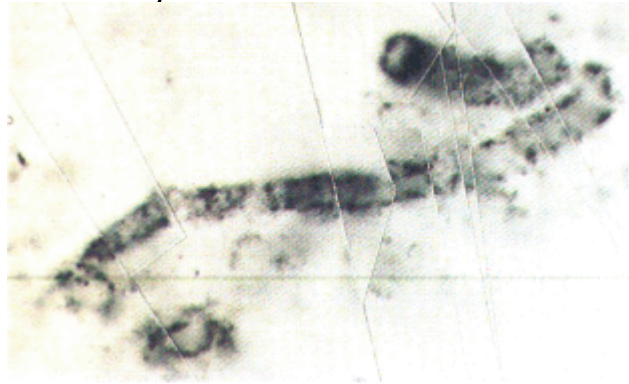


11.1A: The Six Kingdoms. Class Notes

Unit XI.1 Archaeobacteria

- **Archaeobacteria** are ancient, the fossils are up to 3.5 billion years old



Fossil bacteria

- They are usually obligate anaerobes (they cannot survive in oxygen). The early atmosphere of earth had no oxygen.
- They have no peptidoglycan and no flagella.
- Archaeobacteria are divided into three main groups:
- **a) Methanogens** - produce methane gas
 - found in swamps, sewage treatment plants.
 - They are heterotrophs, and typically decomposers.
 - For example Methanosarcina
- **b) Halophiles** - live in very salty water (*halo* means salt, *phile* means loving).
- autotrophs
- they grow best at in warm water (35 - 50 ° C)

11.1B: The Six Kingdoms. Class Notes

- Halophiles are often brightly colored. They give a yellow or orange color to lagoons where sea salt is produced, and also naturally salty lakes such as the Dead Sea.

-
- - for example Halobacterium
- **c) Thermophiles**- live in hot springs.
- they grow best at 70 - 100 ° C
- The yellow or orange color around hot springs is typically due to large numbers of these bacteria.



- for example Pyrococcus
 - Thermus (used in Polymerase Chain Reaction)
- Recent work with RNA has shown that archaebacteria are not closely related to monera (more recent bacteria). The diagram below shows that eukaryotes (including humans) are more closely related to archaea than to bacteria.