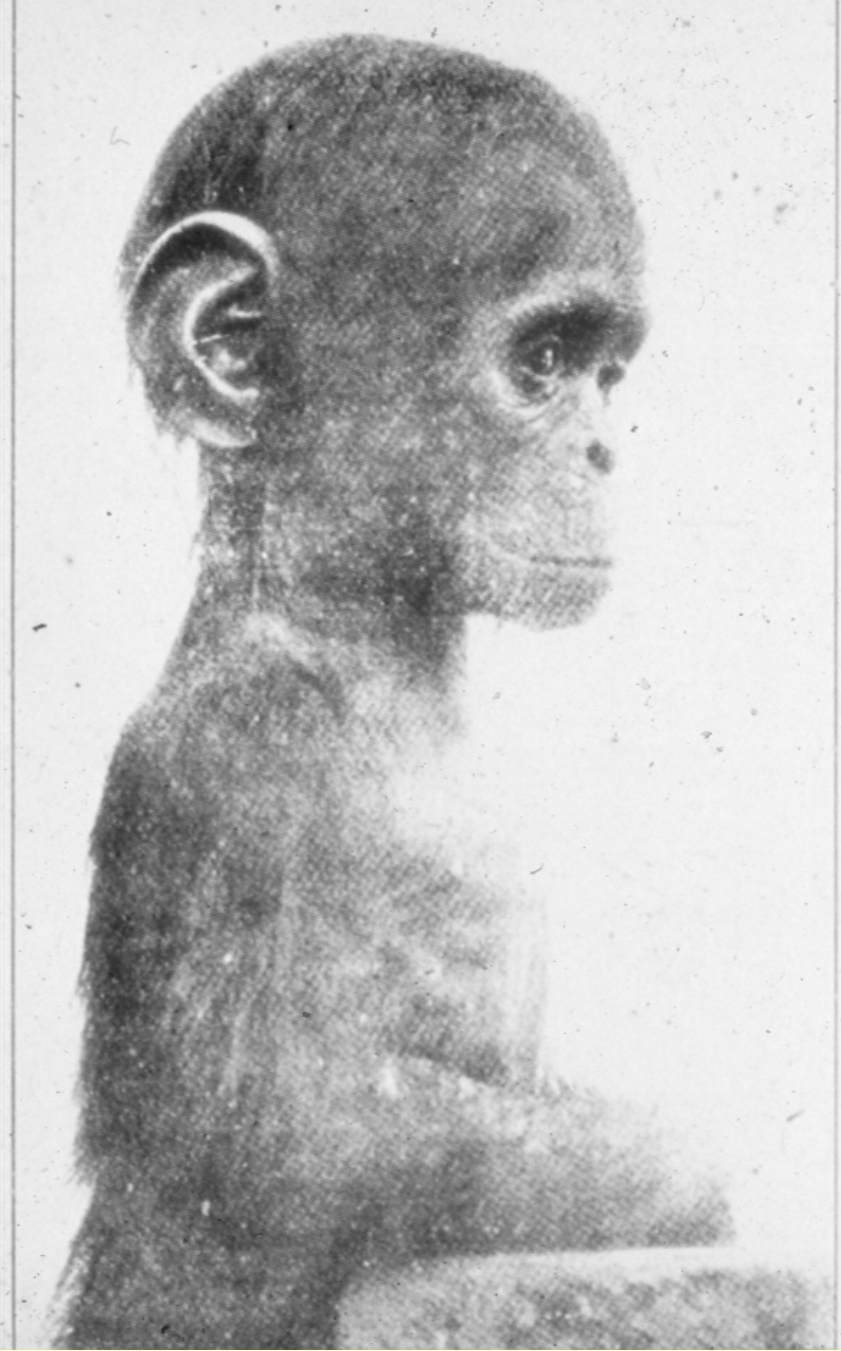
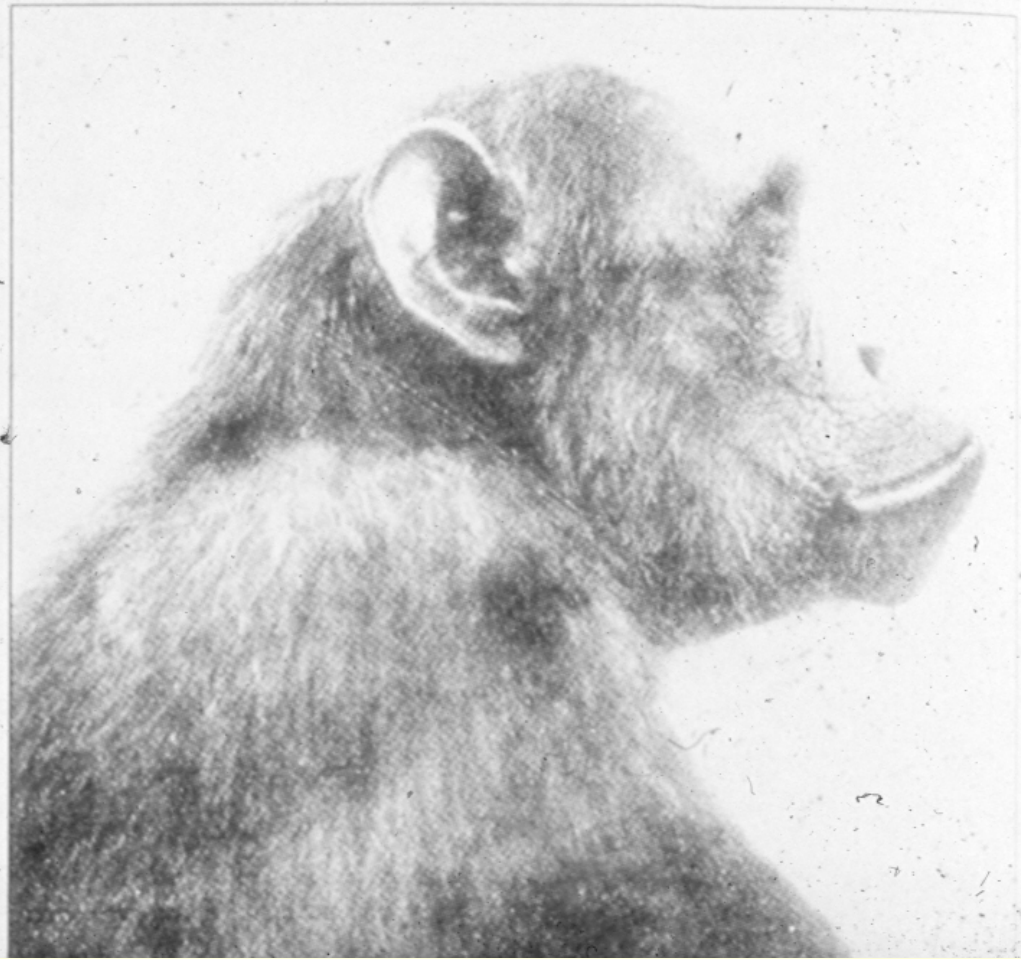
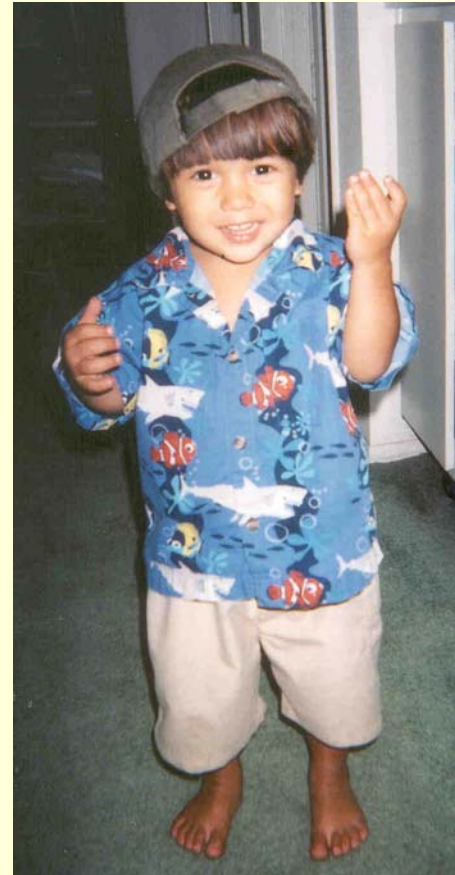


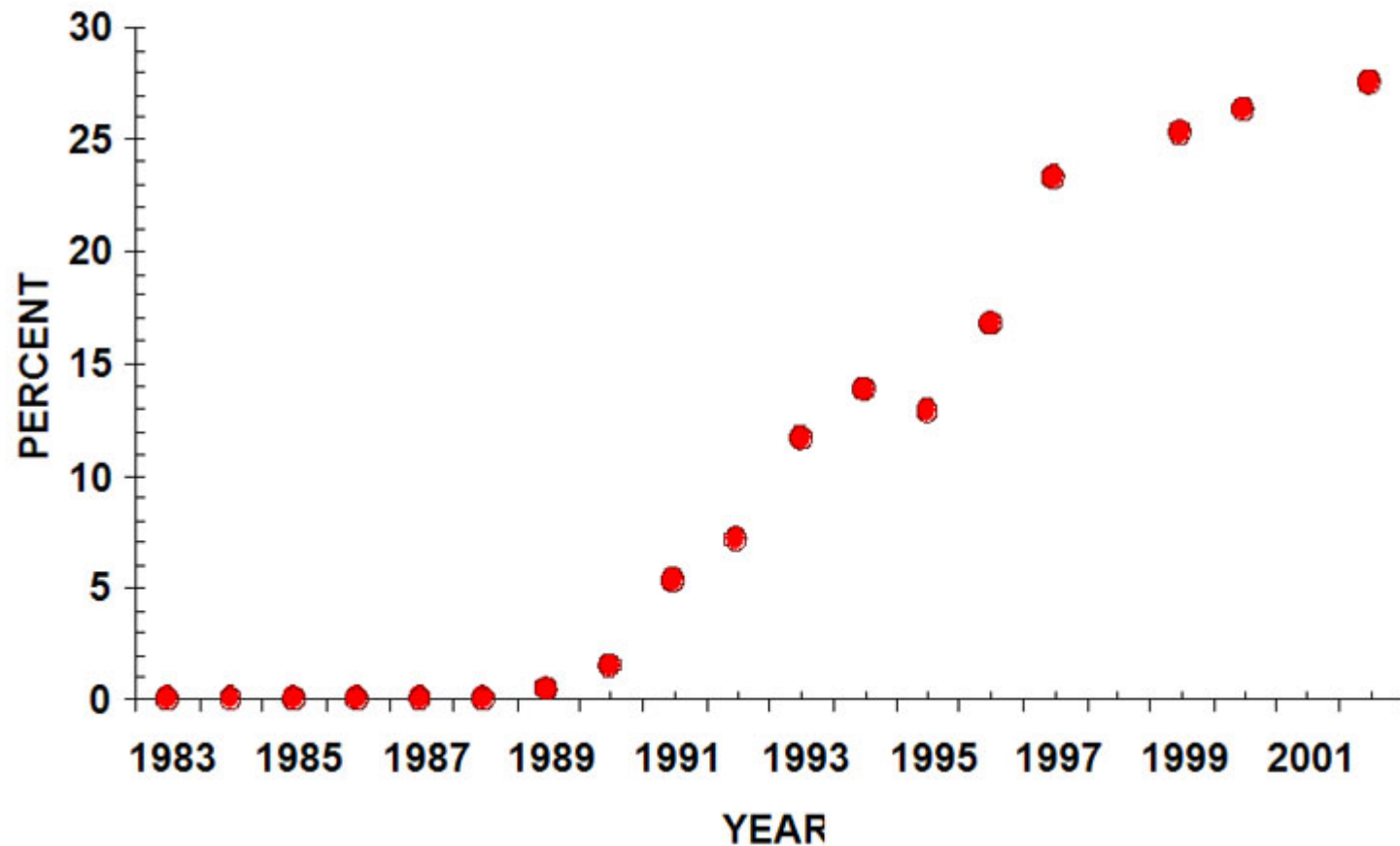
Fig. 61. Baby and adult chimpanzee from Naef, 1926b. Naef remarks: "Of all animal pictures known to me, this is the most manlike" (p. 448).



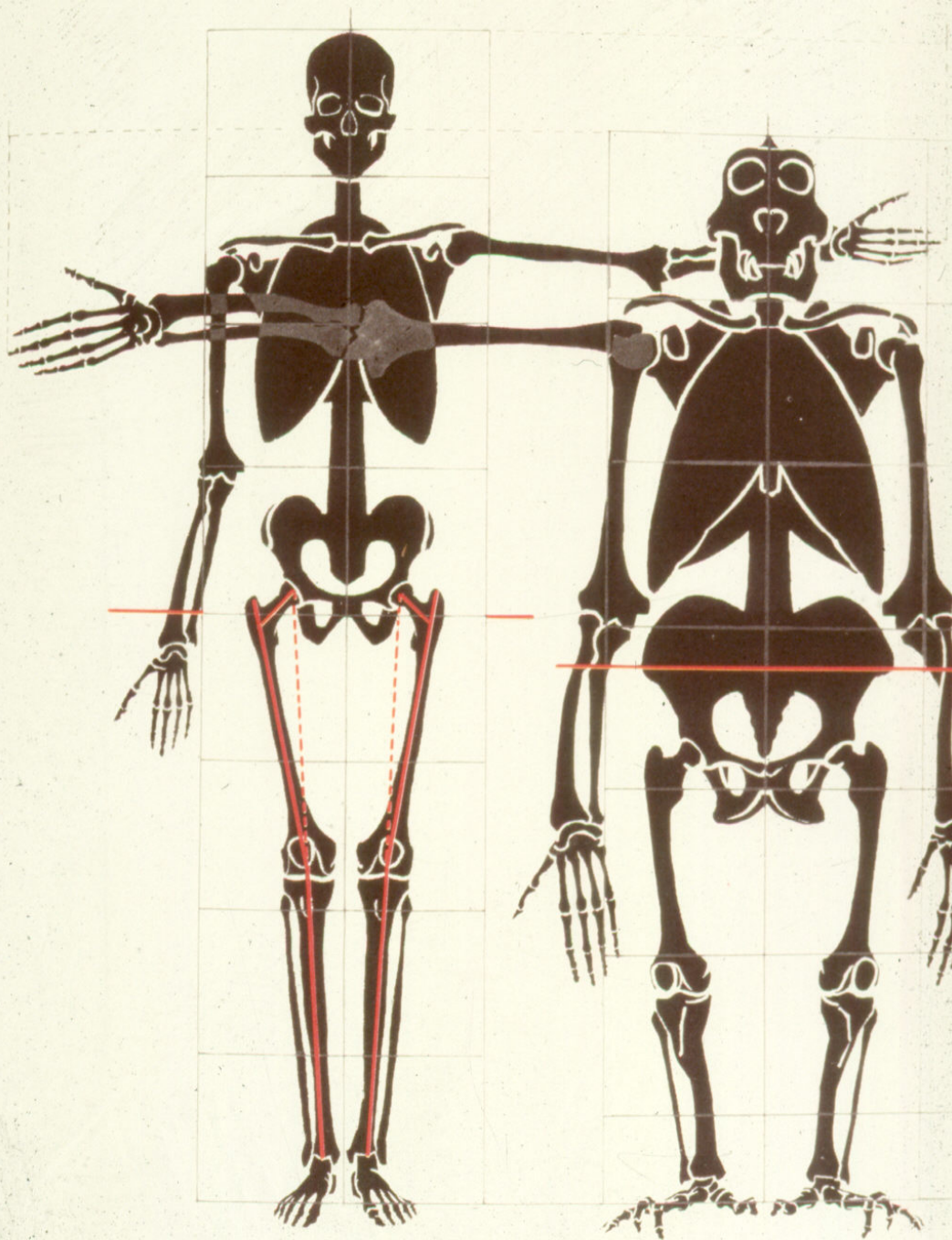


Vancomycin-resistant *Enterococcus* in US hospital intensive care

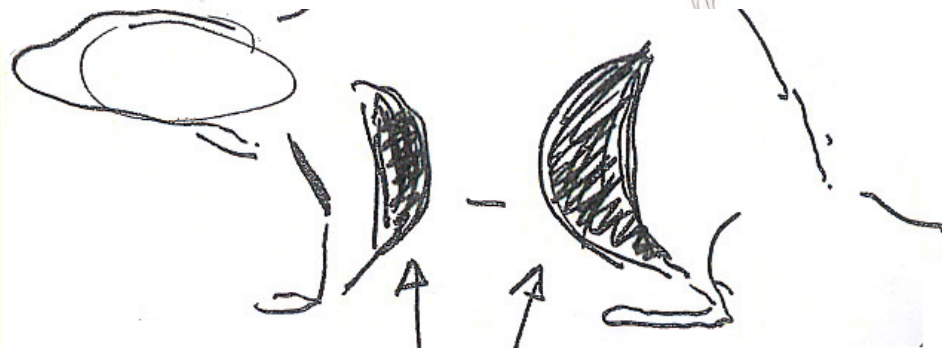
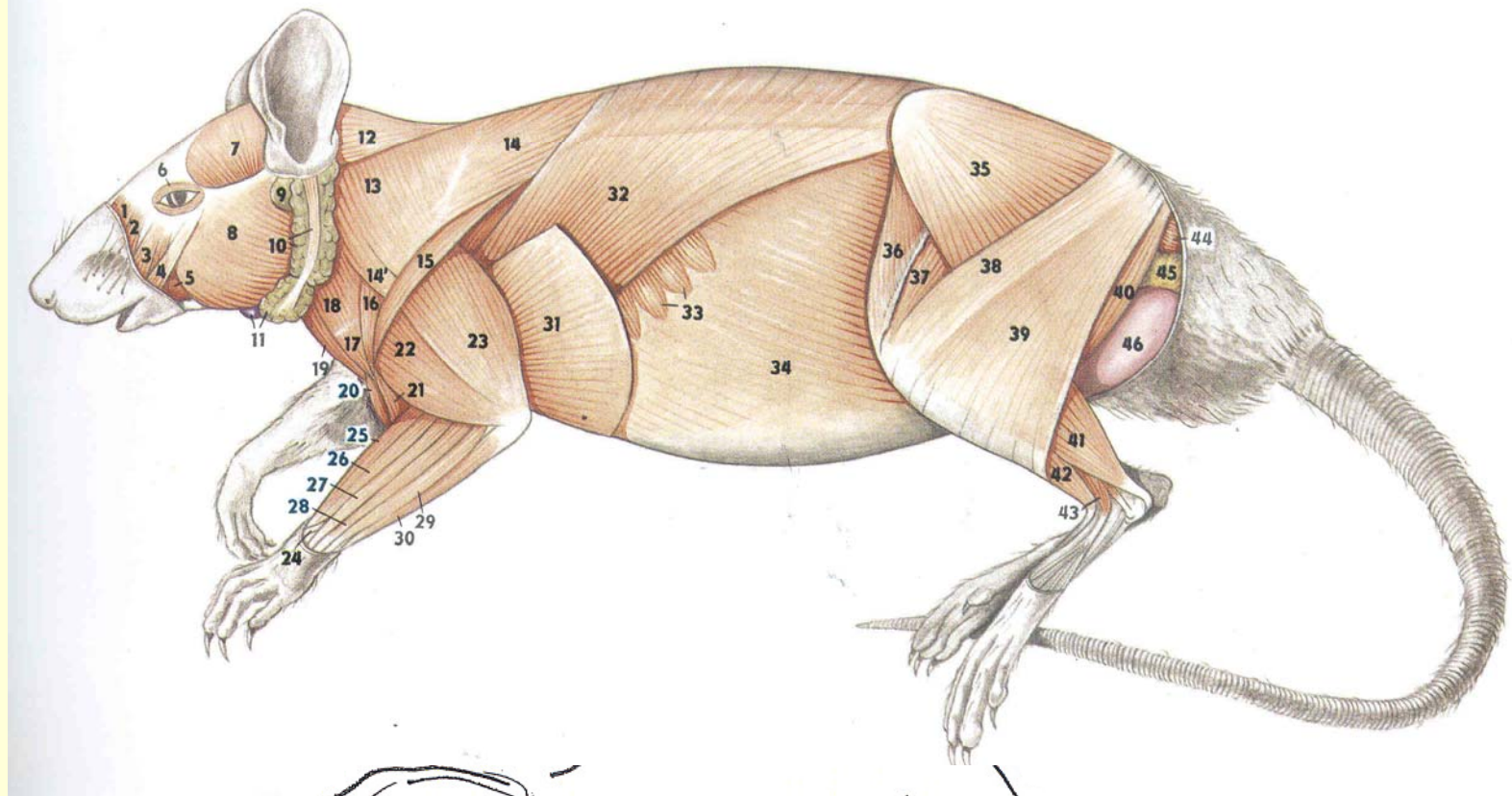
National Nosocomial Infections Surveillance System Report, 2003



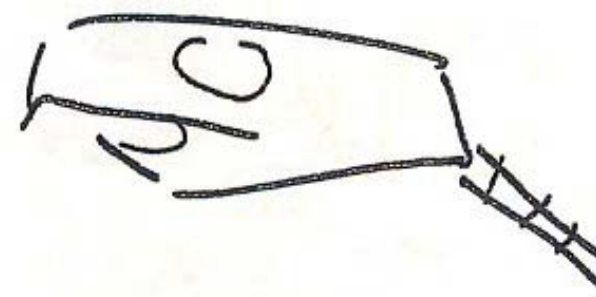
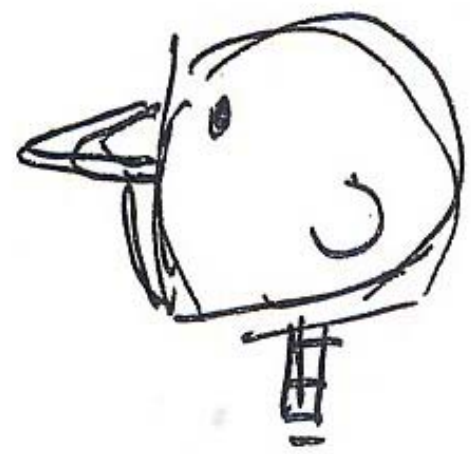
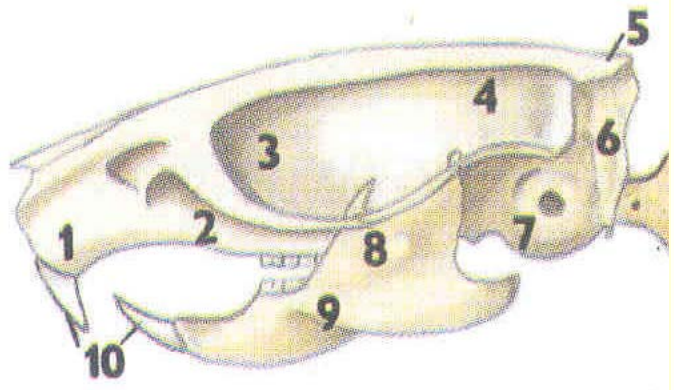
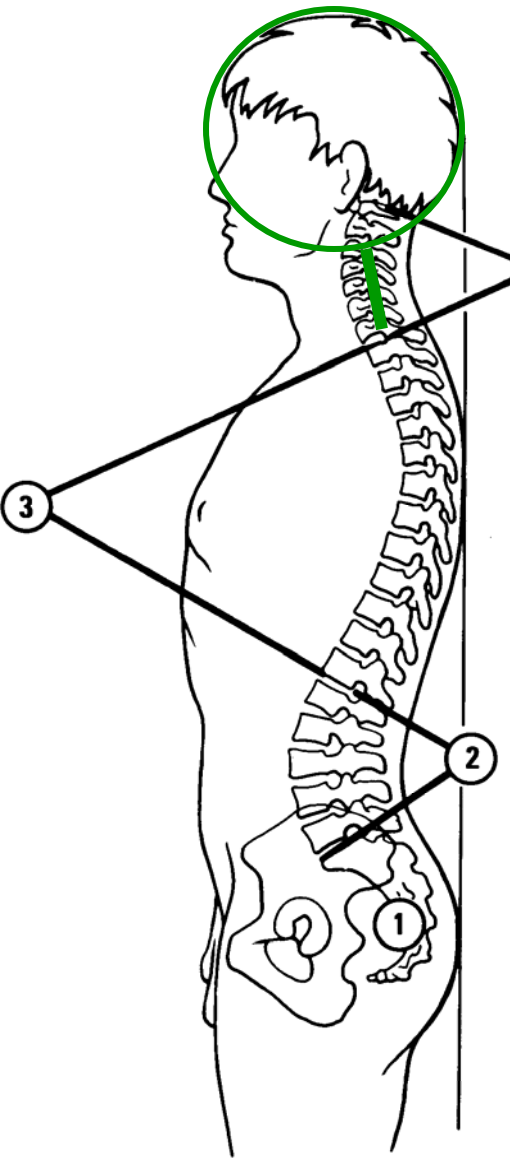
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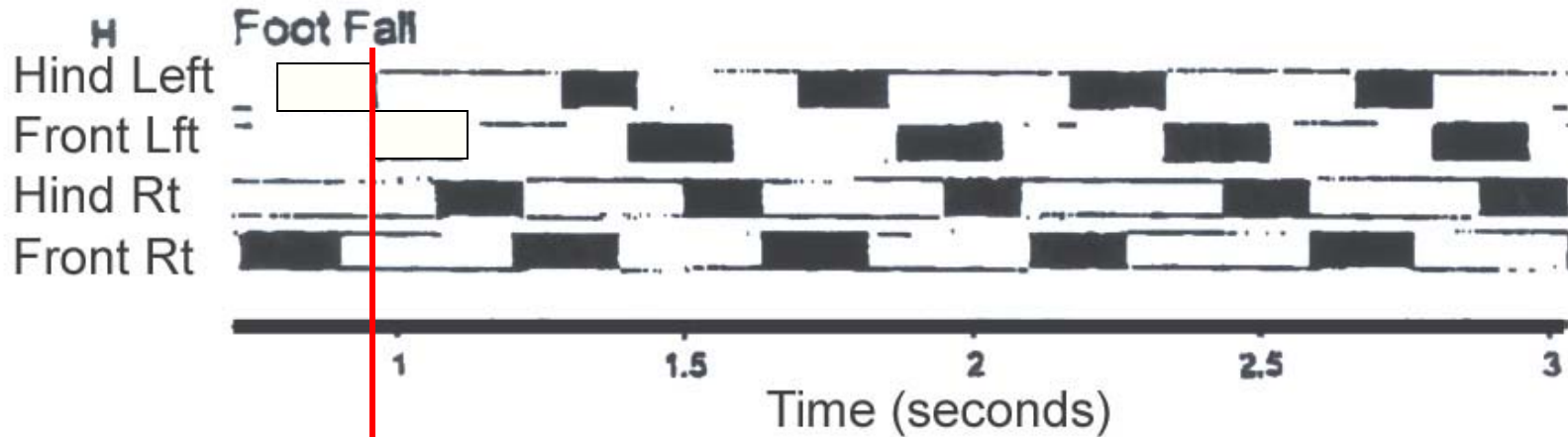
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STRONG
MUSCLE.



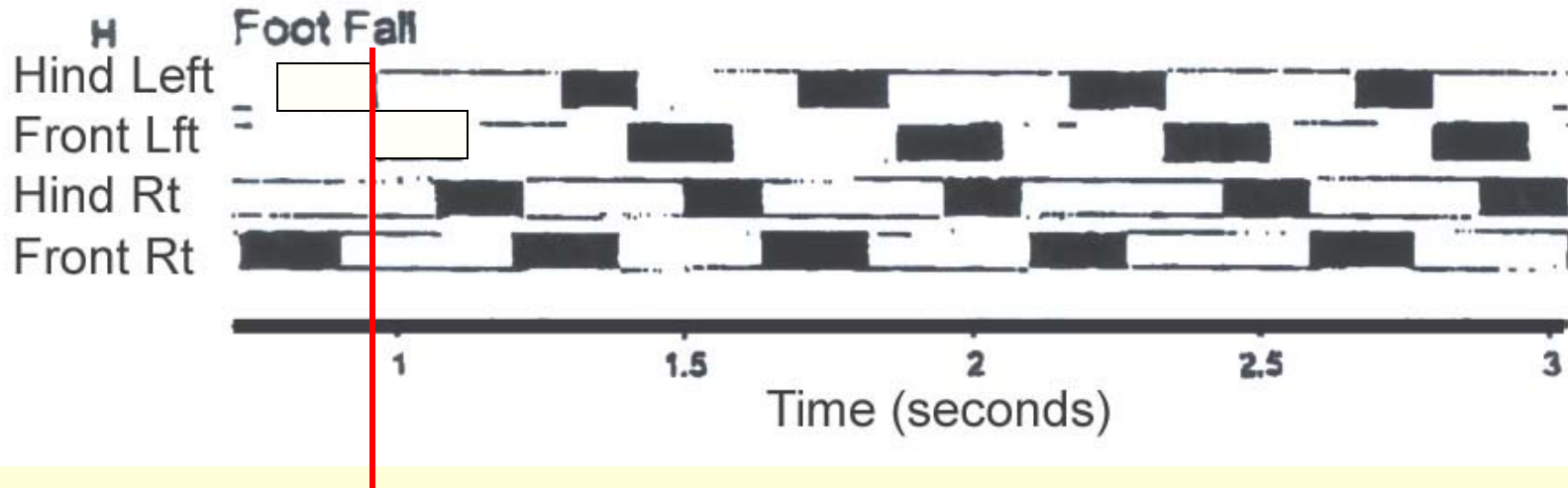
CONTACT PHASE vs. SWING PHASE



Contact – approximately 0.16-0.20 second in walking

Swing phase – approximately 0.3 second.

% Time of Overlap to front vs hind legs Same side



Virtually no time overlap of hind foot and forefoot
ON EACH SIDE.

Contact – approximately 0.16-0.20 second in
walking

Swing phase – approximately 0.3 second.