Comments on Table 11-3: Text is misleading/superficial on many points especially considering their use as criteria for taxonomy.

1. Does this mean no nuclear membrane? Rem: *Gemmata obscuriglobus*!

2. Some bacterial chromosomes are linear (e.g., *Borrelia, Streptomyces*).

3. This is a bacterial property! However, not all bacteria produce muramic acid (e.g., *Planctomyces* – proteins & *Mycoplasmas* -- sterols).

4. This is an important distinction. Where did eucaryotes get ester-linked lipid biosynthesis? Two possibilities: convergent evolution or endosymbiont transfer. (Note: *Aquifex* has both kinds of lipids and it's a bacteria!)

5. "S" refers to size – sedimentation rates. Most eucaryotic ribosomes are bacterial/archaeal in size. Only the multicellular types are larger! Another reason to drop this designation.

6. Reflects conservation of translation apparatus: A/E to the exclusion of B.

7. Most eucaryotic genes **DO NOT** have introns. Note this refers to "splicesomal" introns, and such introns are rare in microbial eucaryotes; abundant only in multicellular genomes.

8. This correlation is unclear, e.g., nematodes have operons!

9. Eucaryotes are unique in capping, but Bacteria and Archaea also add poly-A-tails. The mechanisms for poly-A deposition may be different in Eucarya.

10. Fundamental difference between E/A and B.

11. $NH_3 \rightarrow NO_3^-$ (as electron source).

12. NO_3^- as electron acceptor (to reduce N or N_2)

13. Eucarya did not invent – got from cyanobacteria!

14. Example of coevolution/convergence? Found in mammalian eyes too!

15. Chemolithotrophic Eucarya do exist, by virtue of bacterial endosymbionts, e.g., hydrothermal vent associated animals.

16. Are these really "fundamental properties" that are useful for taxonomy?