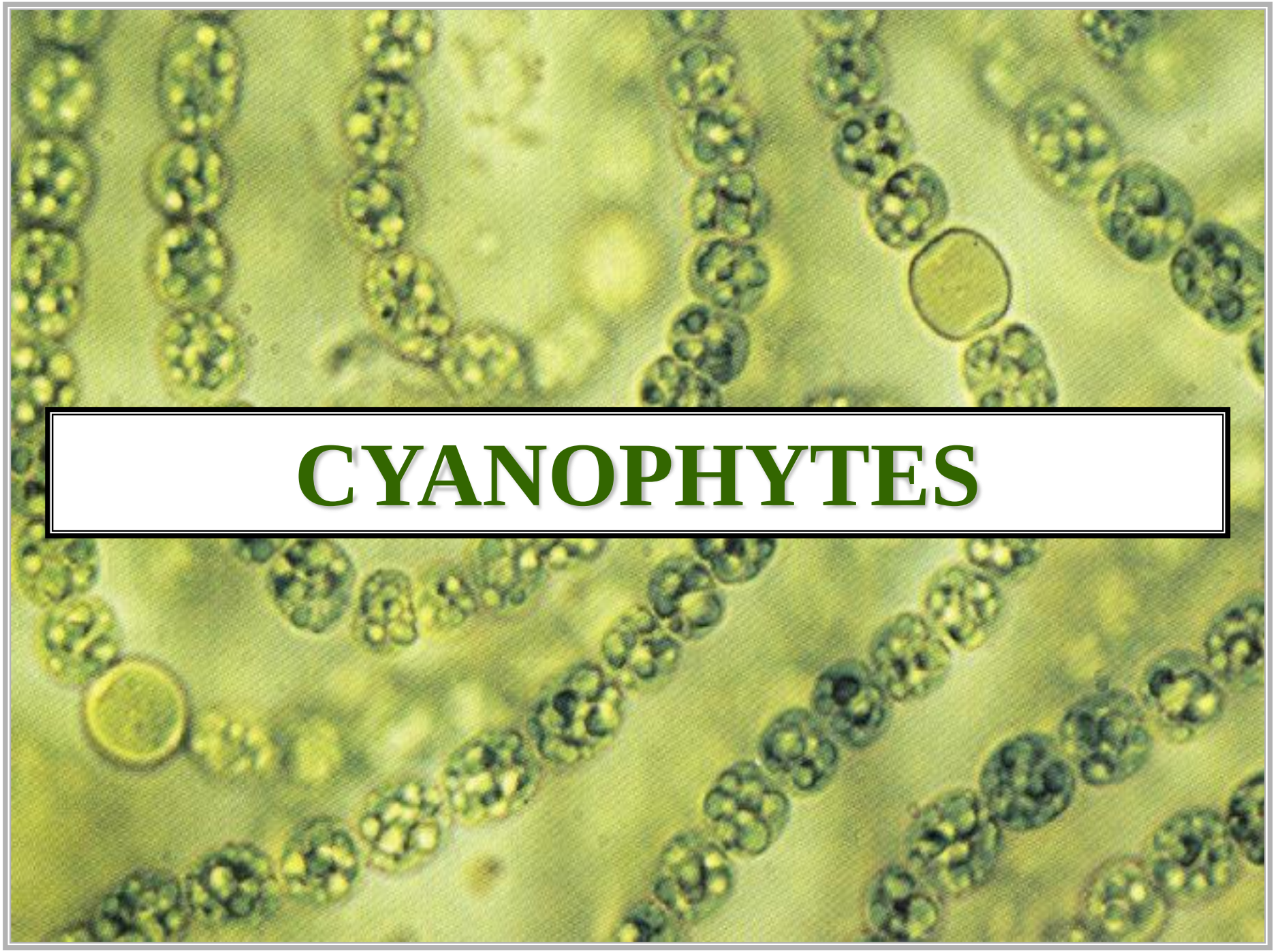
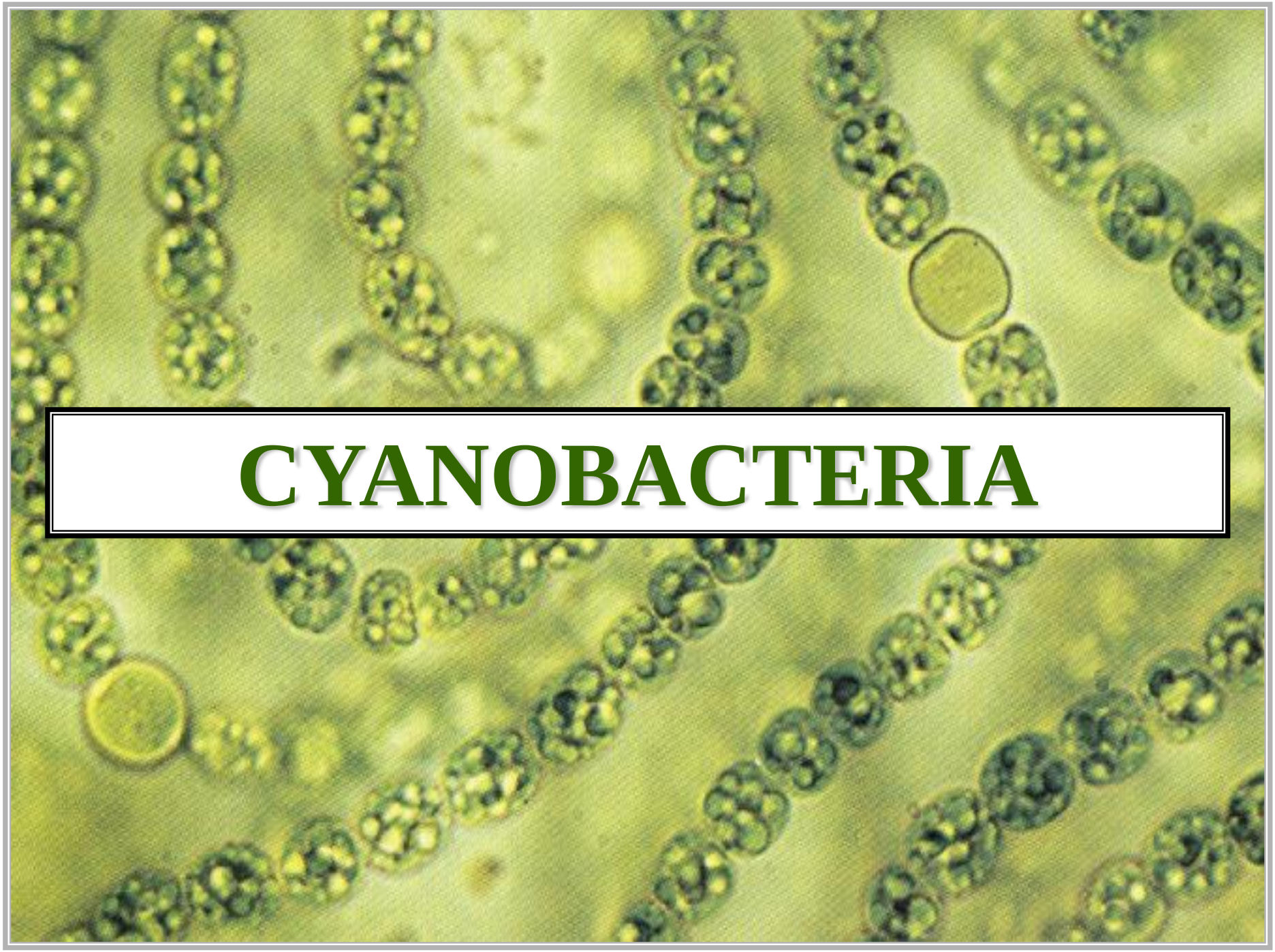
PHYLUM CYANOPHYTA

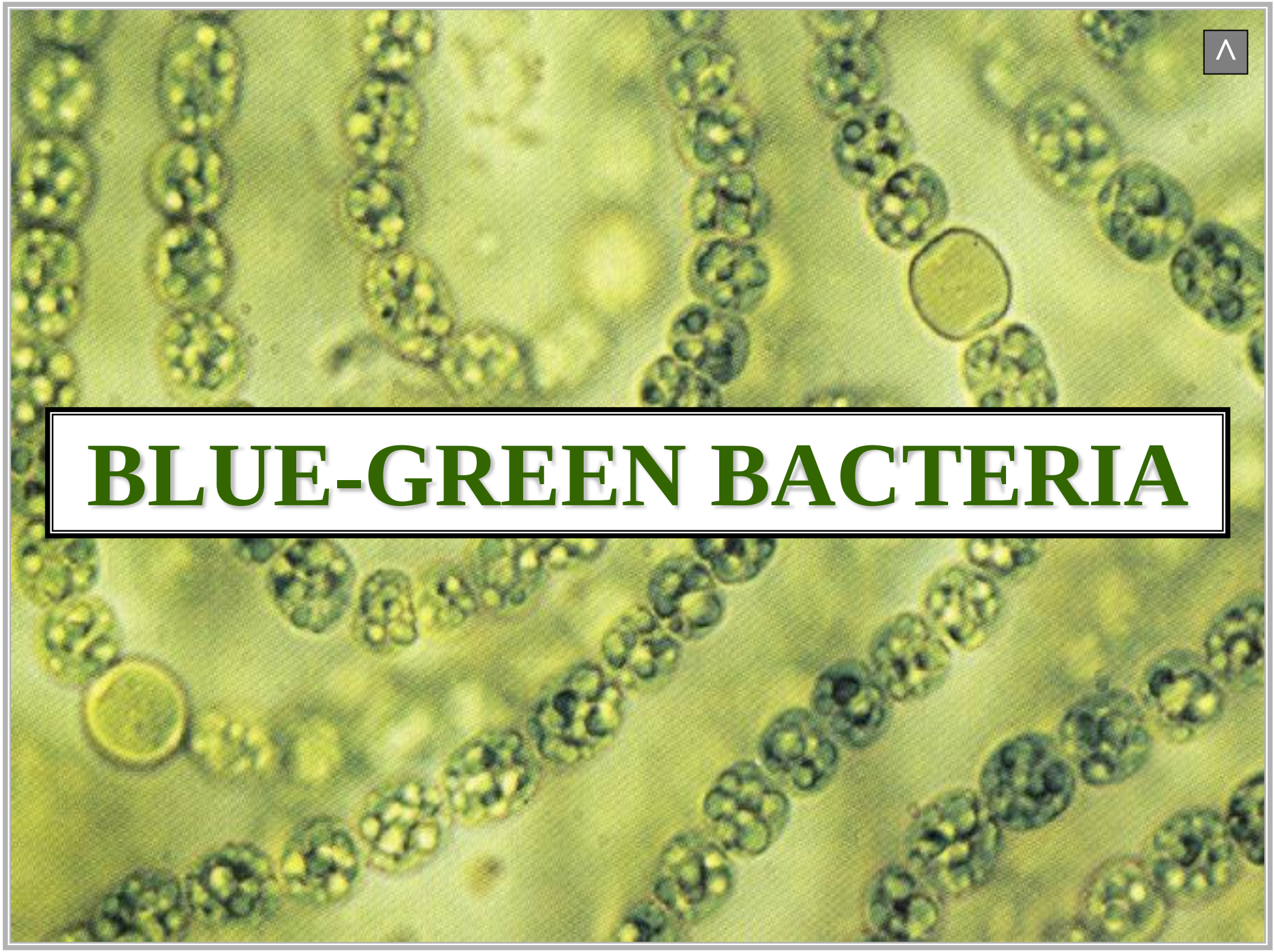
COMMON NAMES



CYANOPHYTES



CYANOBACTERIA

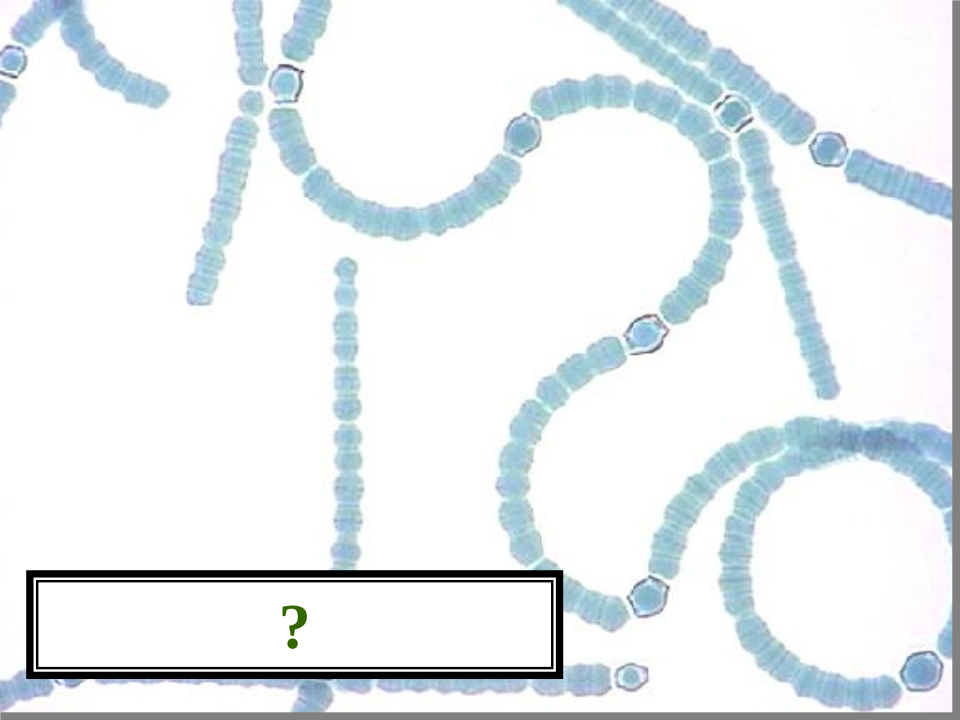


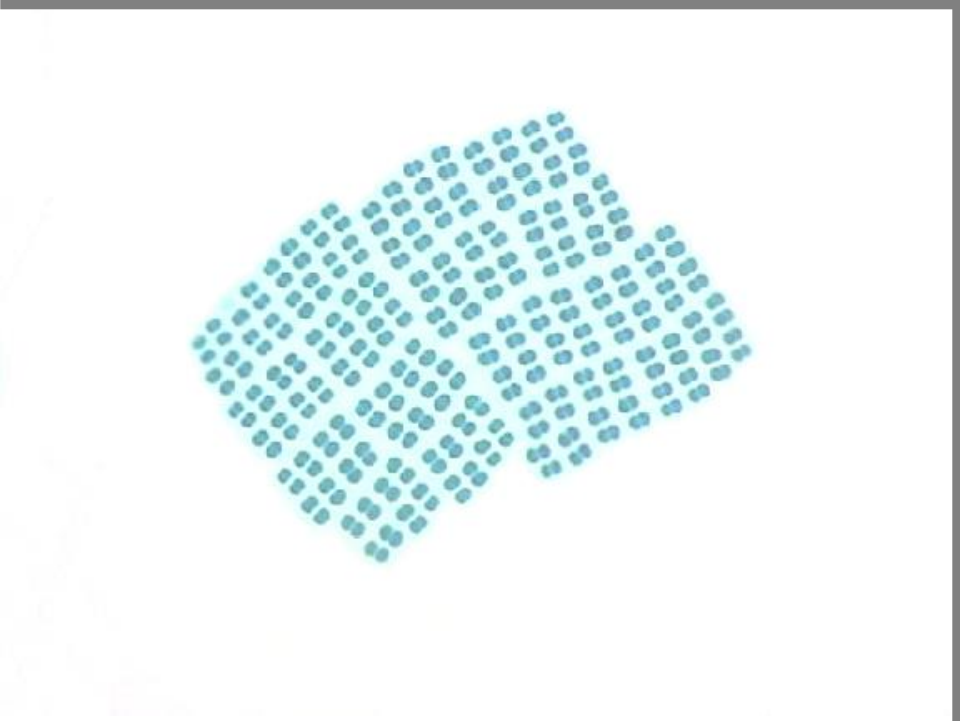
BLUE-GREEN BACTERIA

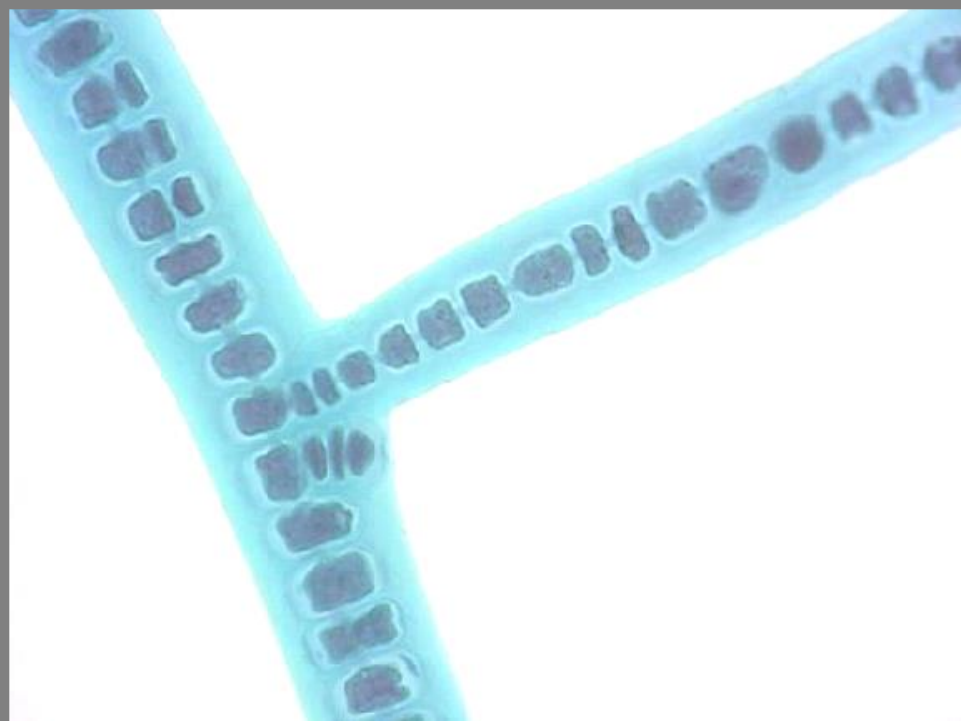
DIVERSITY

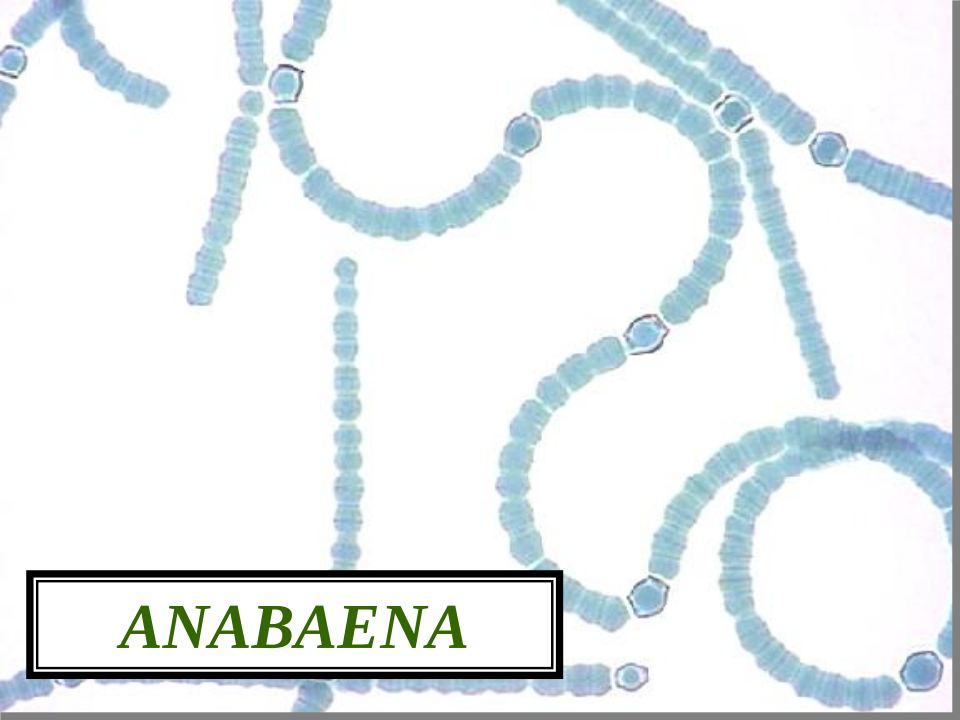

G
~200 SPECIES
EARTH

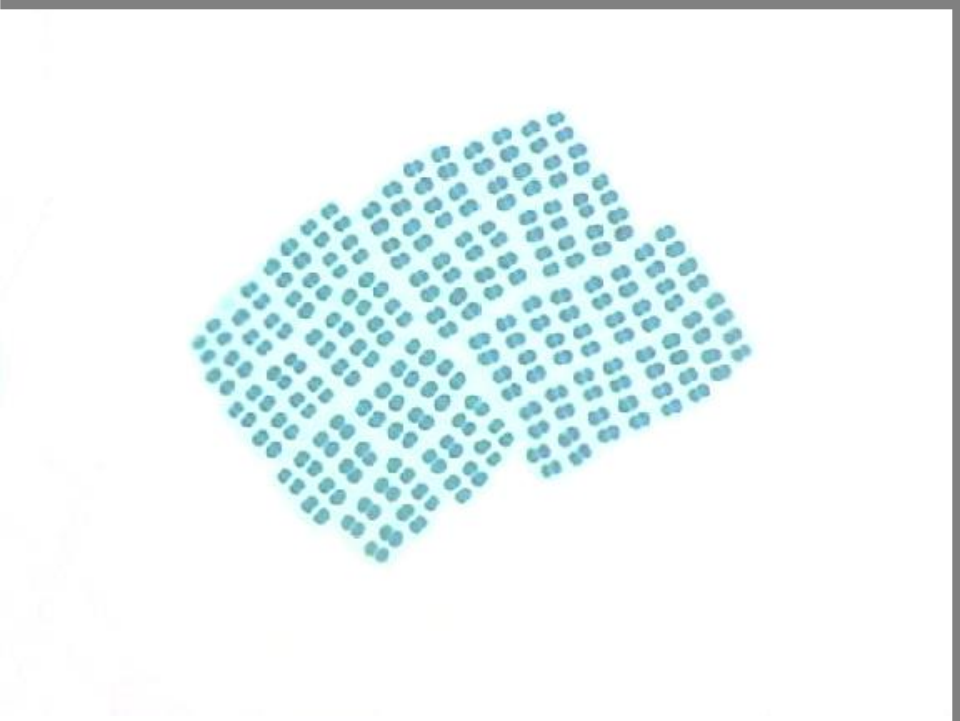

~15 GENERA
EARTH

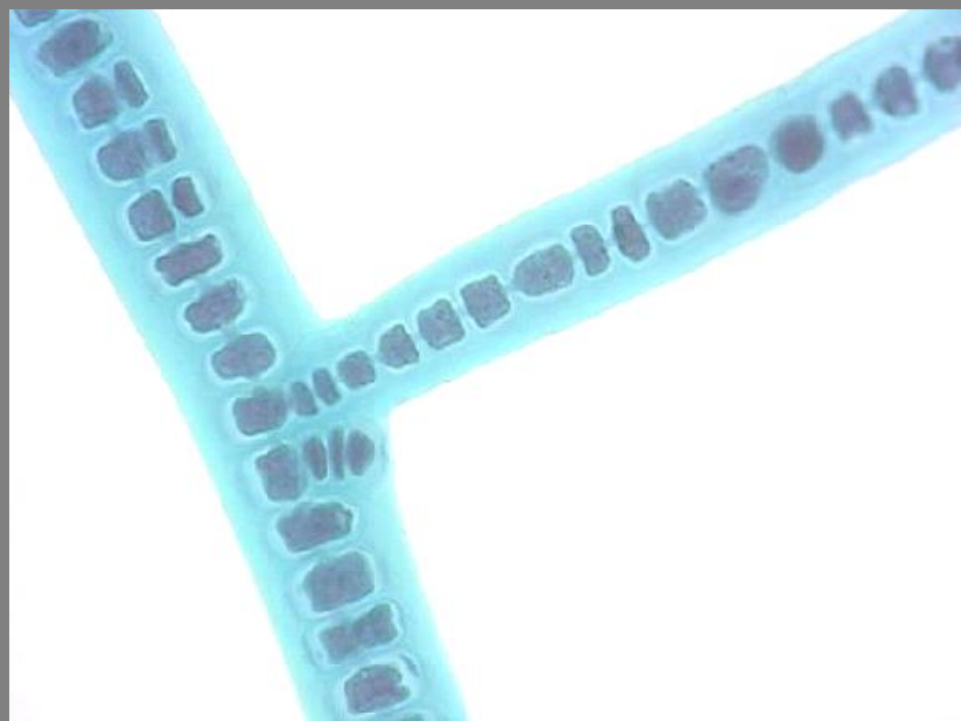


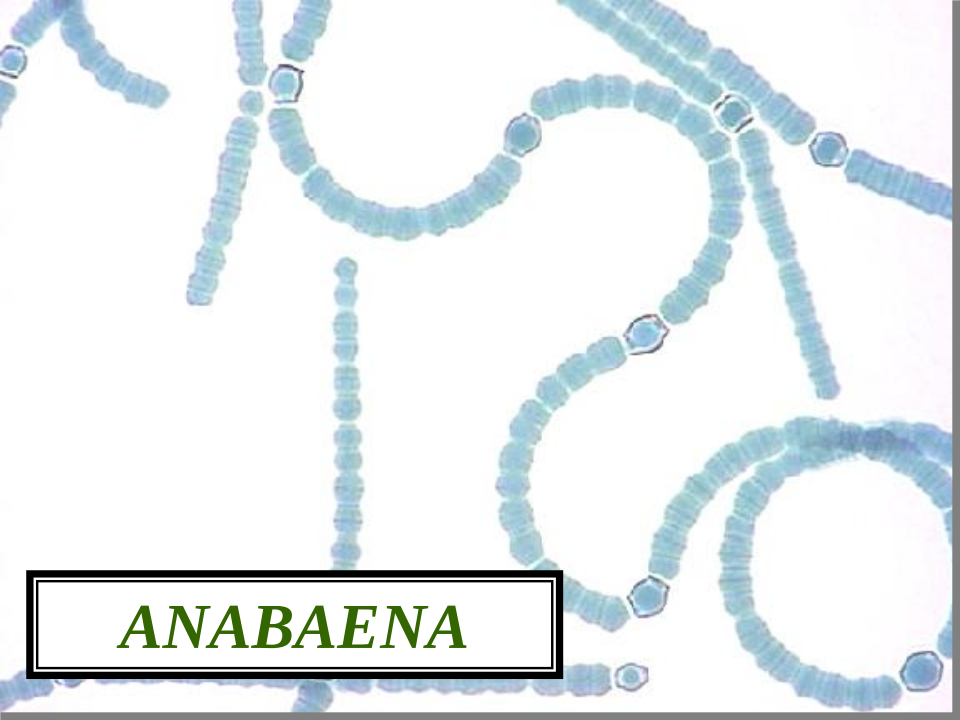





ANABAENA







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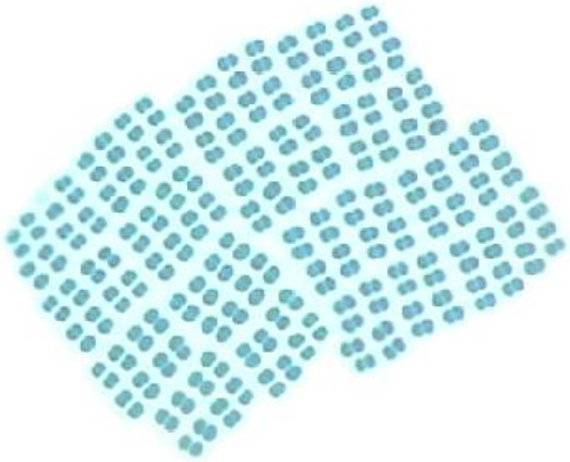
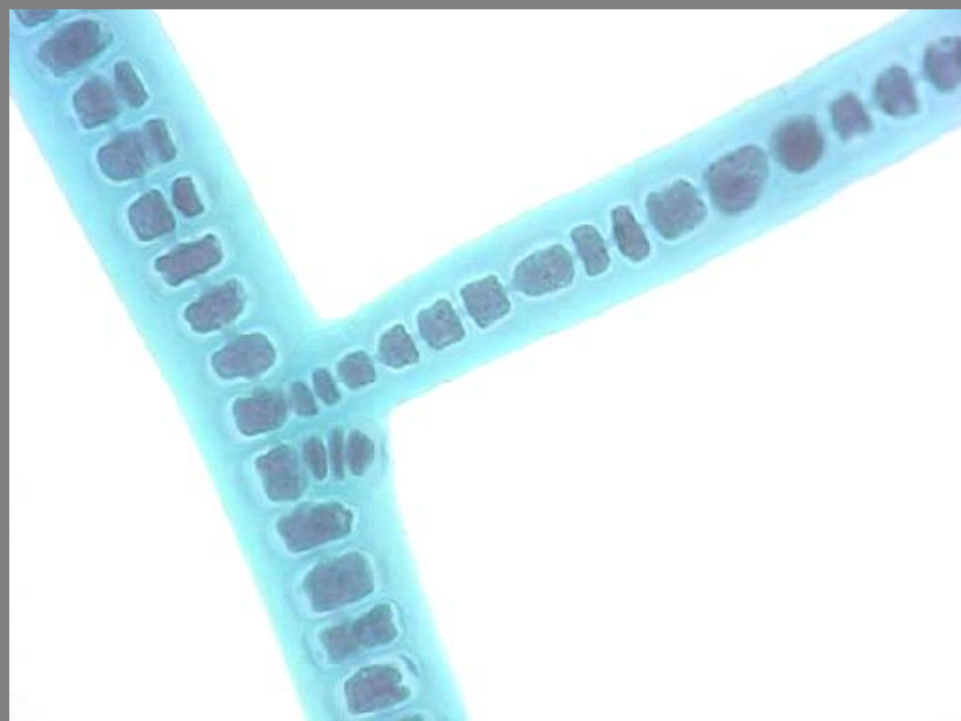
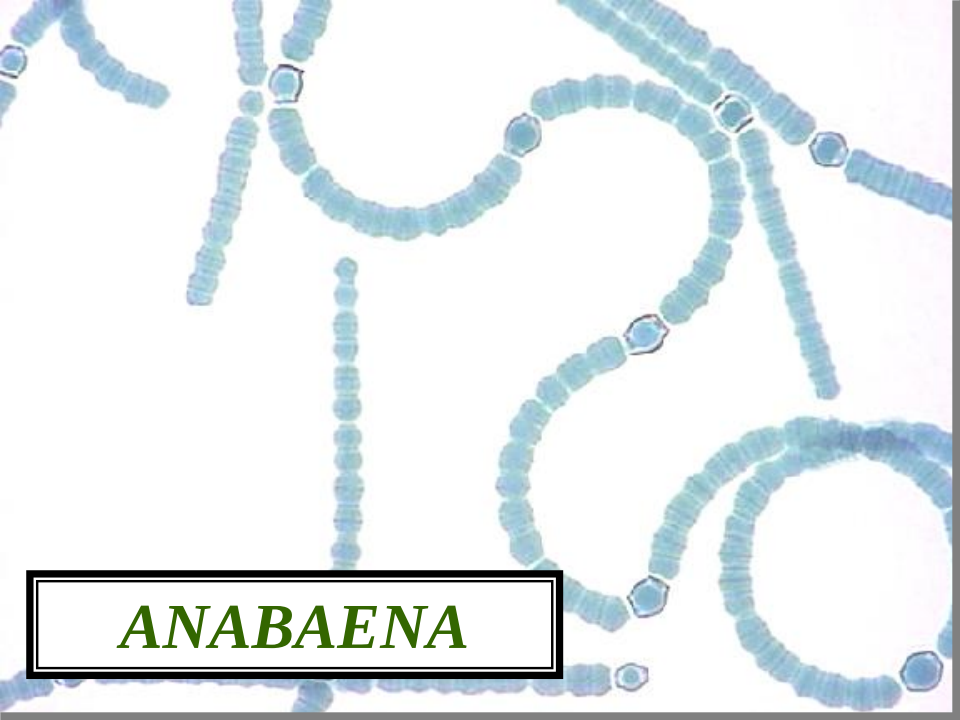
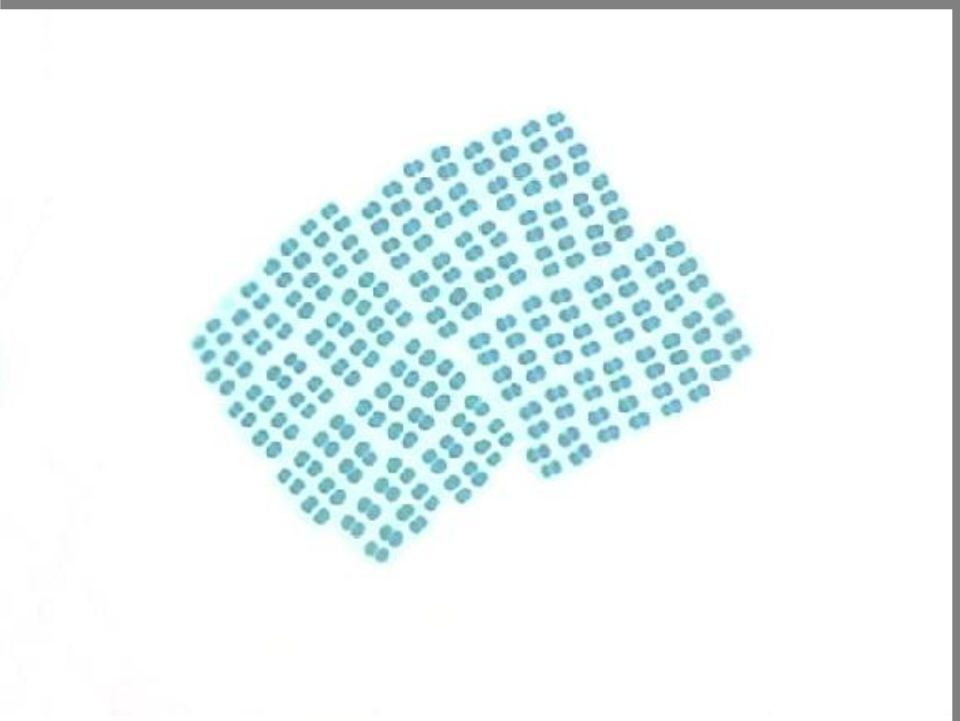


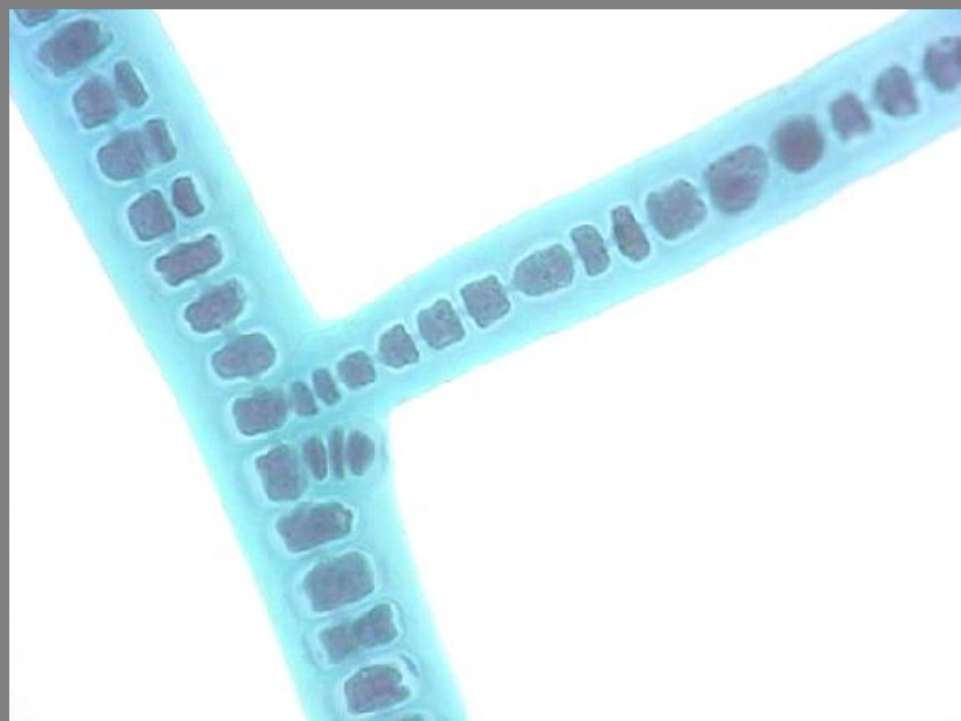


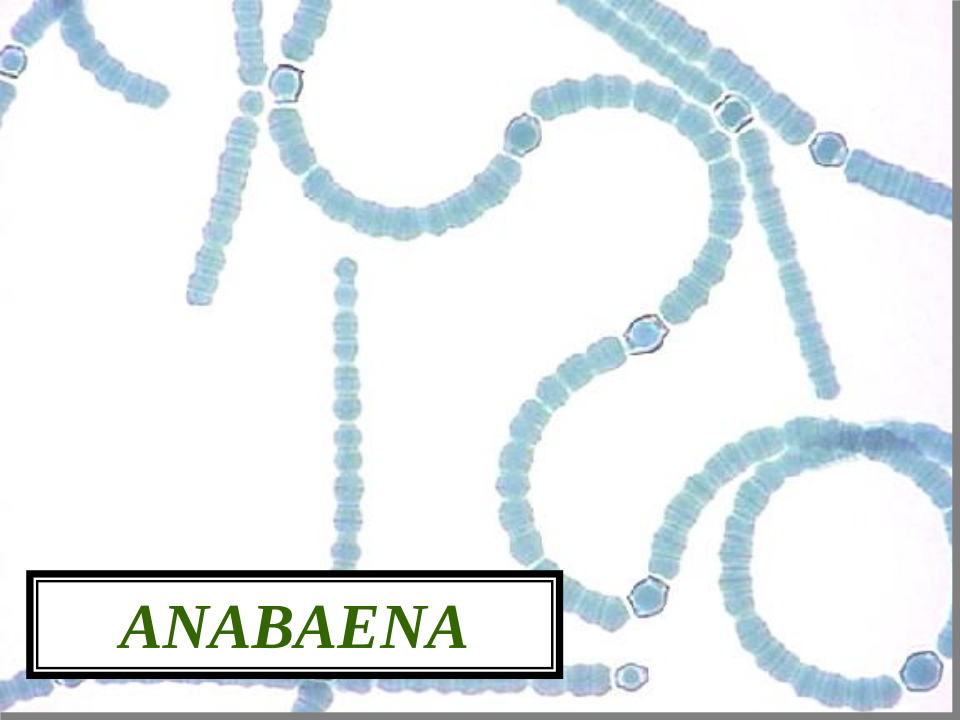


ANABAENA

GLOEOTRICHIA







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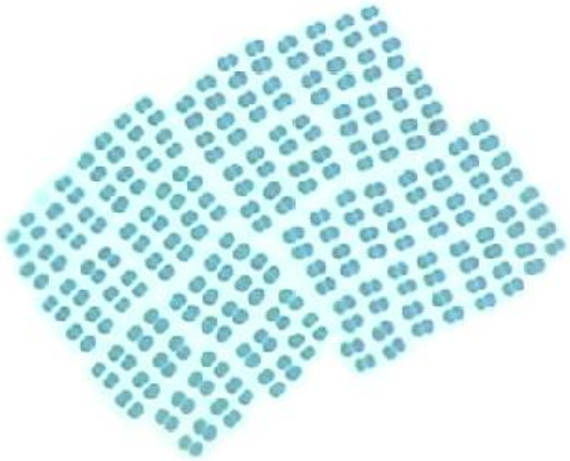

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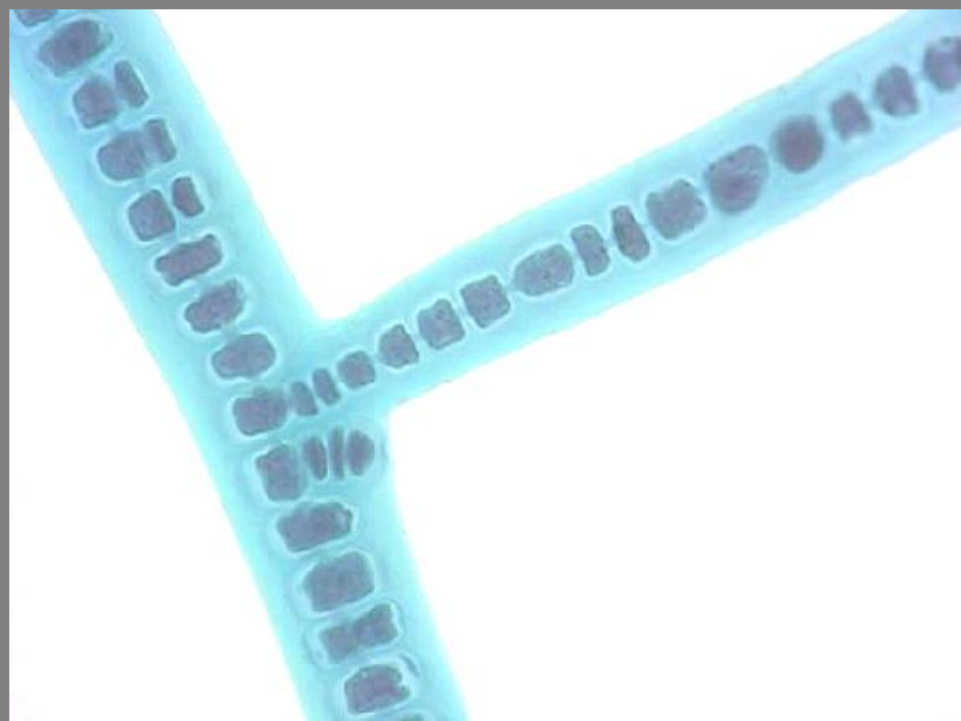

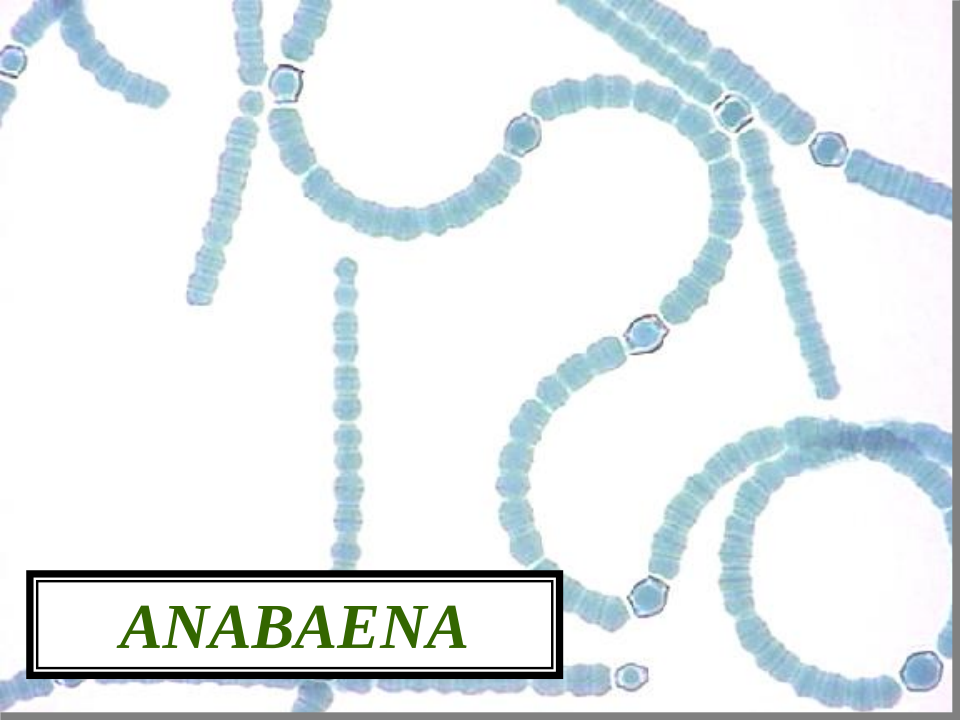

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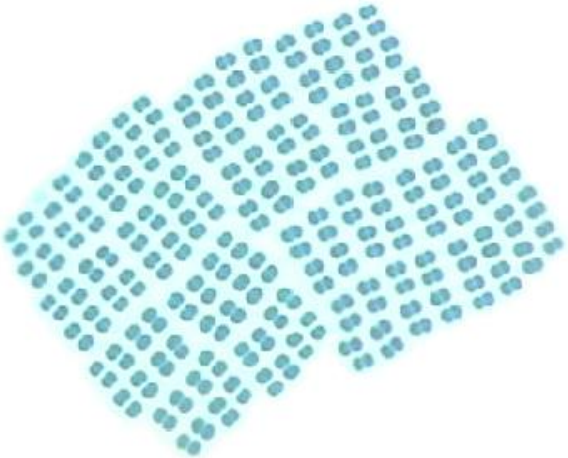
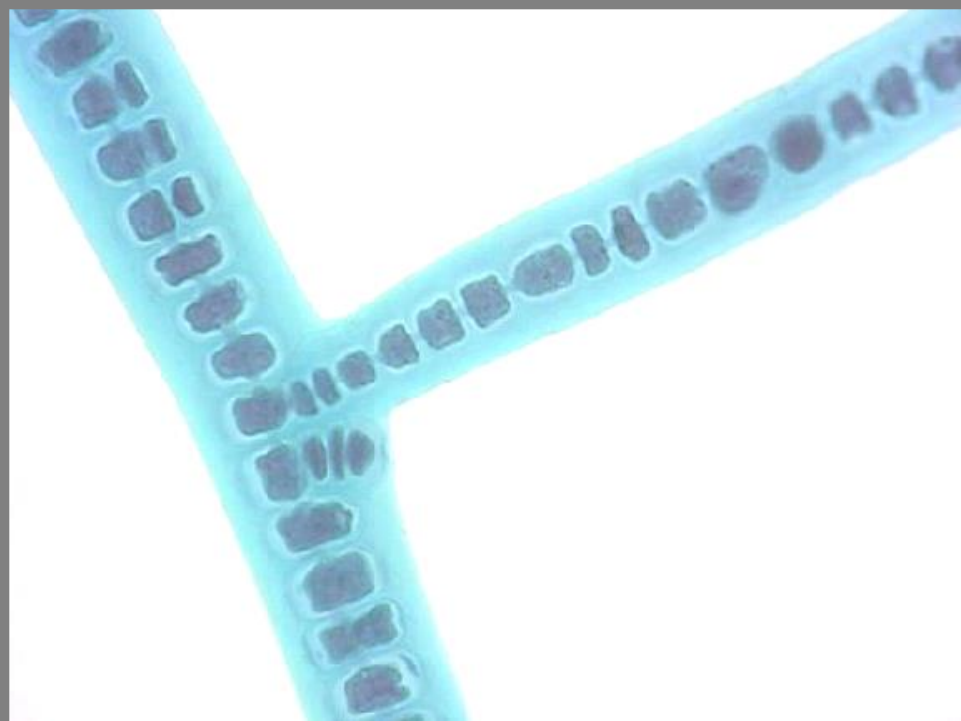
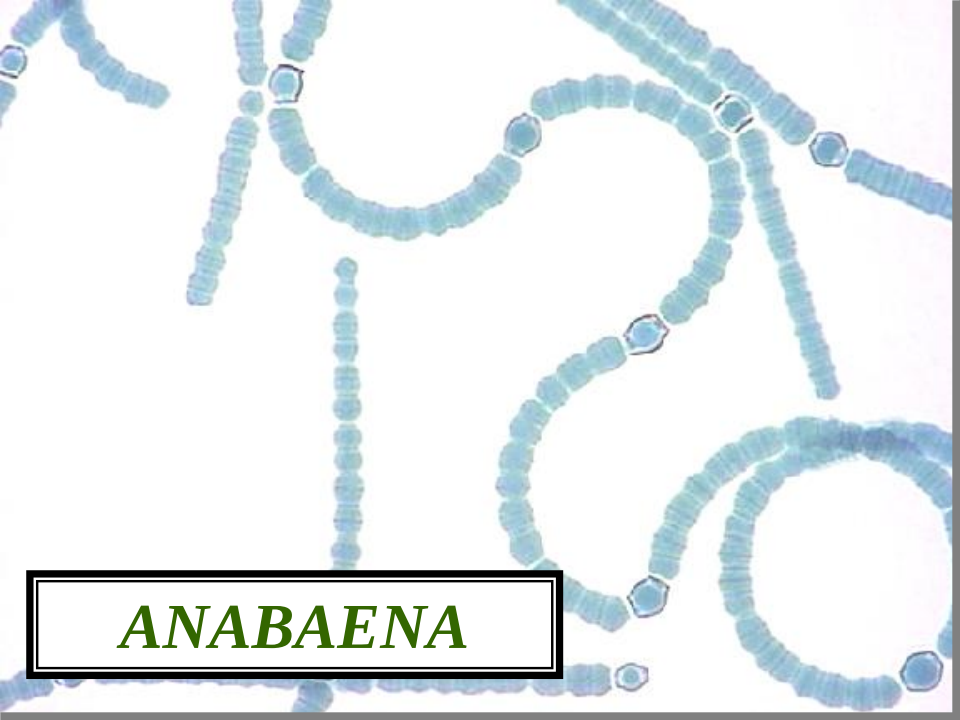


MERISMOPEDIA





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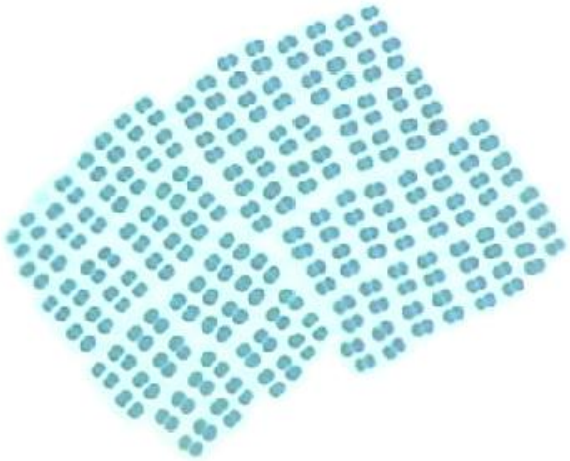

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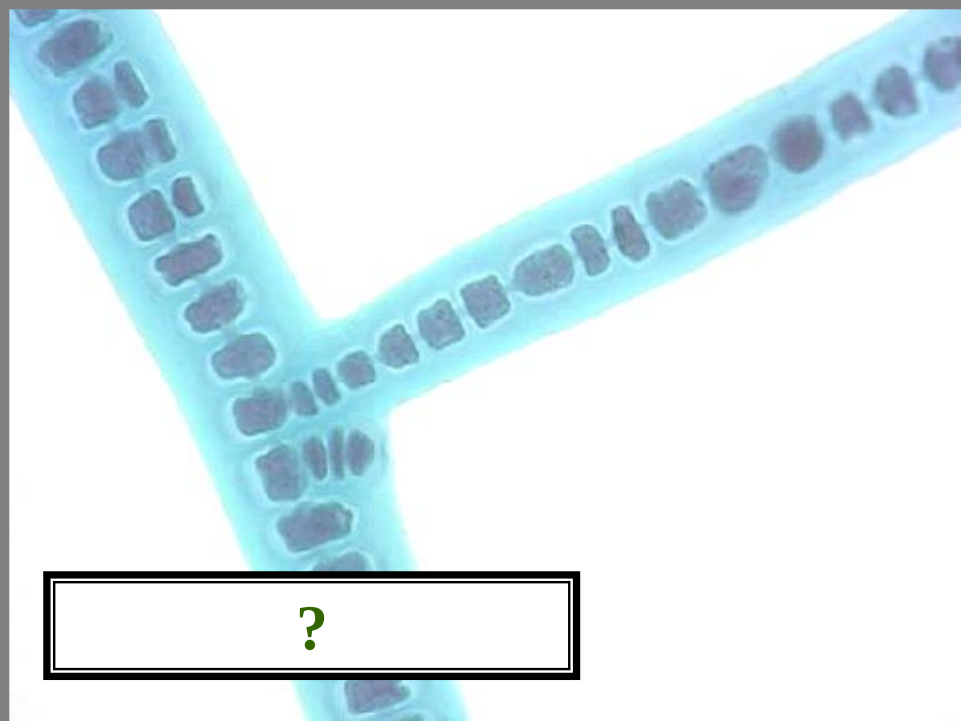

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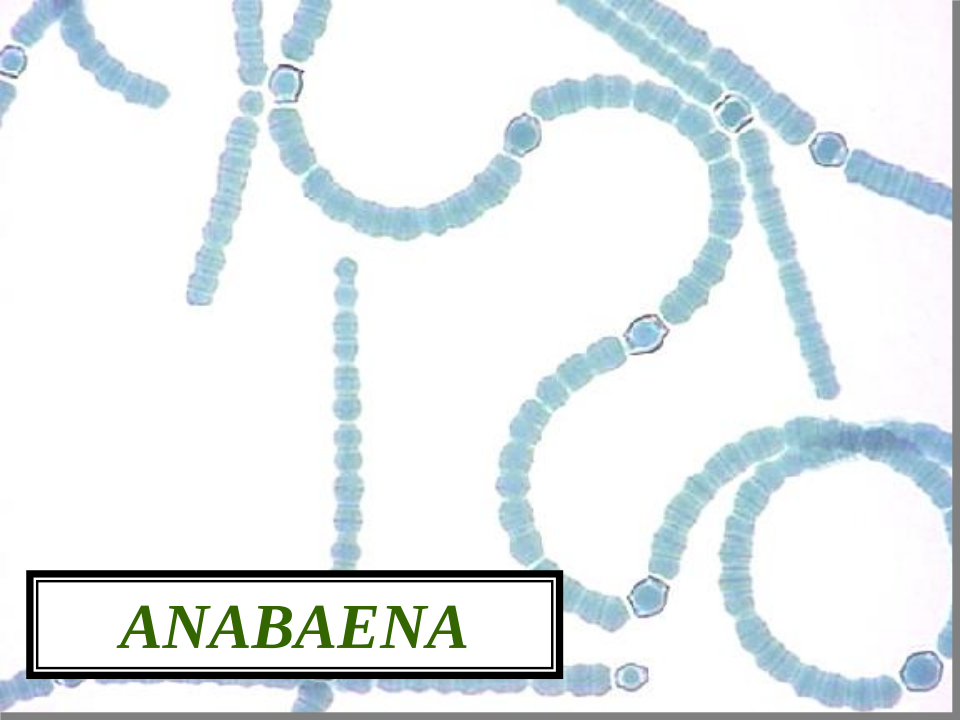

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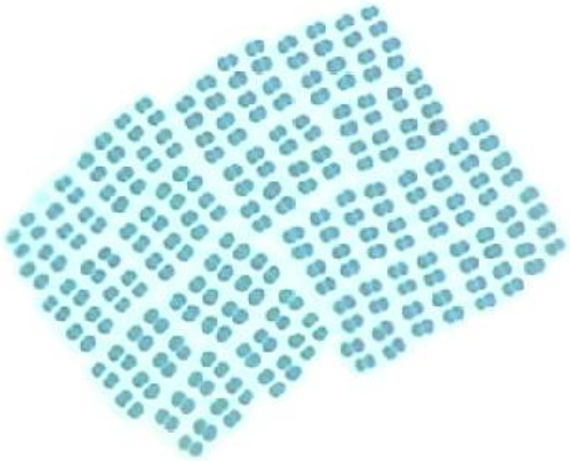

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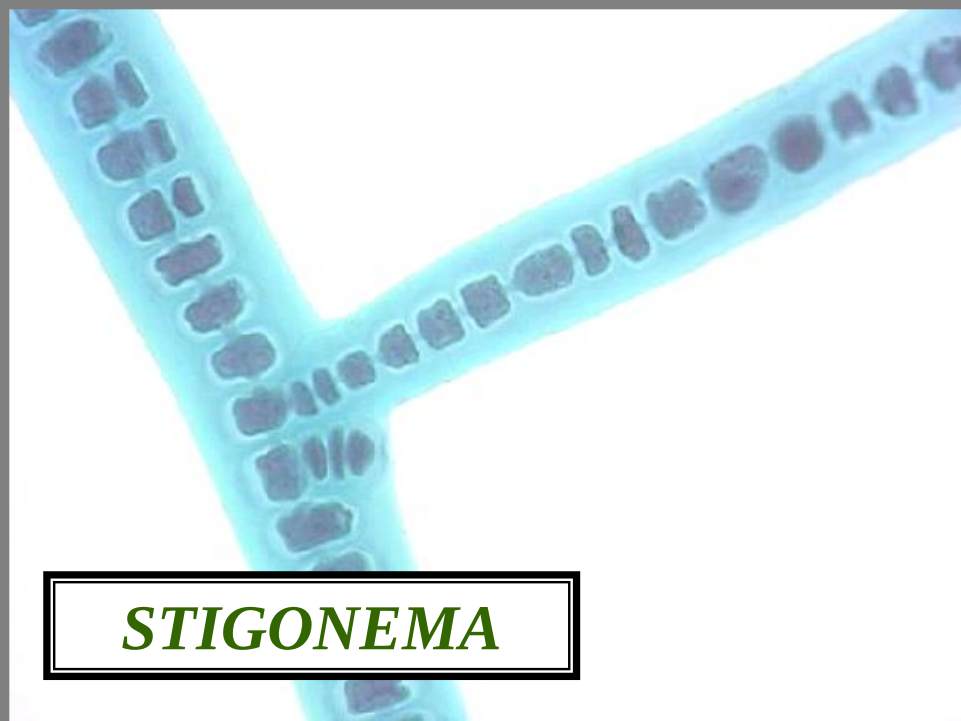
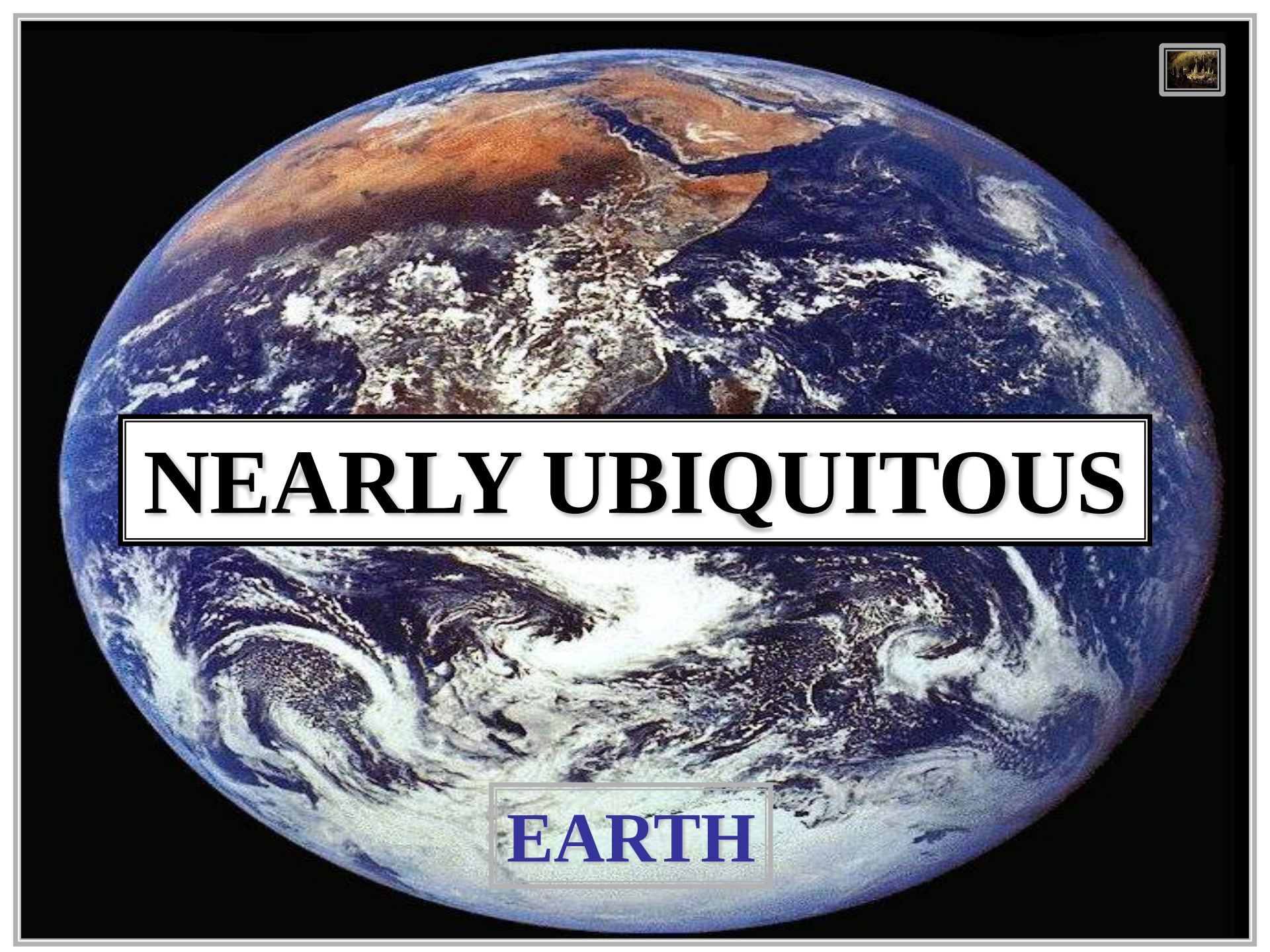


STIGONEMA

DISTRIBUTION

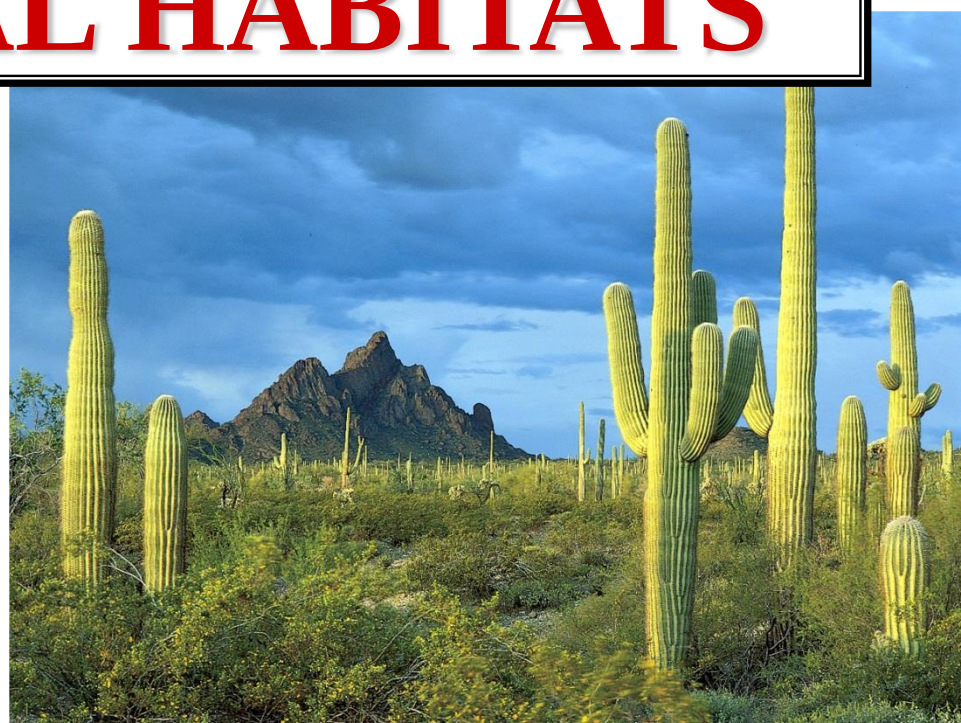

COSMOPOLITAN
EARTH

HABITAT


NEARLY UBIQUITOUS
EARTH

A

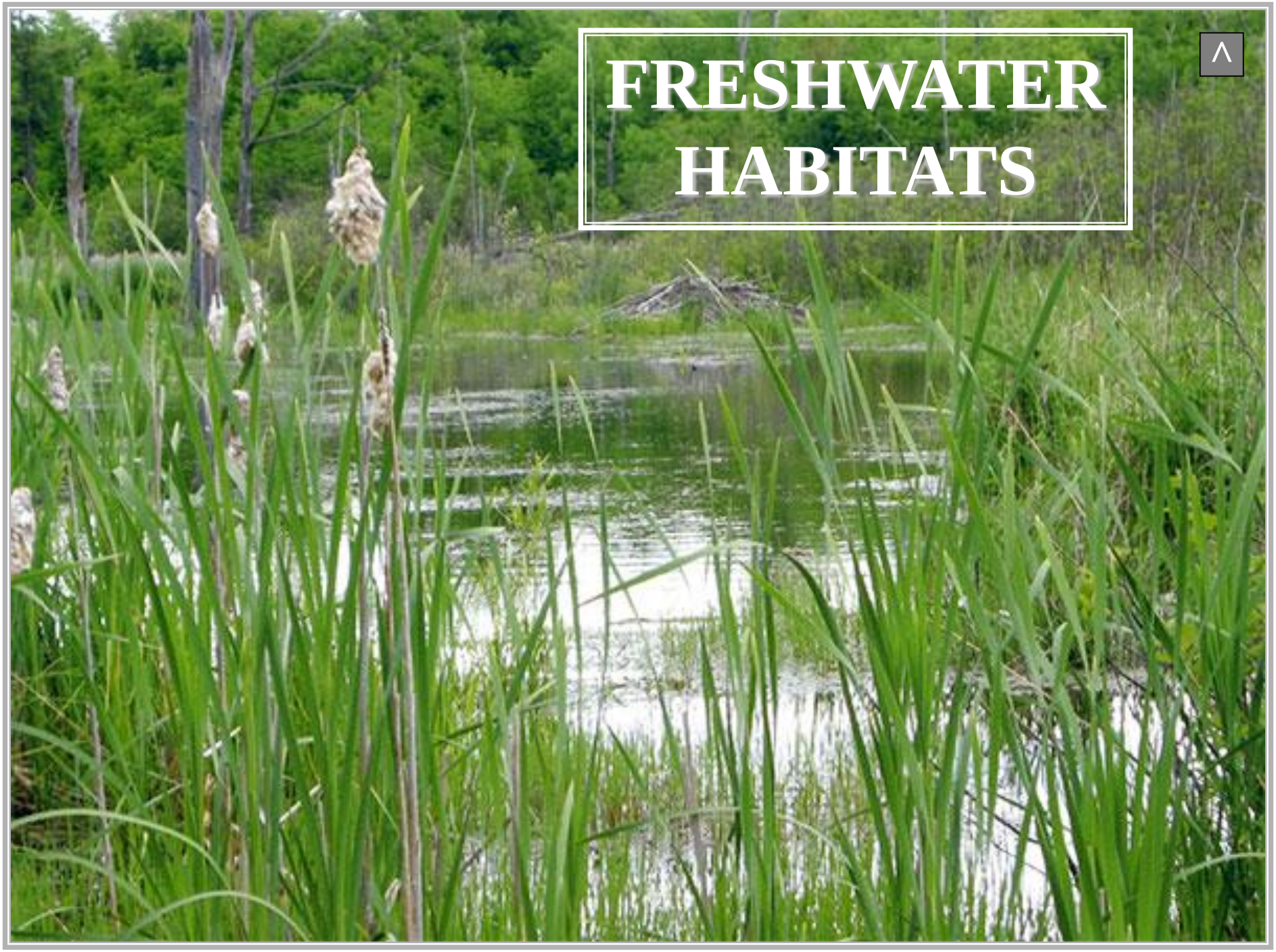
TERRESTRAL HABITATS



MARINE HABITATS

AQUATIC HABITATS

FRESHWATER HABITATS


FRESHWATER
HABITATS

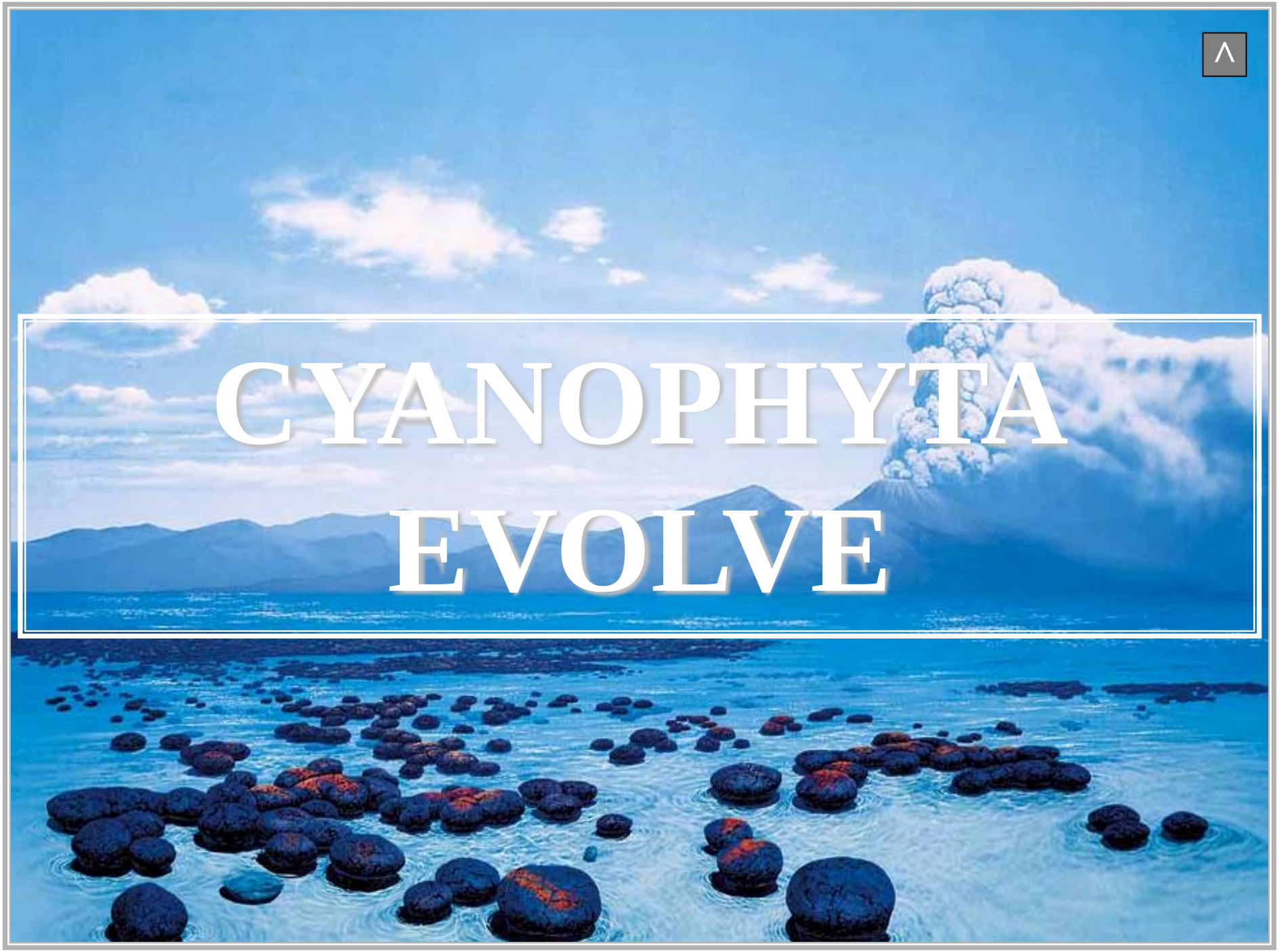
FOSSIL RECORD

P

2.7

BILLION YEARS


E
PRECAMBRIAN


CYANOPHYTA
EVOLVE

GENERAL CHARACTERS

GROWTH FORMS

CYANOBACTERIA GROWTH FORMS

UNICELLULAR

CYANOBACTERIA GROWTH FORMS

CYANOBACTERIA GROWTH FORMS

UNICELLULAR
COLONIAL

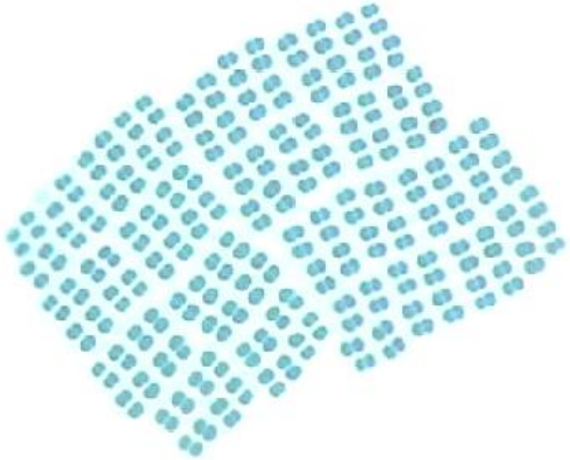
CYANOBACTERIA GROWTH FORMS

CYANOBACTERIA GROWTH FORMS

UNICELLULAR
COLONIAL
FILAMENTOUS

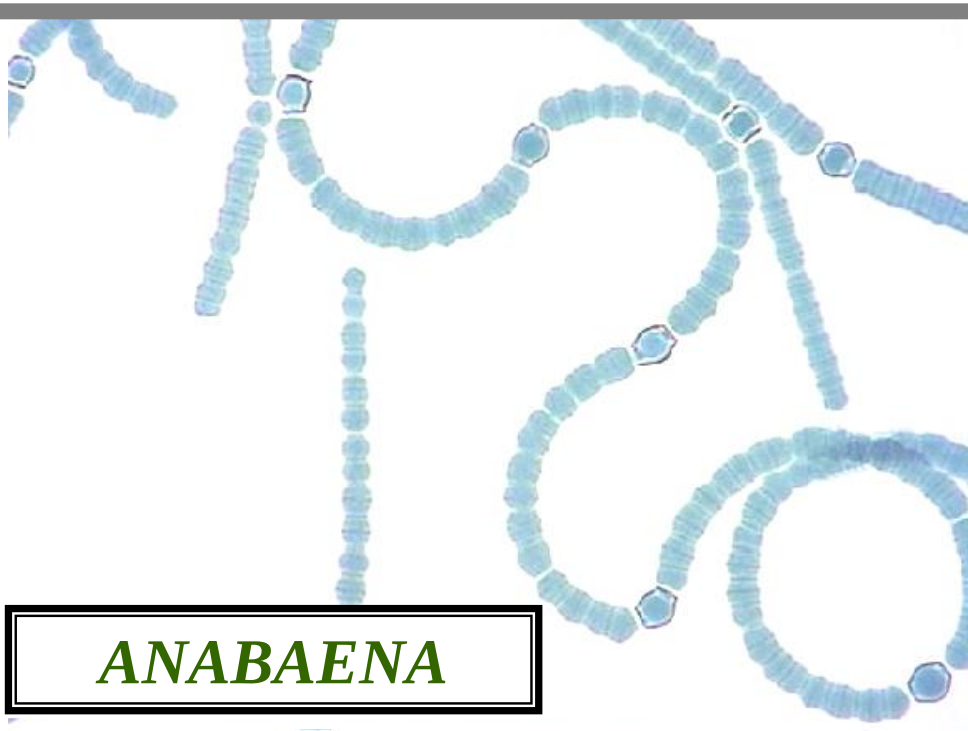
CYANOBACTERIA GROWTH FORMS

COLONY



MERISMOPEDIA

FILAMENTOUS



ANABAENA

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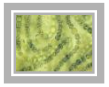
FILAMENTOUS GROWTH FORM

FILAMENT



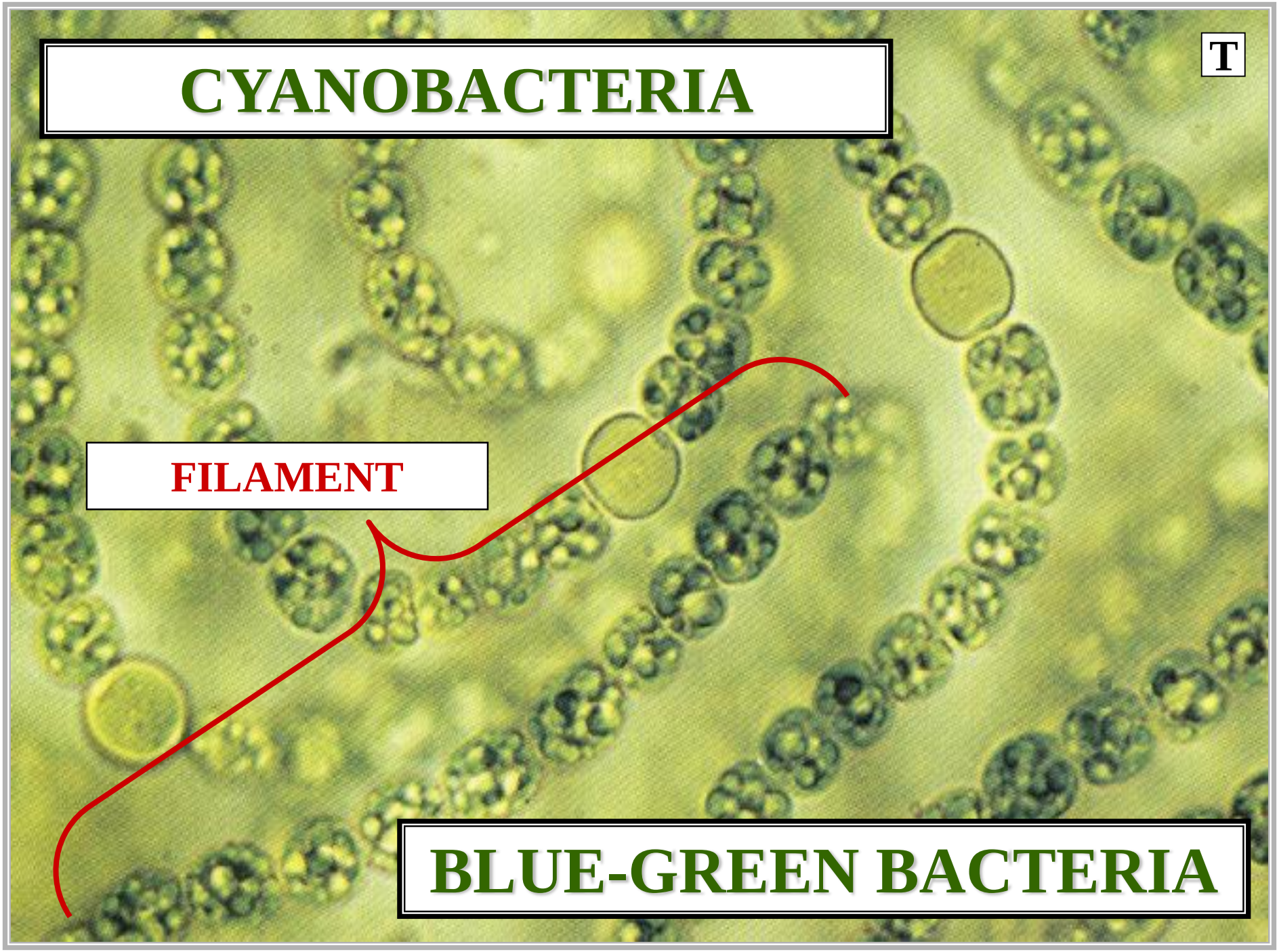
FILAMENT

LINEAR CELL SERIES

FILAMENT

CYANOBACTERIA

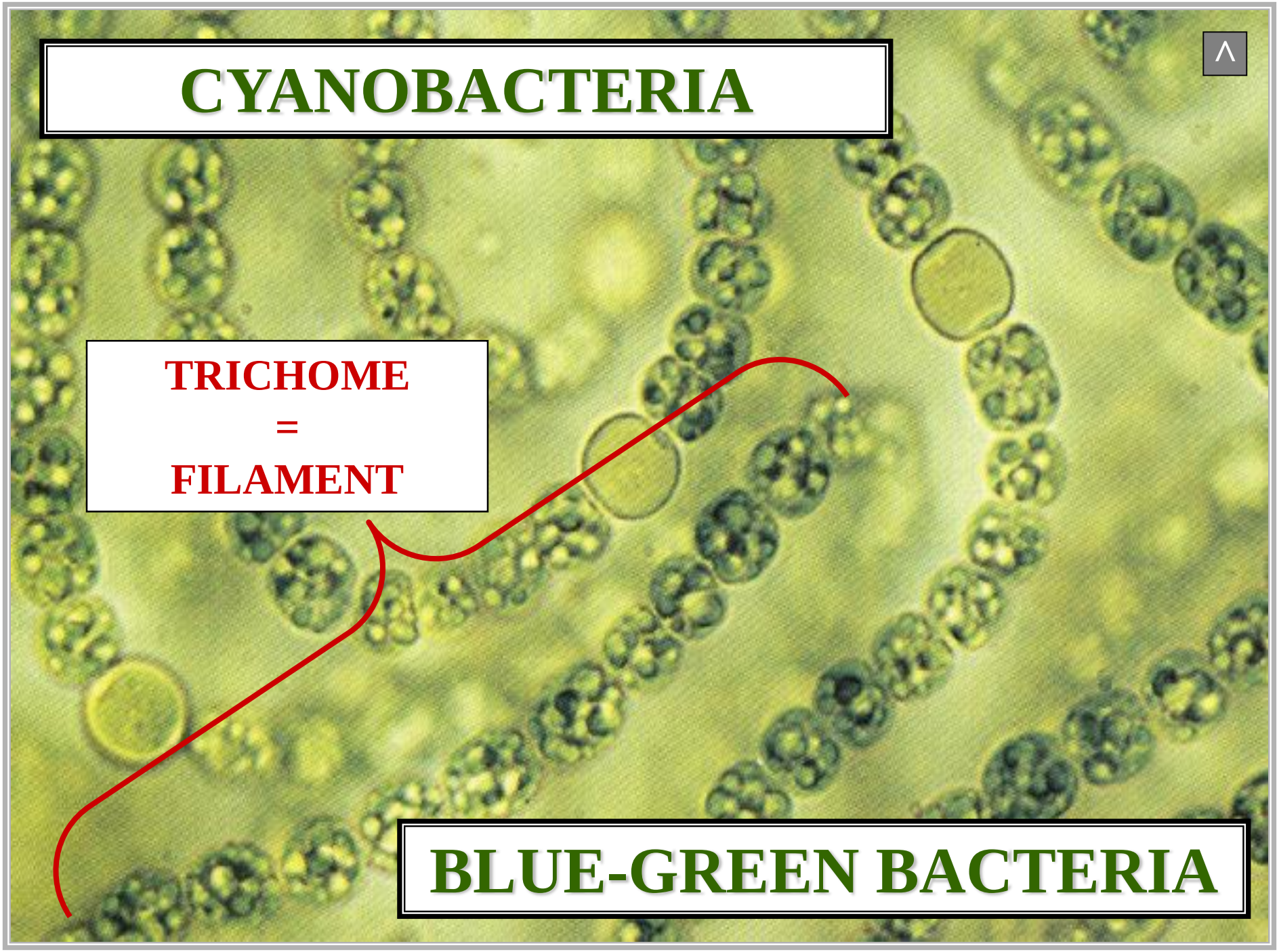
T



BLUE-GREEN BACTERIA

TRICHOME

CYANOBACTERIA



BLUE-GREEN BACTERIA

TRICHOME VEGETATIVE CELLS VS MODIFIED CELLS

TRICHOME

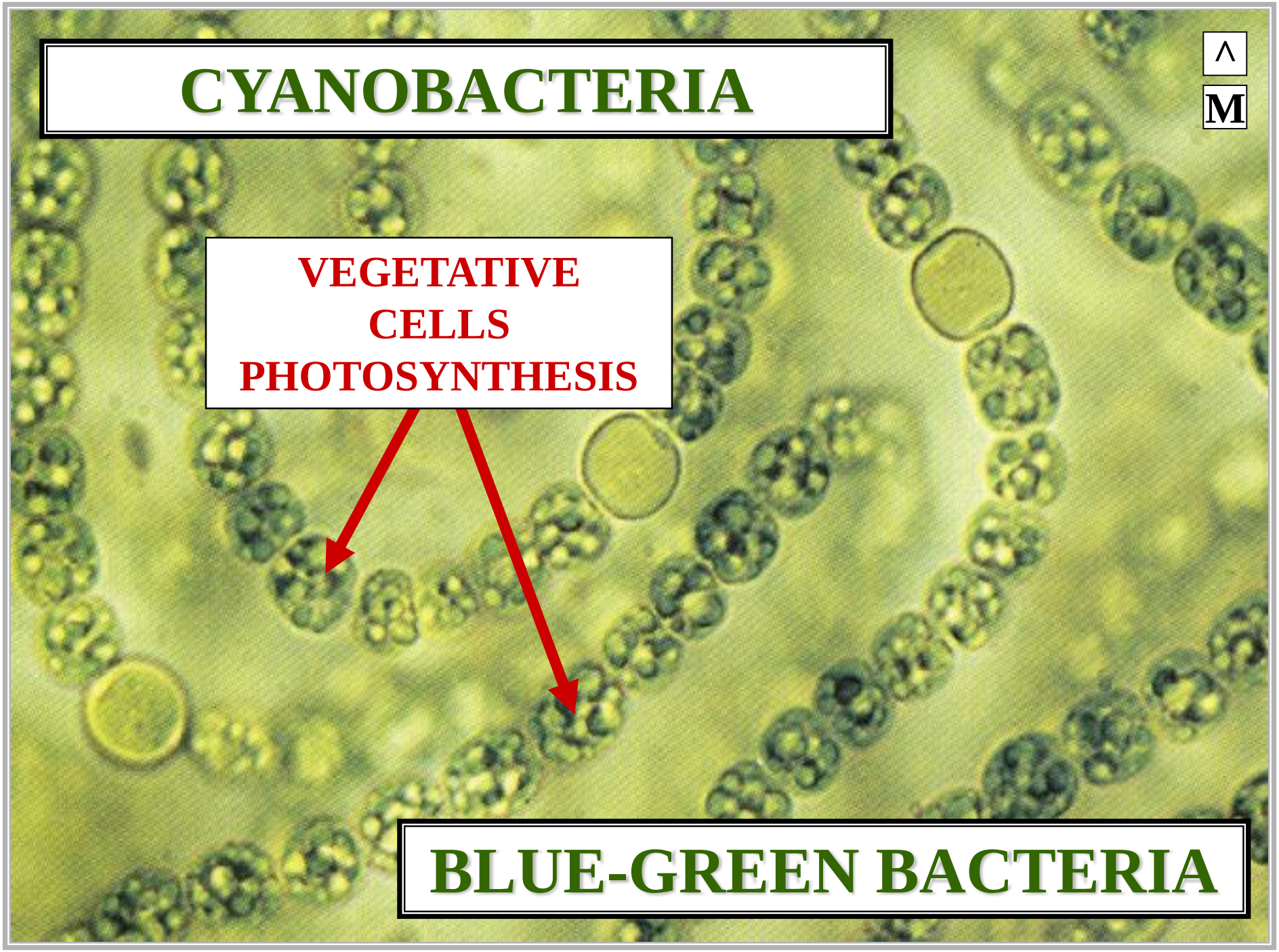
VEGETATIVE CELLS

TRICHOME VEGETATIVE CELLS

PHOTOSYNTHESIS ROLE

TRICHOME VEGETATIVE CELLS

CYANOBACTERIA



BLUE-GREEN BACTERIA

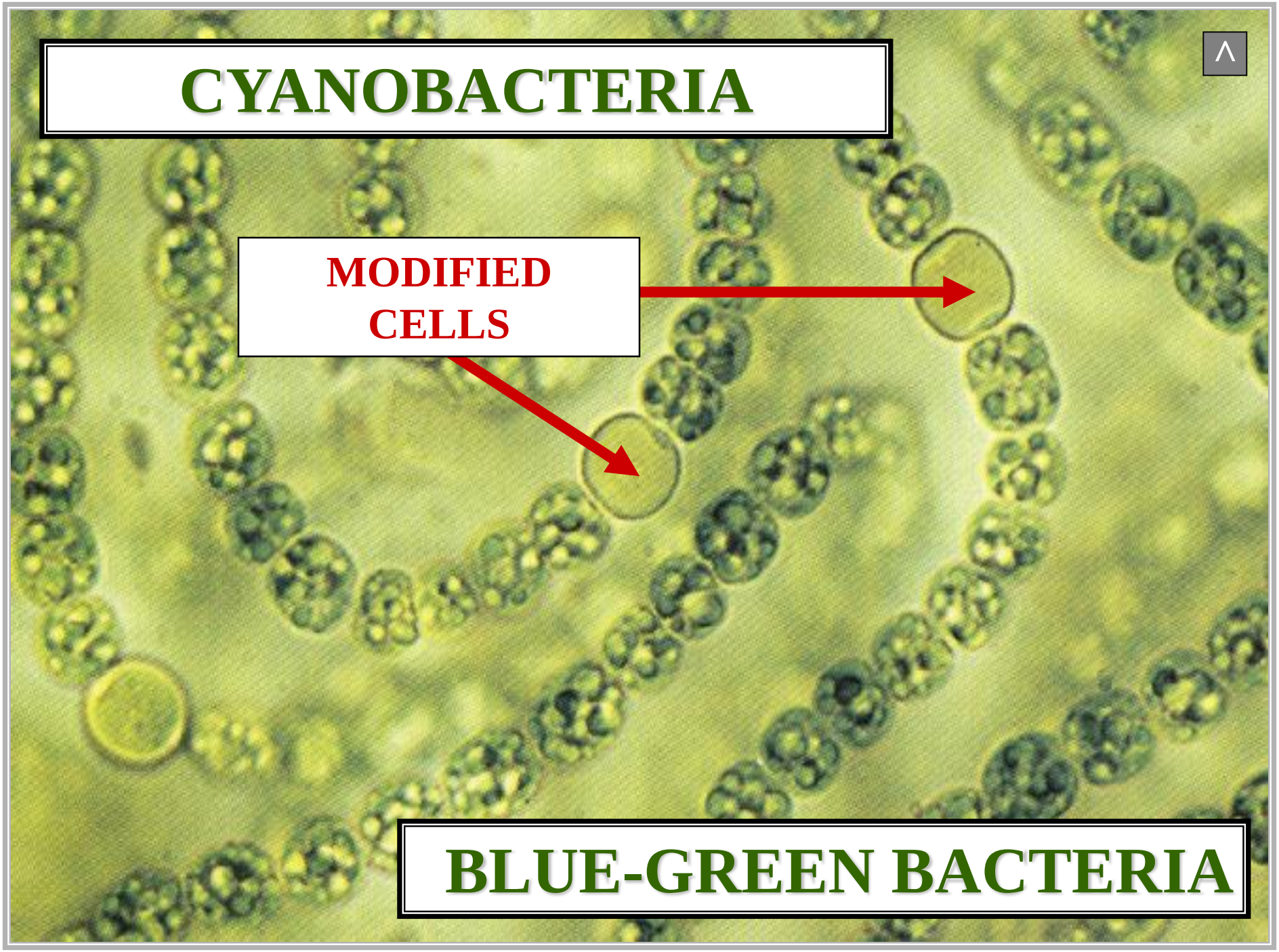
TRICHOME

MODIFIED CELLS

TRICHOME MODIFIED CELLS

MODIFIED ROLE

TRICHOME MODIFIED CELLS


CYANOBACTERIA
MODIFIED CELLS
BLUE-GREEN BACTERIA

H

TRICHOME MODIFIED CELL TYPES

HETEROCYST

TRICHOME
MODIFIED CELLS
HETEROCYST

CLEAR LIVING CELL

TRICHOME
MODIFIED CELLS
HETEROCYST

TRICHOME
MODIFIED CELLS
HETEROCYST

CLEAR LIVING CELL

POLAR NODULES

TRICHOME
MODIFIED CELLS
HETEROCYST

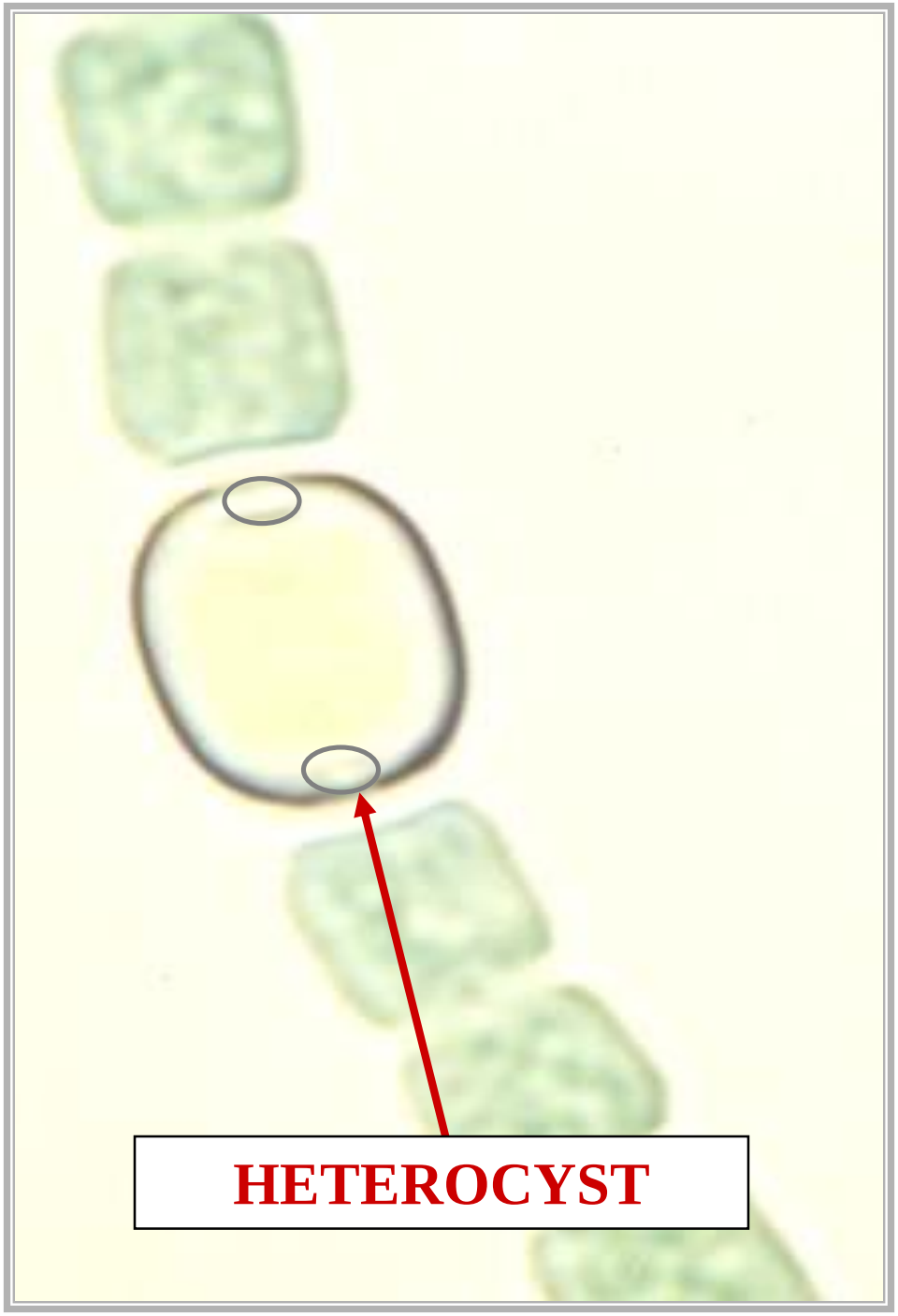
TRICHOME
MODIFIED CELLS
HETEROCYST

CLEAR LIVING CELL

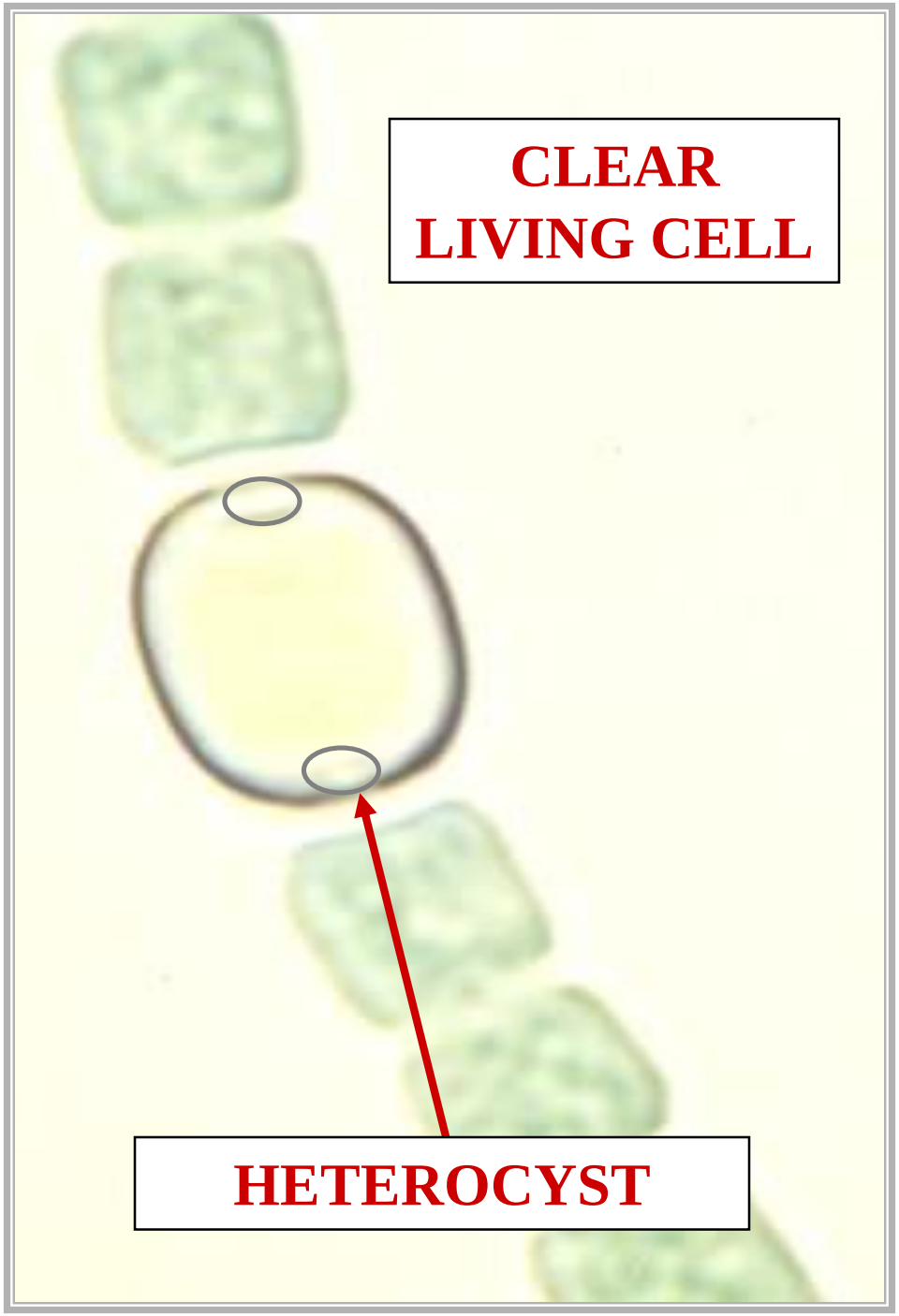
POLAR NODULES

MODIFIED: N2 FIXATION

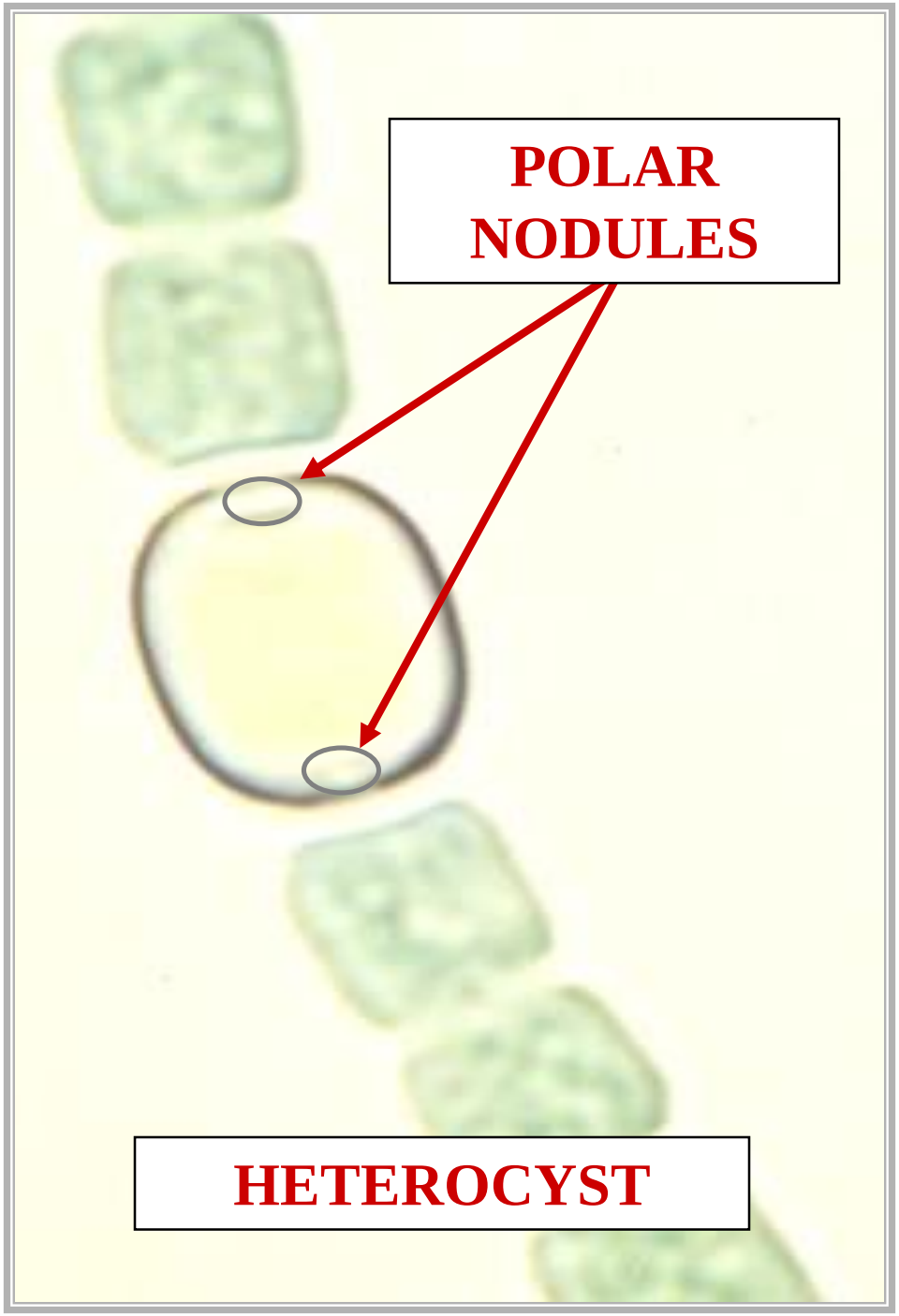
TRICHOME
MODIFIED CELLS
HETEROCYST


HETEROCYST

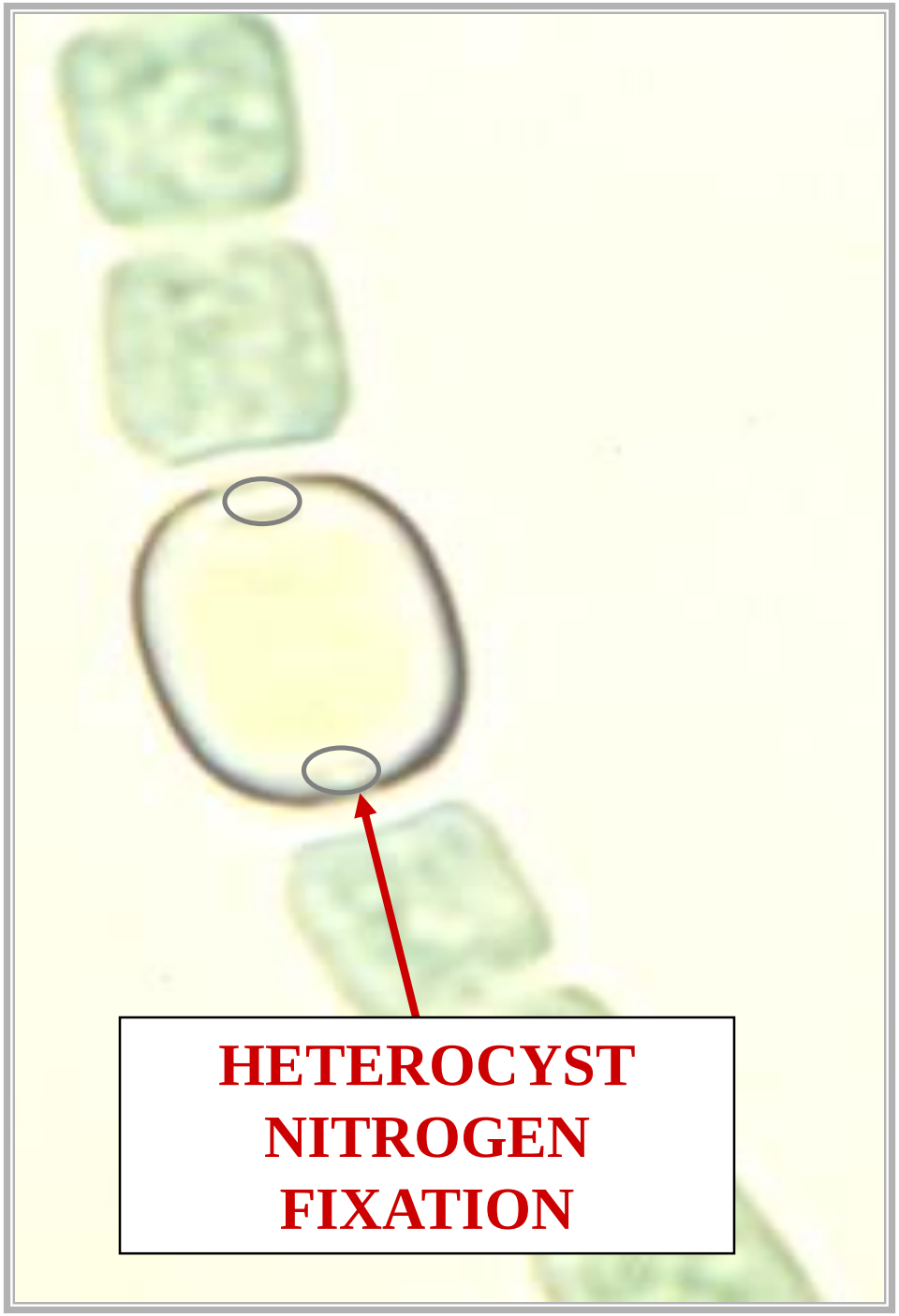

C


CLEAR
LIVING CELL
HETEROCYST


P


POLAR
NODULES
HETEROCYST


N


HETEROCYST
NITROGEN
FIXATION


A

AKINETE

TRICHOME
MODIFIED CELLS
AKINETE

DARK LIVING
THICK-WALLED CELL

TRICHOME
MODIFIED CELLS
AKINETE

TRICHOME
MODIFIED CELLS
AKINETE

DARK LIVING
THICK-WALLED CELL

SURVIVES DRY CONDITIONS

TRICHOME
MODIFIED CELLS
AKINETE

TRICHOME
MODIFIED CELLS
AKINETE

DARK LIVING
THICK-WALLED CELL

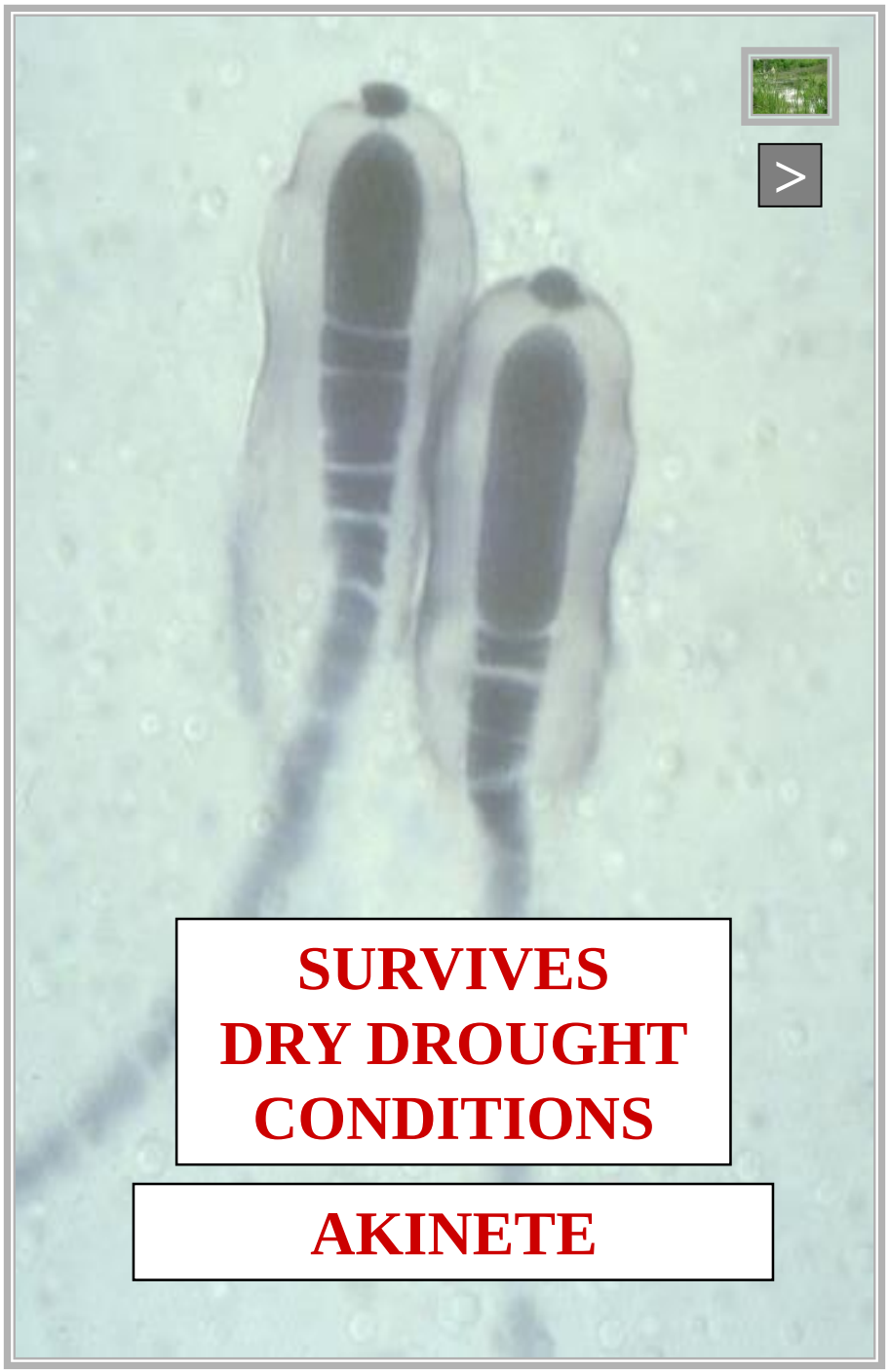
SURVIVES DRY CONDITIONS

MODIFIED: PROPAGATION

TRICHOME
MODIFIED CELLS
AKINETE

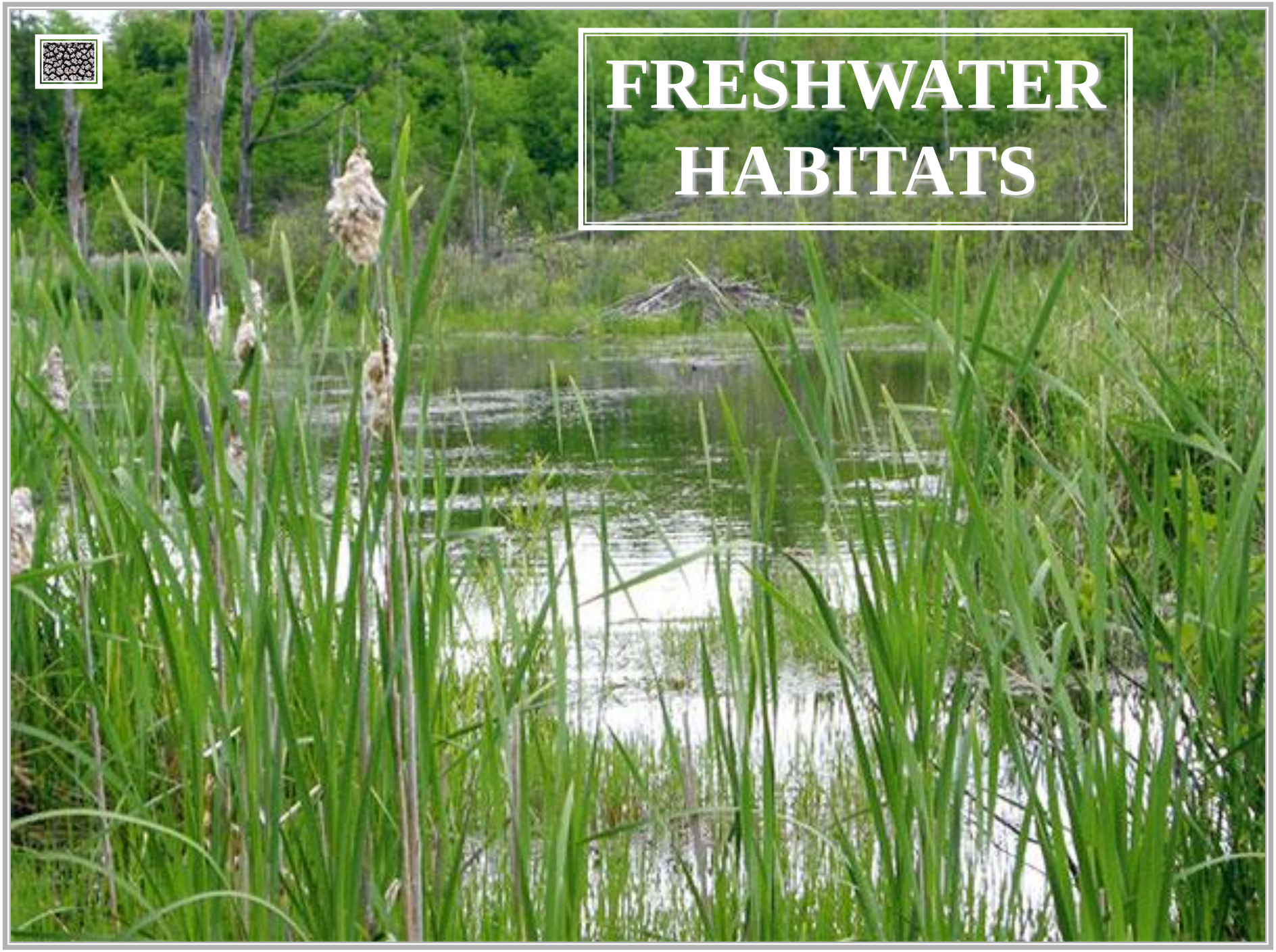

D
AKINETE


S
DARK LIVING THICK-WALLED CELL
AKINETE



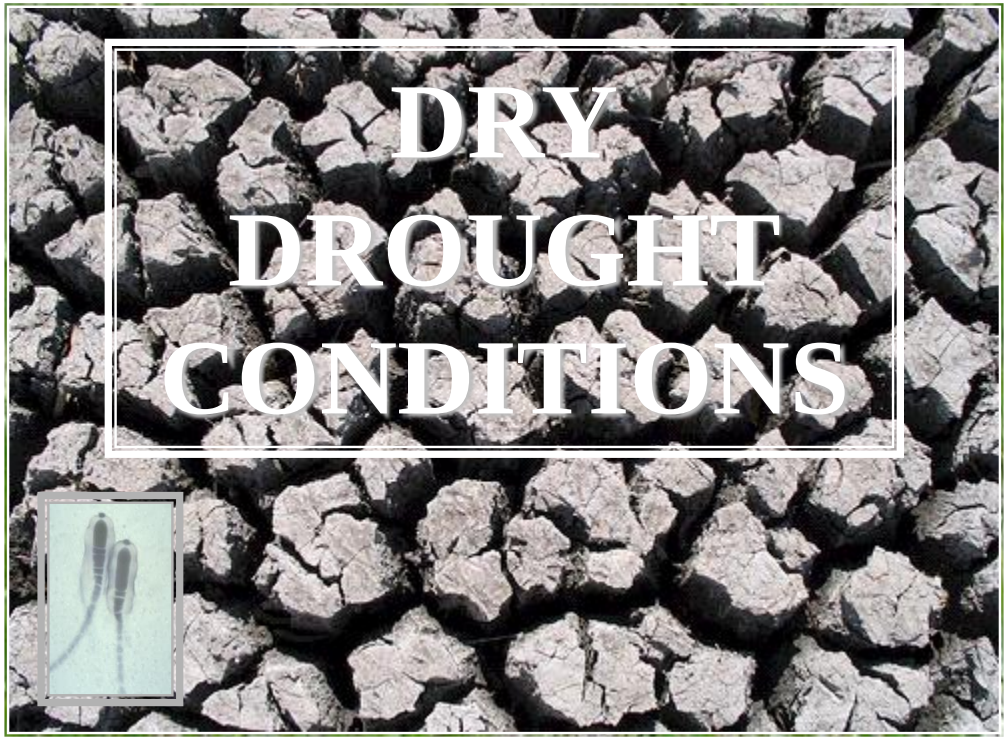
SURVIVES
DRY DROUGHT
CONDITIONS

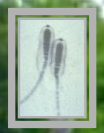
AKINETE


FRESHWATER
HABITATS

FRESHWATER HABITATS

A

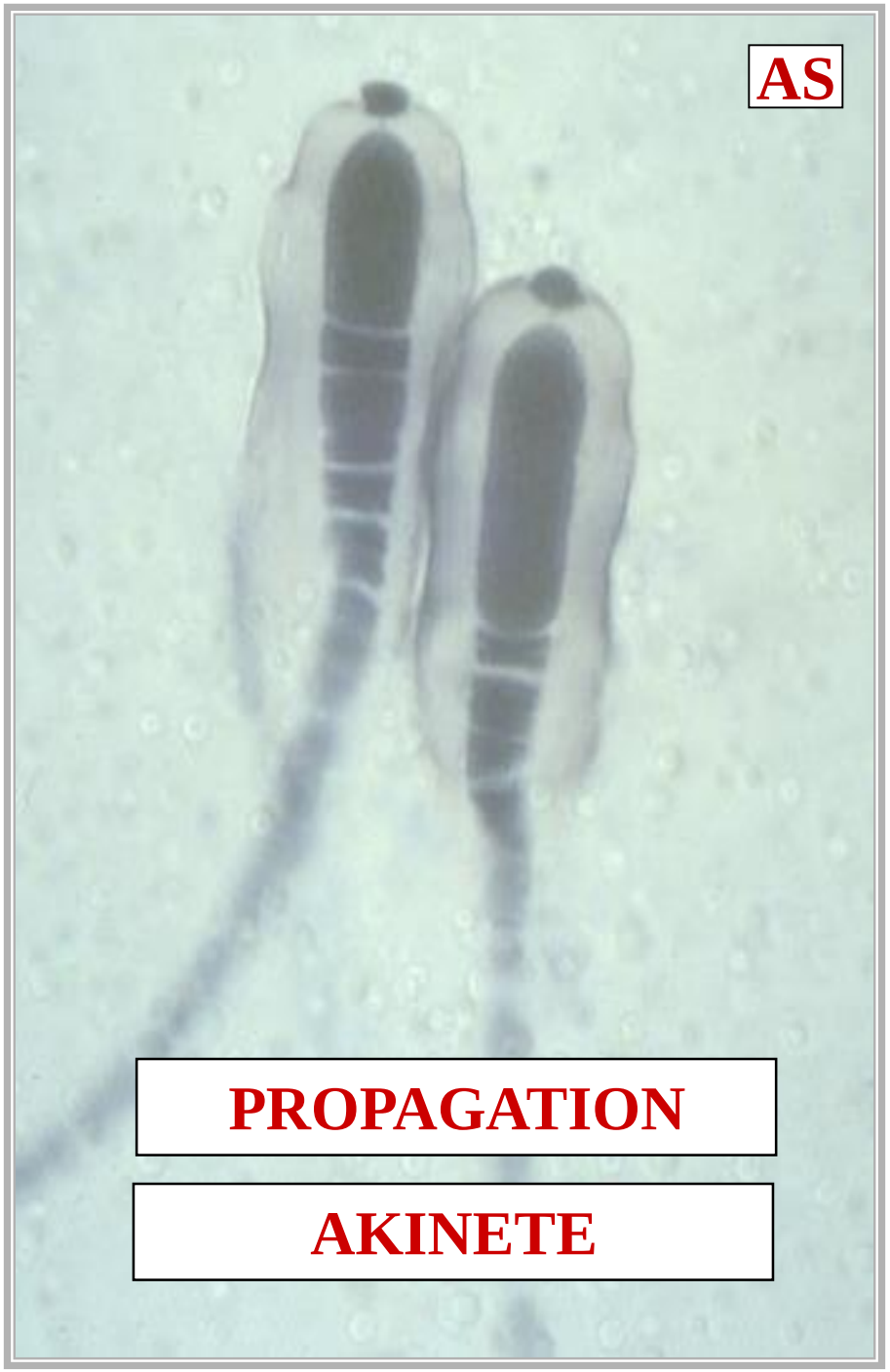


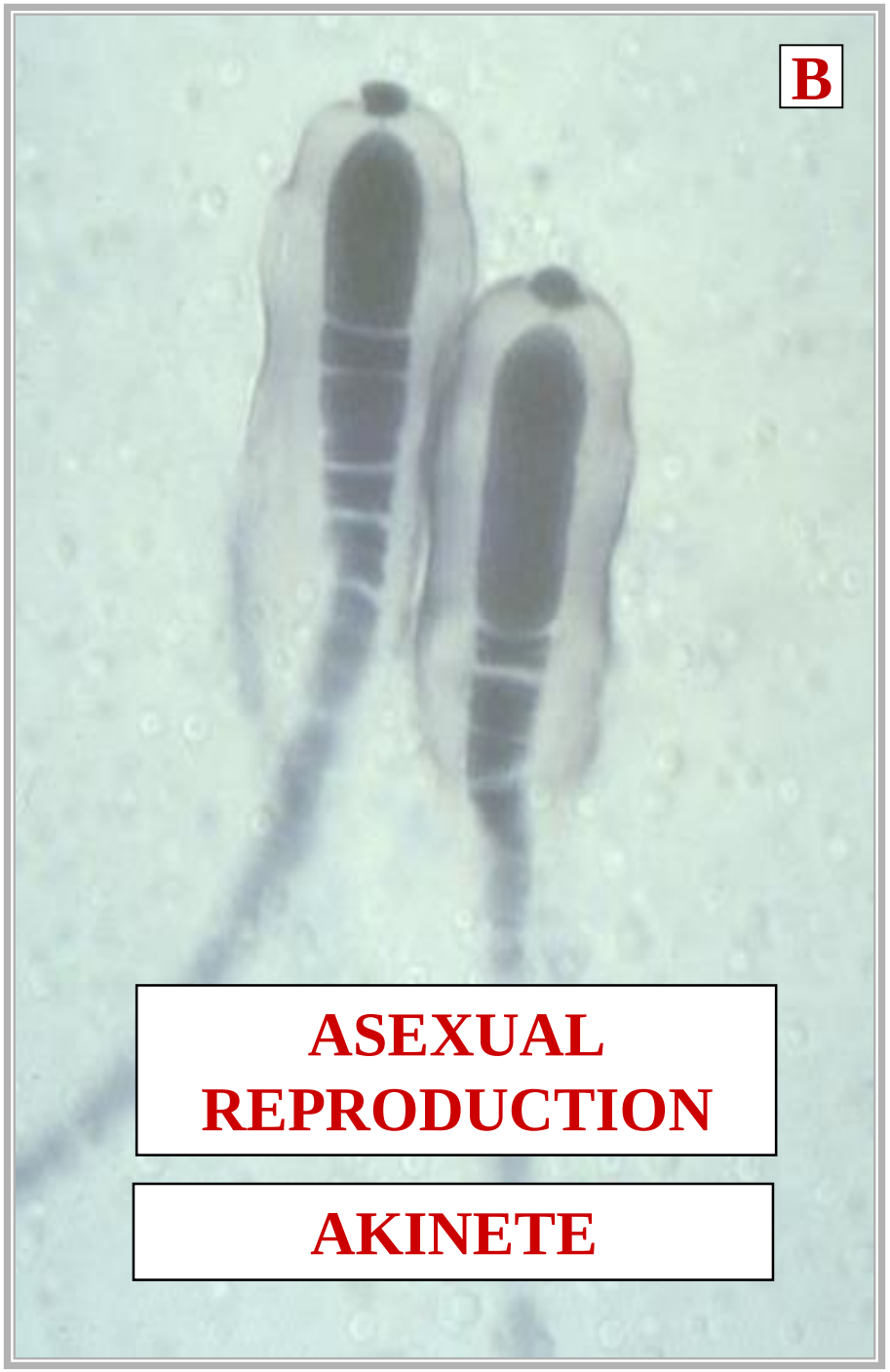


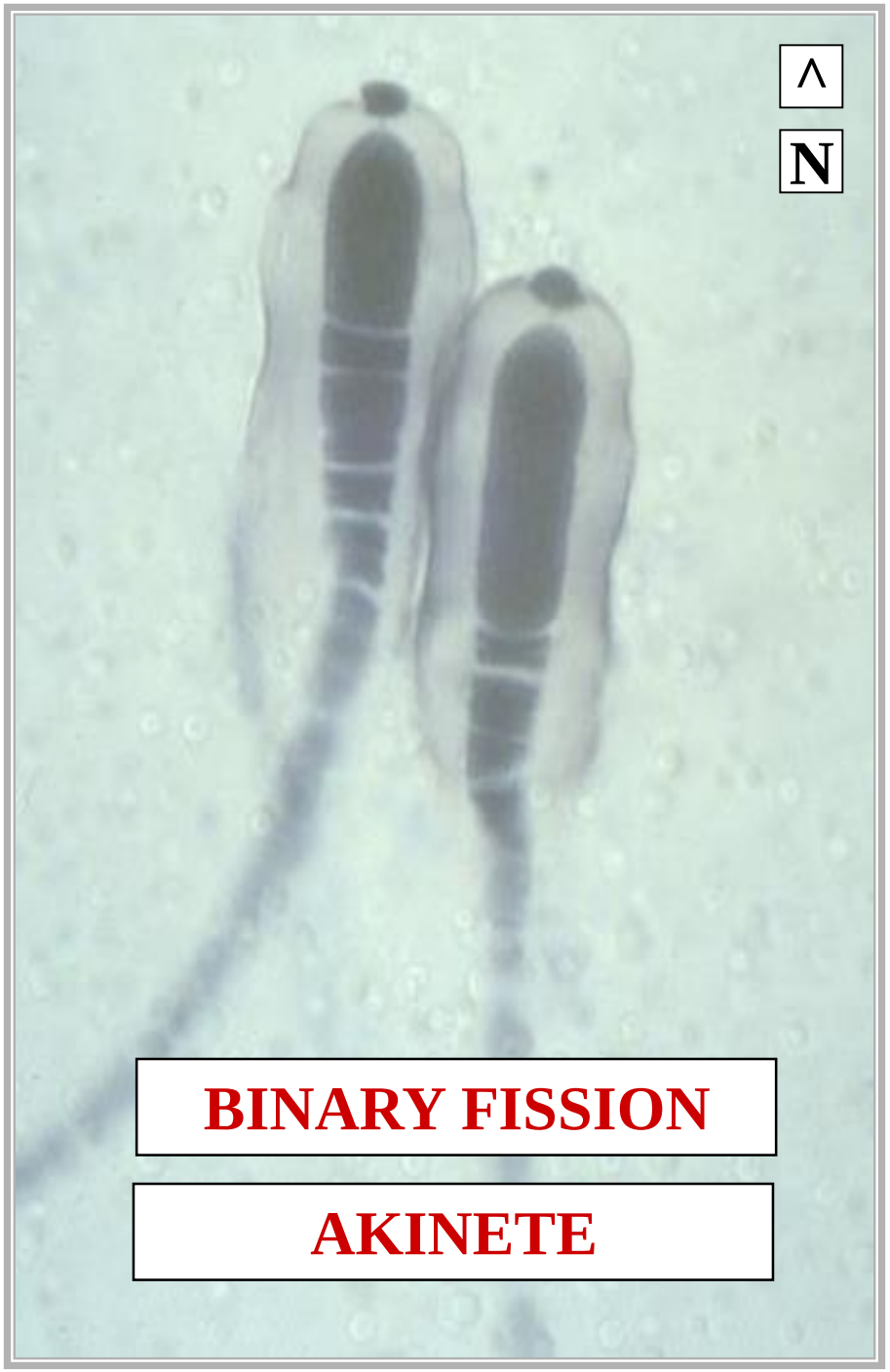
P

FRESHWATER HABITATS

AKINETE SURVIVES DROUGHT


AS
PROPAGATION
AKINETE


B
ASEXUAL REPRODUCTION
AKINETE


^
N
BINARY FISSION
AKINETE

NECRIDIUM

TRICHOME
MODIFIED CELLS
NECRIDIUM

CLEAR DEAD CELL →

TRICHOME
MODIFIED CELLS
NECRIDIUM

TRICHOME
MODIFIED CELLS
NECRIDIUM

CLEAR DEAD CELL →

TRICHOME FRAGMENTS

TRICHOME
MODIFIED CELLS
NECRIDIUM

TRICHOME
MODIFIED CELLS
NECRIDIUM

CLEAR DEAD CELL →

TRICHOME FRAGMENTS

HORMOGONIA

TRICHOME
MODIFIED CELLS
NECRIDIUM

TRICHOME
MODIFIED CELLS
NECRIDIUM

CLEAR DEAD CELL →

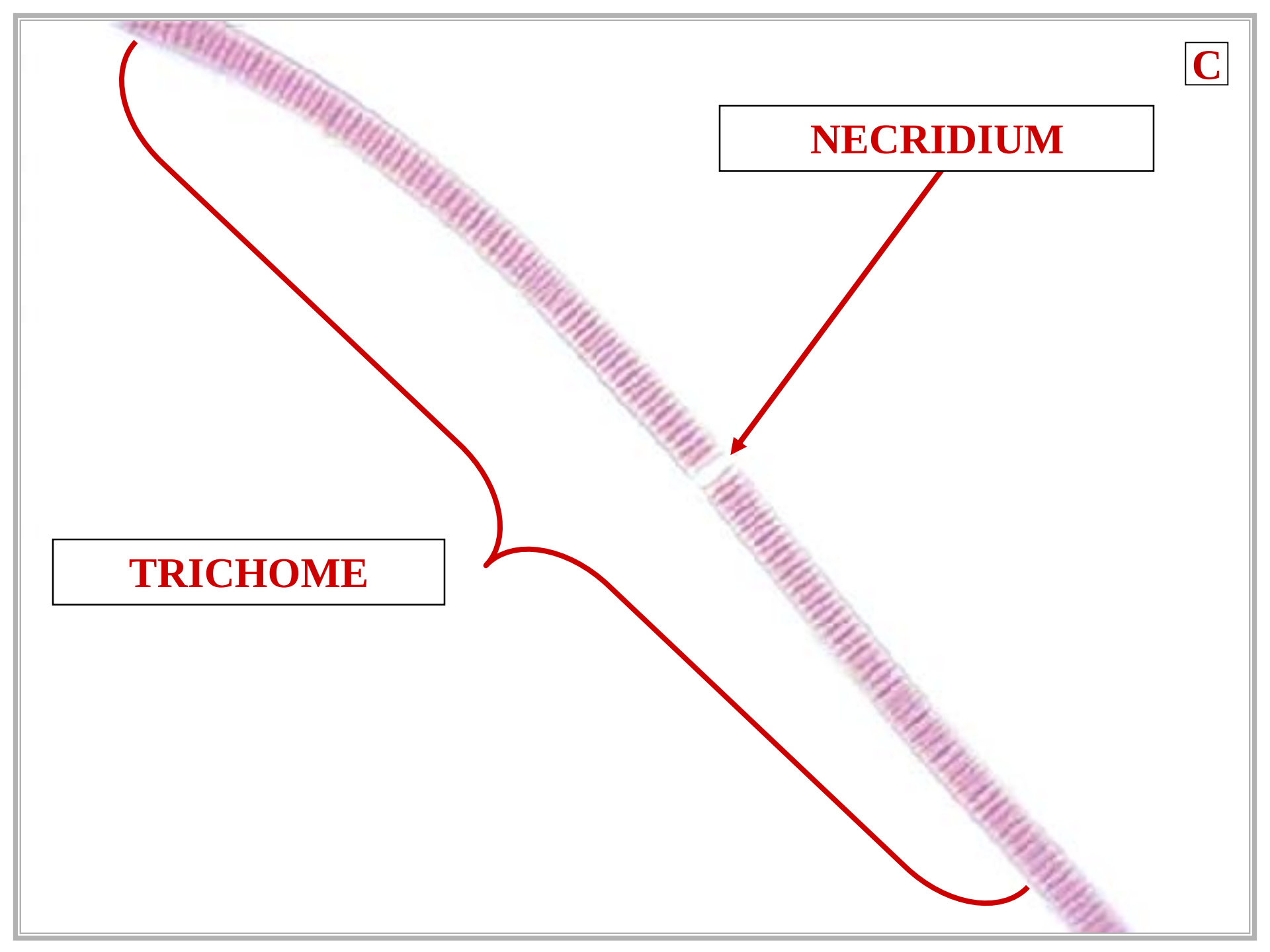
TRICHOME FRAGMENTS

HORMOGONIA

MODIFIED: PROPAGATION

TRICHOME
MODIFIED CELLS
NECRIDIUM

C



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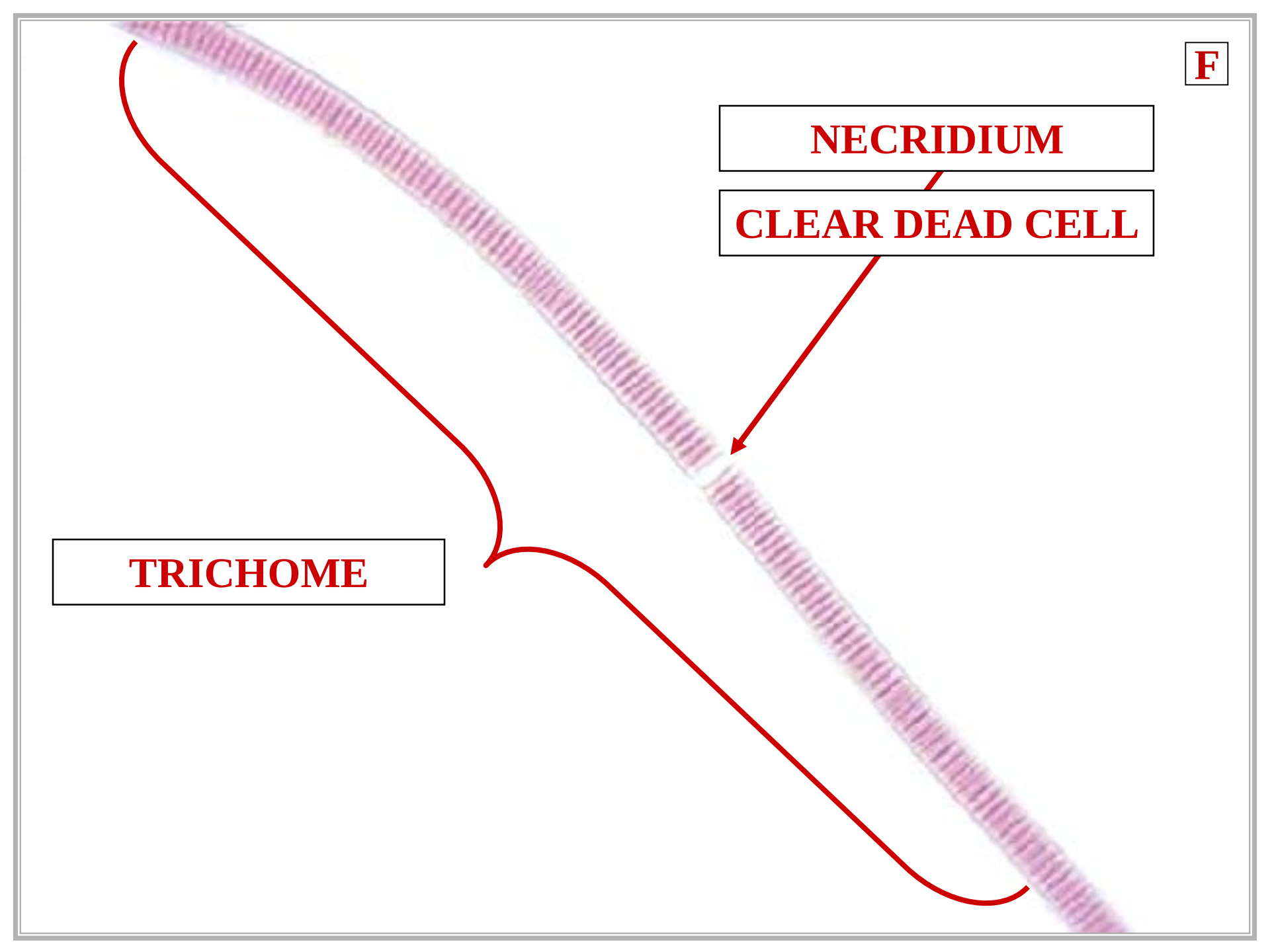
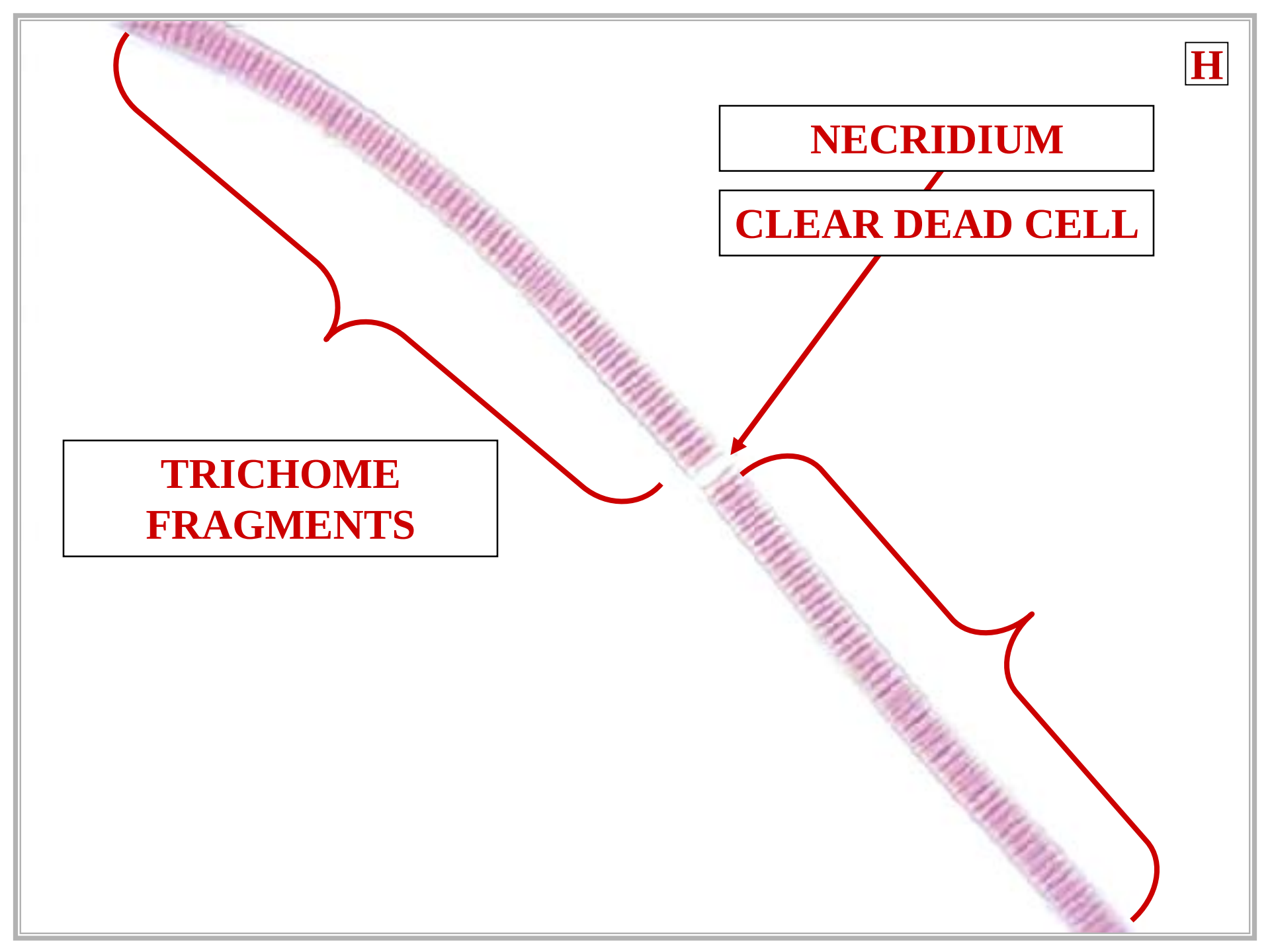
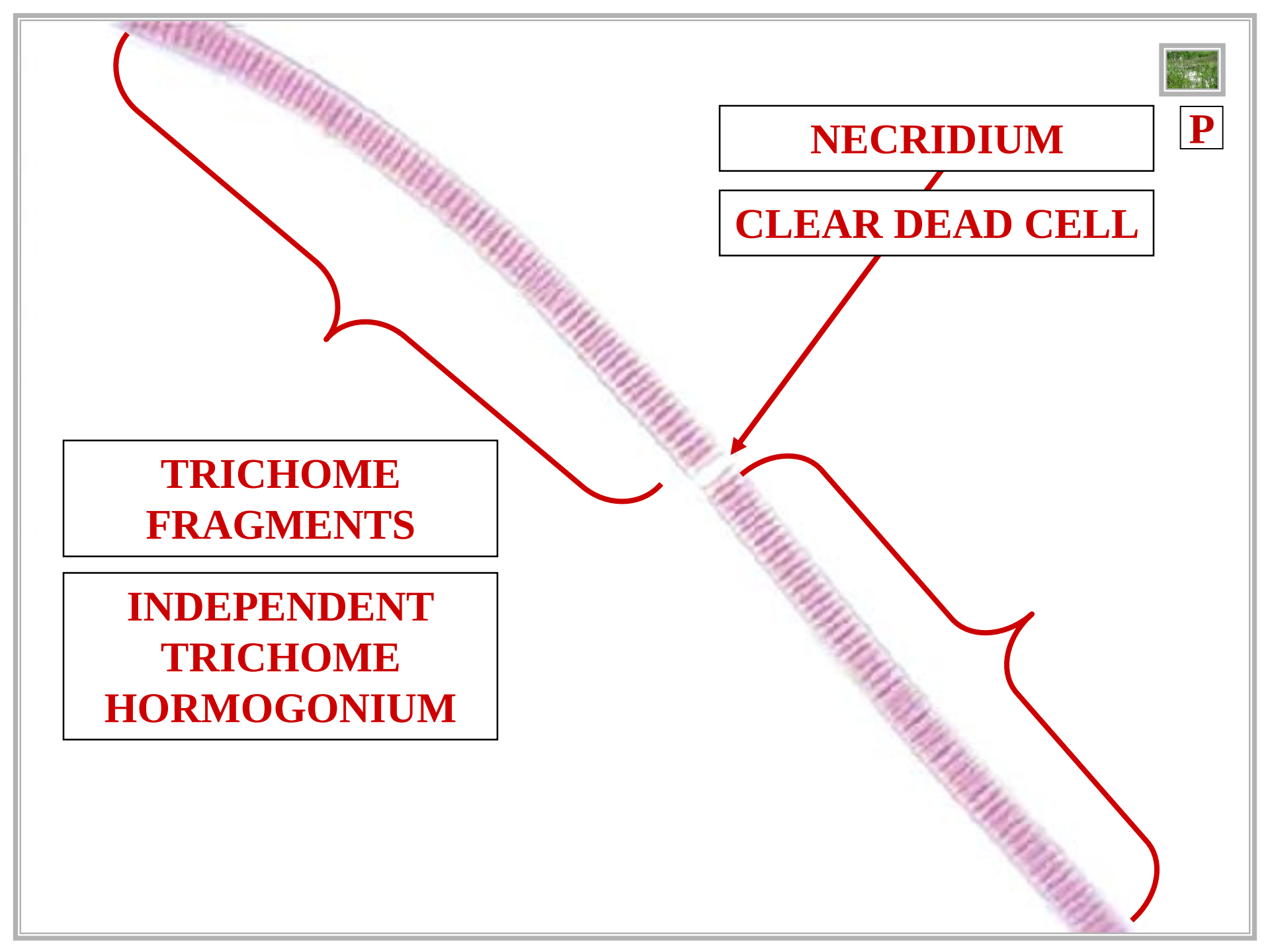



H
NECRIDIUM
CLEAR DEAD CELL
TRICHOME FRAGMENTS


NECRIDIUM
CLEAR DEAD CELL
TRICHOME FRAGMENTS
INDEPENDENT TRICHOME HORMOGONIUM
P

F

NECRIDIUM

PROPAGATION

INDEPENDENT
TRICHOME
HORMOGONIUM

A

NECRIDIUM

FRAGMENTATION

INDEPENDENT
TRICHOME
HORMOGONIUM

NECRIDIUM

ASEXUAL REPRODUCTION

INDEPENDENT TRICHOME HORMOGONIUM

CYTOLOGY

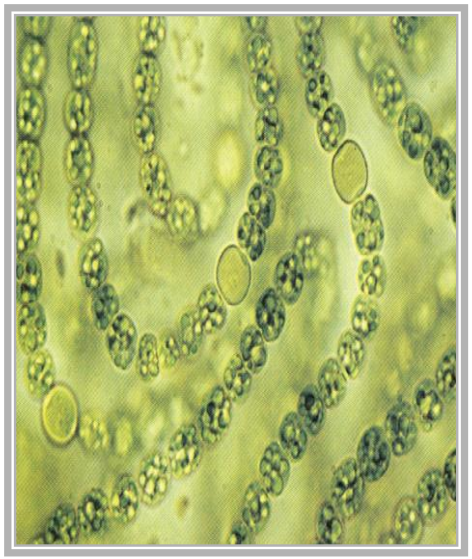
GST

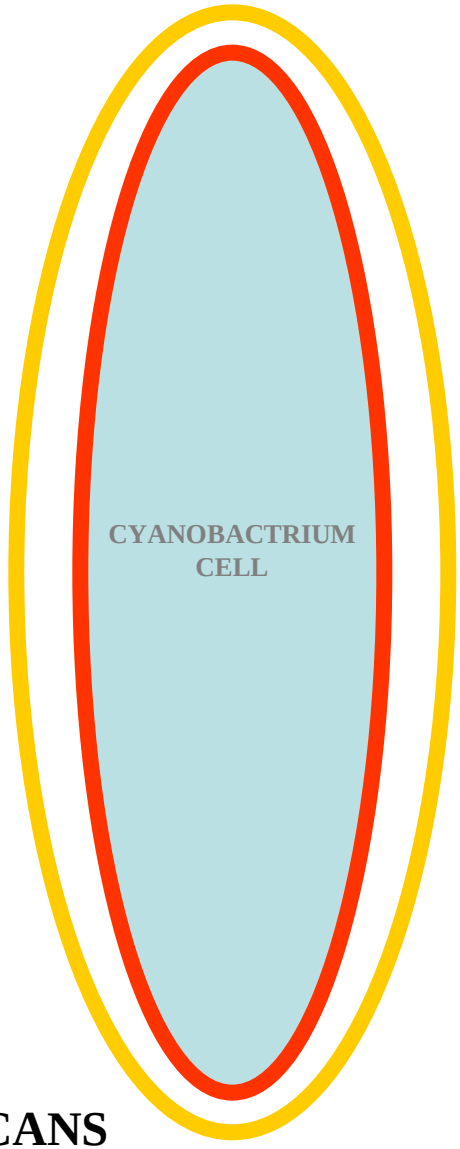
CELL WALL

GRAM STAIN TEST

CYANOBACTERIA

GRAM STAIN TEST





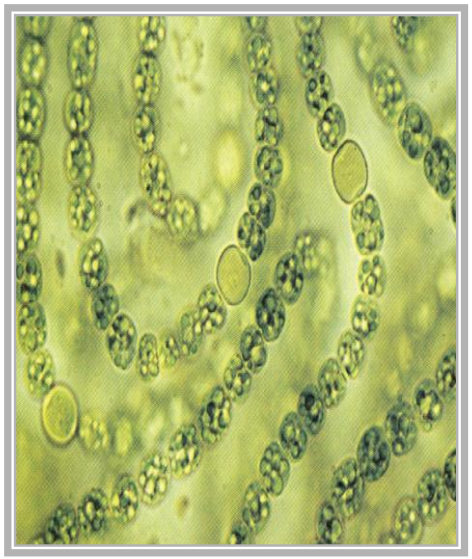
VIOLET DYE

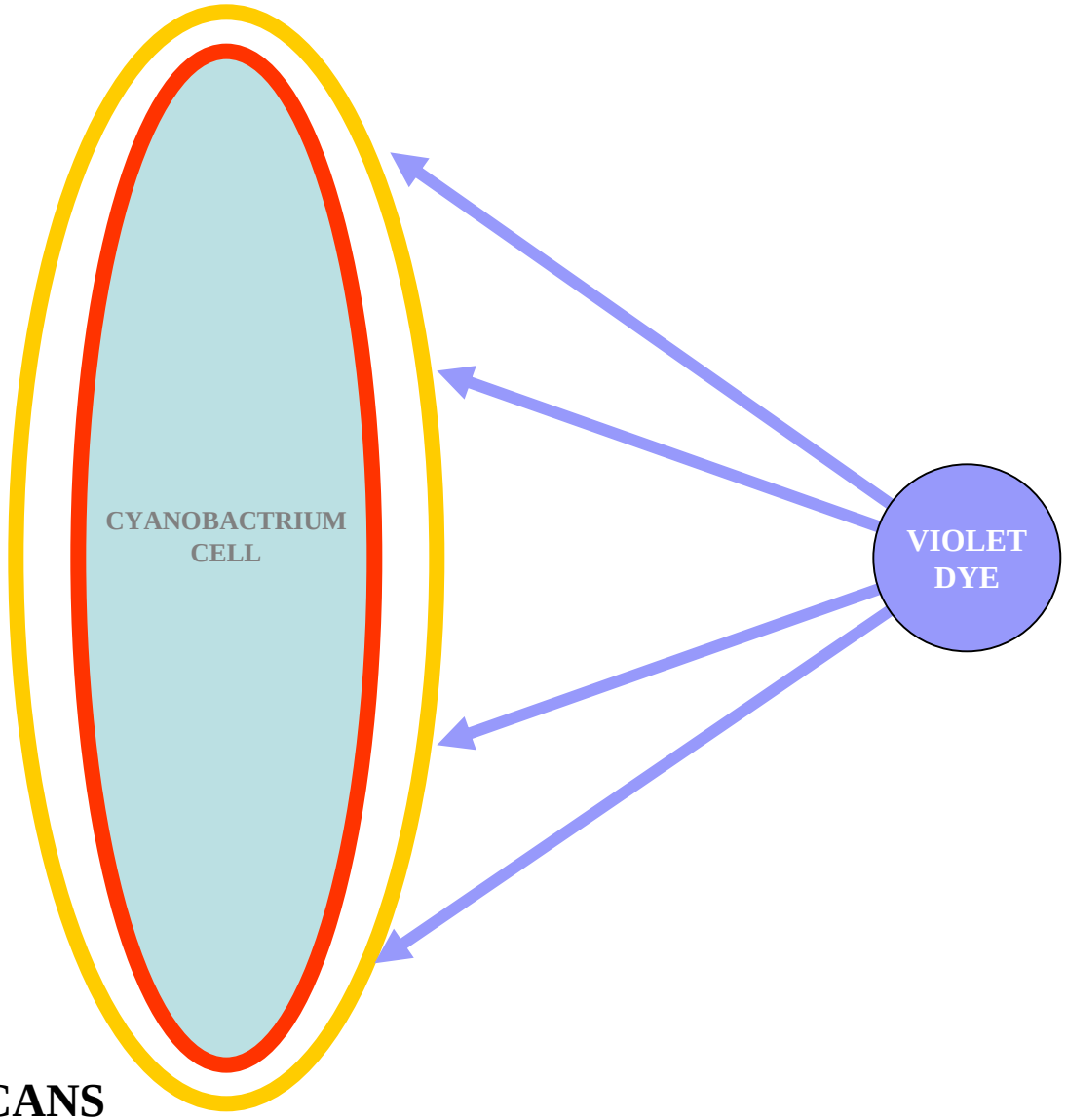
= PEPTIDOGLYCANS

= LIPOPOLYSACCHARIDES – PRESENT

CYANOBACTERIA

GRAM STAIN TEST



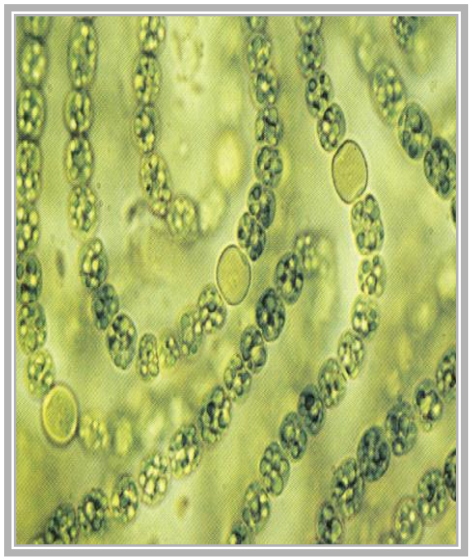


= PEPTIDOGLYCANS

= LIPOPOLYSACCHARIDES – PRESENT

CYANOBACTERIA

GRAM STAIN TEST



CYANOBACTRIUM CELL

VIOLET DYE

REPELS VIOLET DYE

P

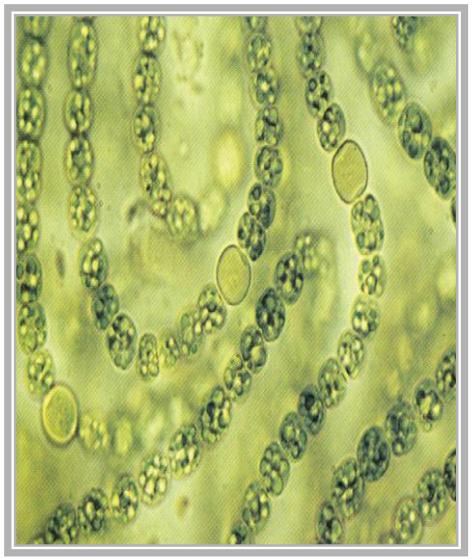
REPELS VIOLET DYE

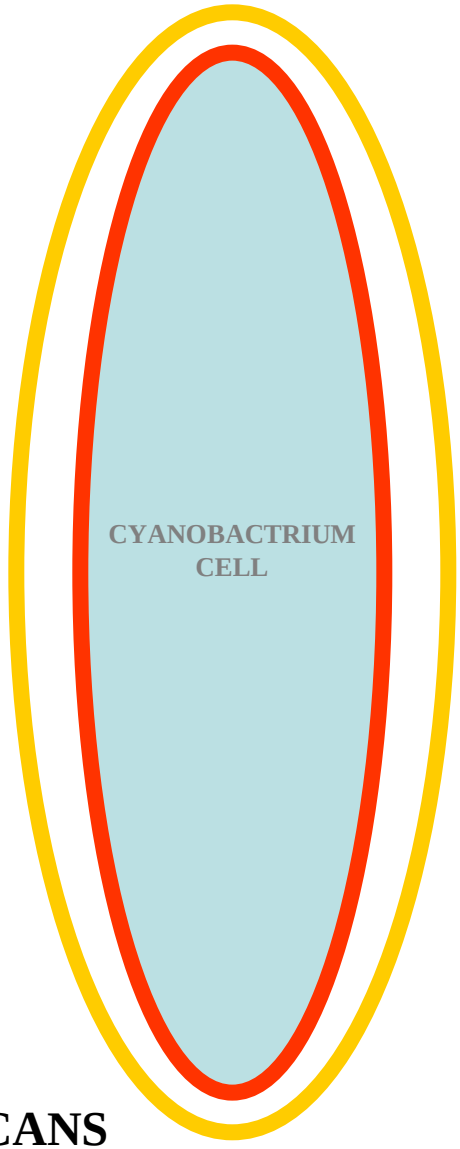
= PEPTIDOGLYCANS

= LIPOPOLYSACCHARIDES – PRESENT

CYANOBACTERIA

GRAM STAIN TEST





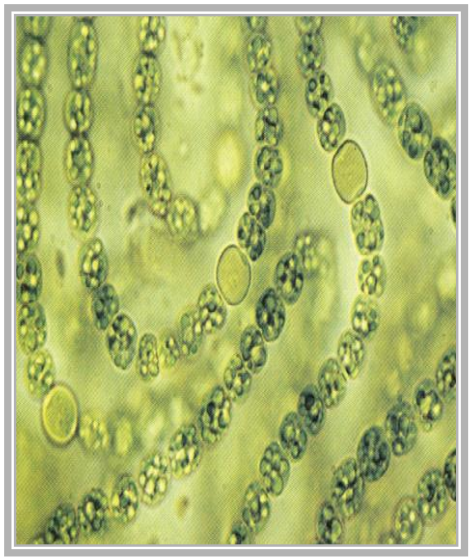
PEPTIDOGLYCANS DO NOT ABSORB VIOLET DYE

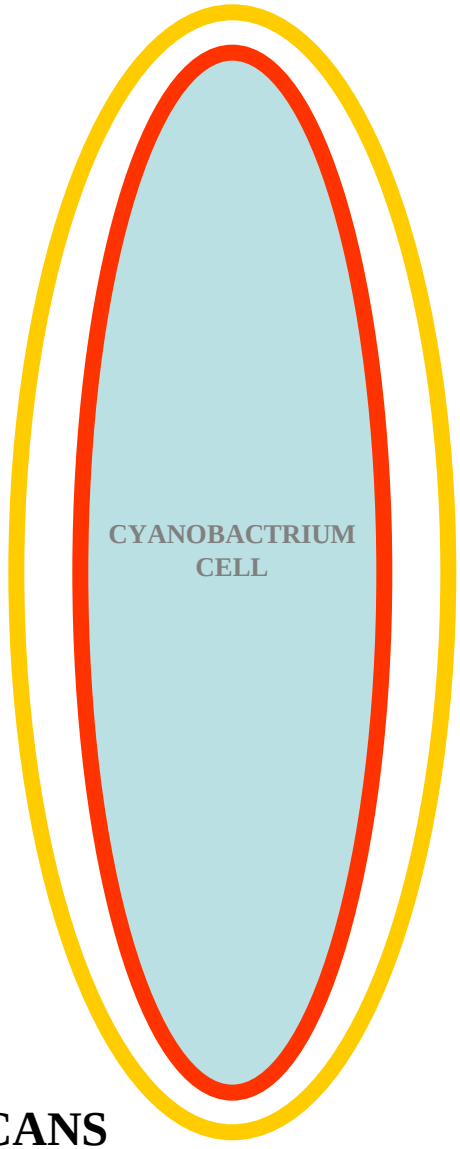
= PEPTIDOGLYCANS

= LIPOPOLYSACCHARIDES – PRESENT

CYANOBACTERIA

GRAM STAIN TEST





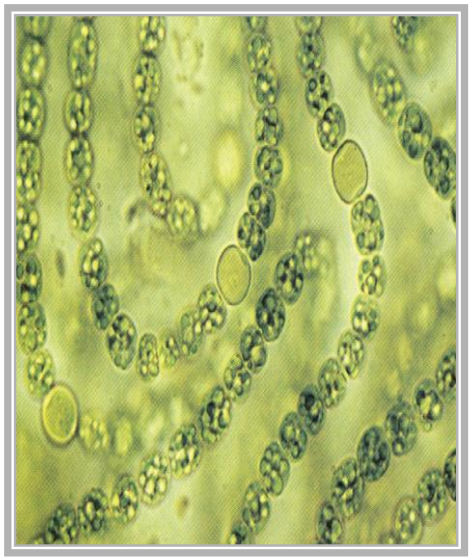
PEPTIDOGLYCANS DO NOT TURN VIOLET

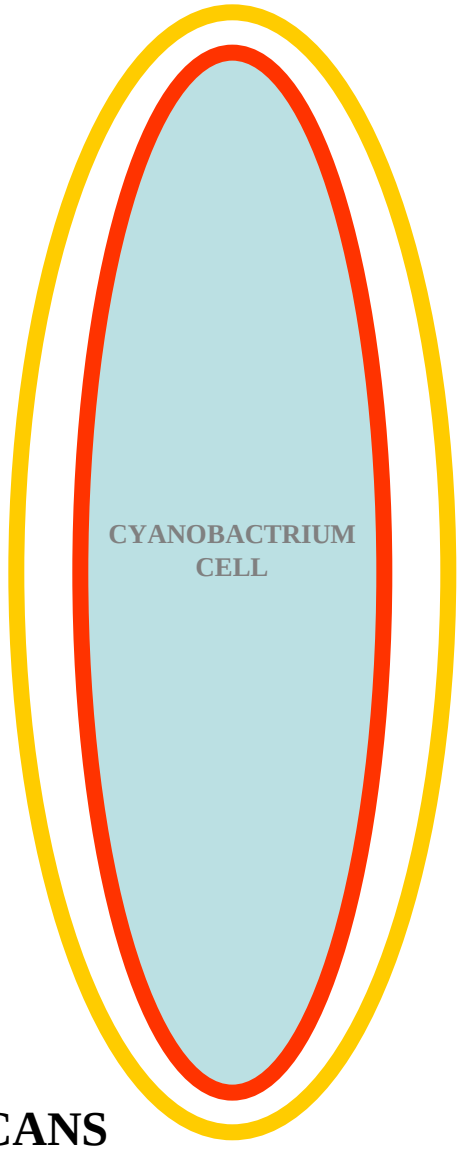
= **PEPTIDOGLYCANS**

= **LIPOPOLYSACCHARIDES – PRESENT**

CYANOBACTERIA

GRAM STAIN TEST





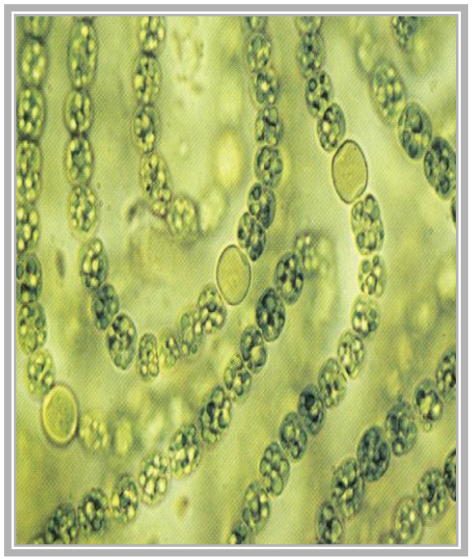
CELL WALL DOES NOT TURN VIOLET

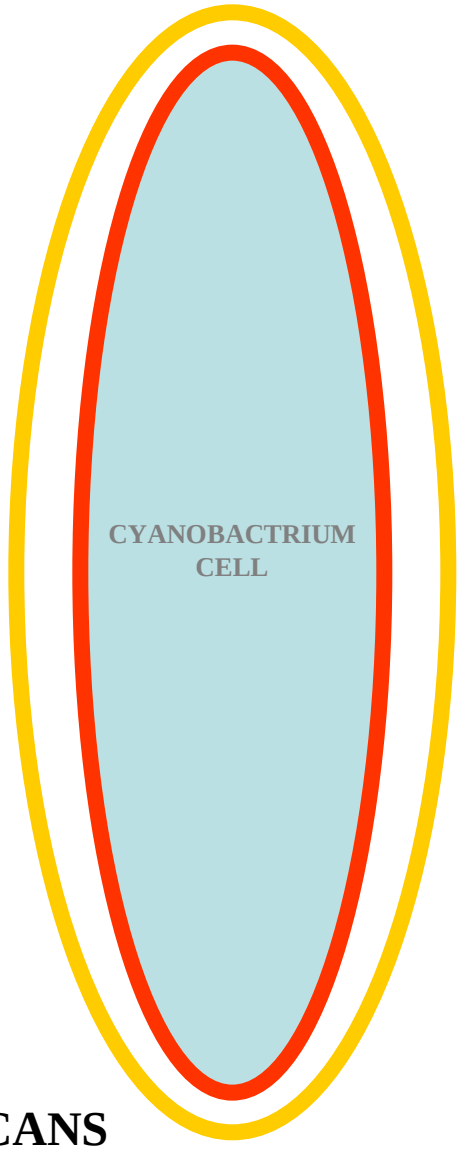
= PEPTIDOGLYCANS

= LIPOPOLYSACCHARIDES – PRESENT

CYANOBACTERIA

GRAM STAIN TEST





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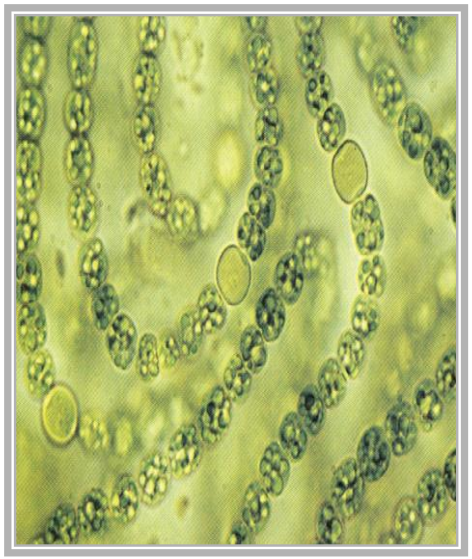
EUBACTERIUM

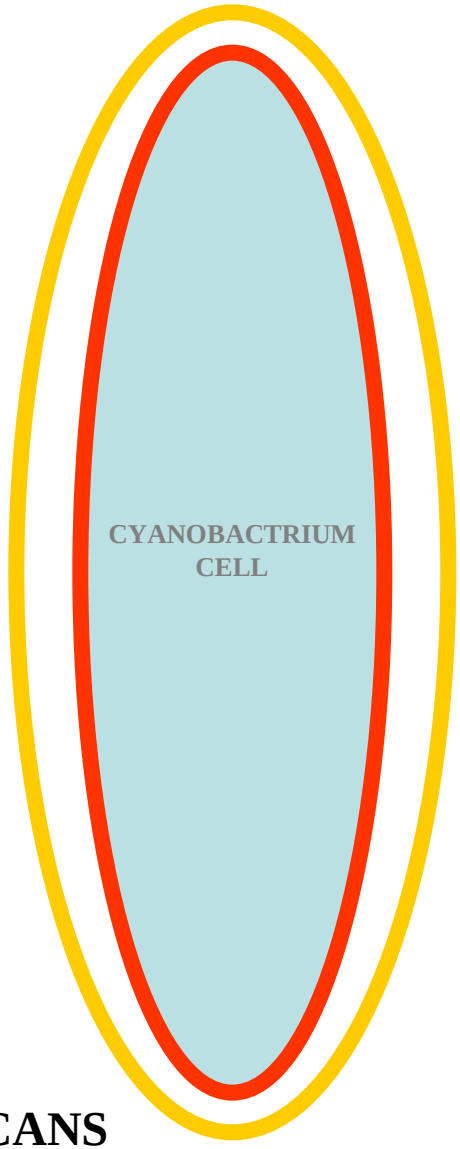
= **PEPTIDOGLYCANS**

= **LIPOPOLYSACCHARIDES – PRESENT**

CYANOBACTERIA

GRAM STAIN TEST

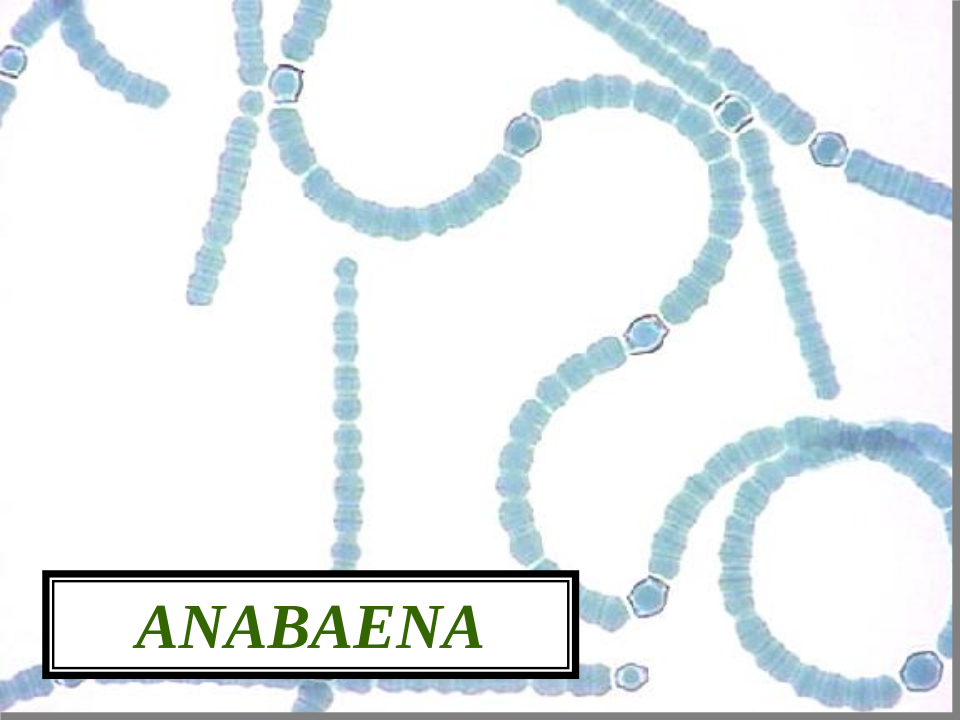




GRAM - EUBACTERIUM

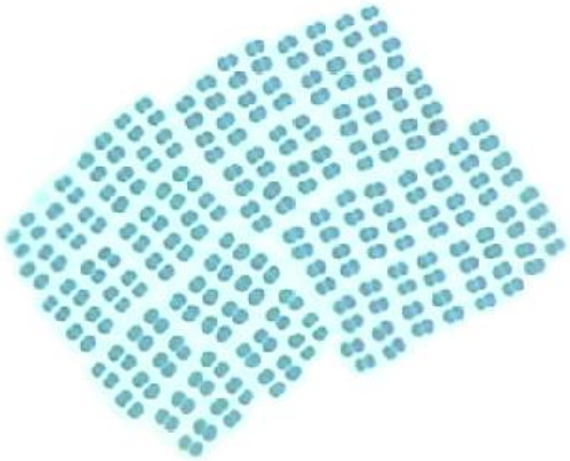
= PEPTIDOGLYCANS

= LIPOPOLYSACCHARIDES – PRESENT

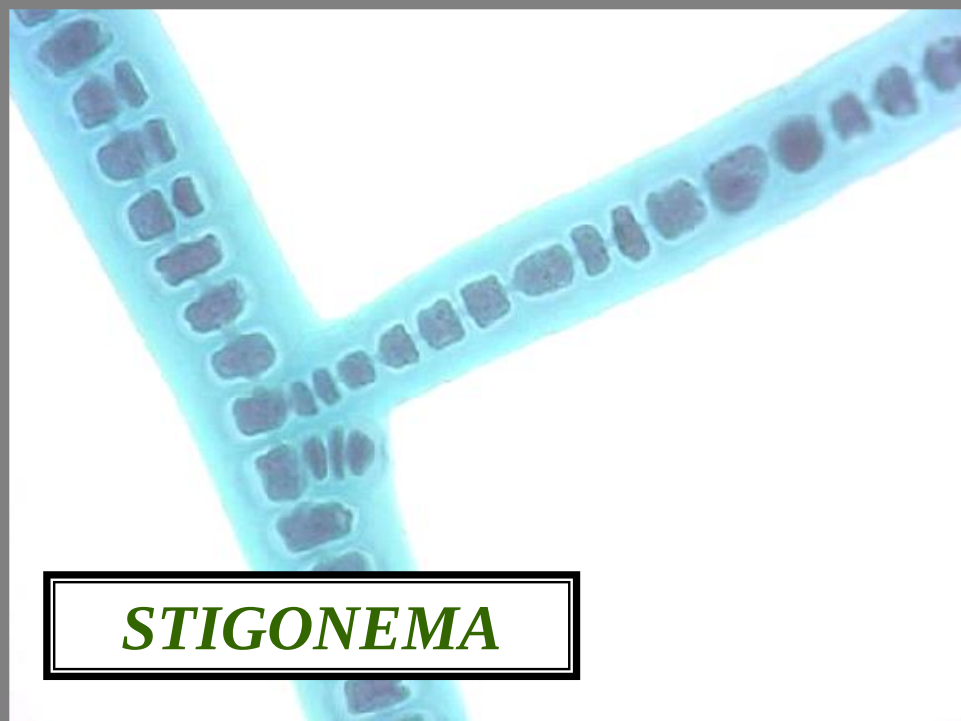


ANABAENA

GLOEOTRICHIA



MERISMOPEDIA



STIGONEMA

GRAM – BACTERIA

ANABAENA

GRAM – BACTERIA

GLOEOTRICHIA

GRAM – BACTERIA

MERISMOPEDIA

GRAM – BACTERIA

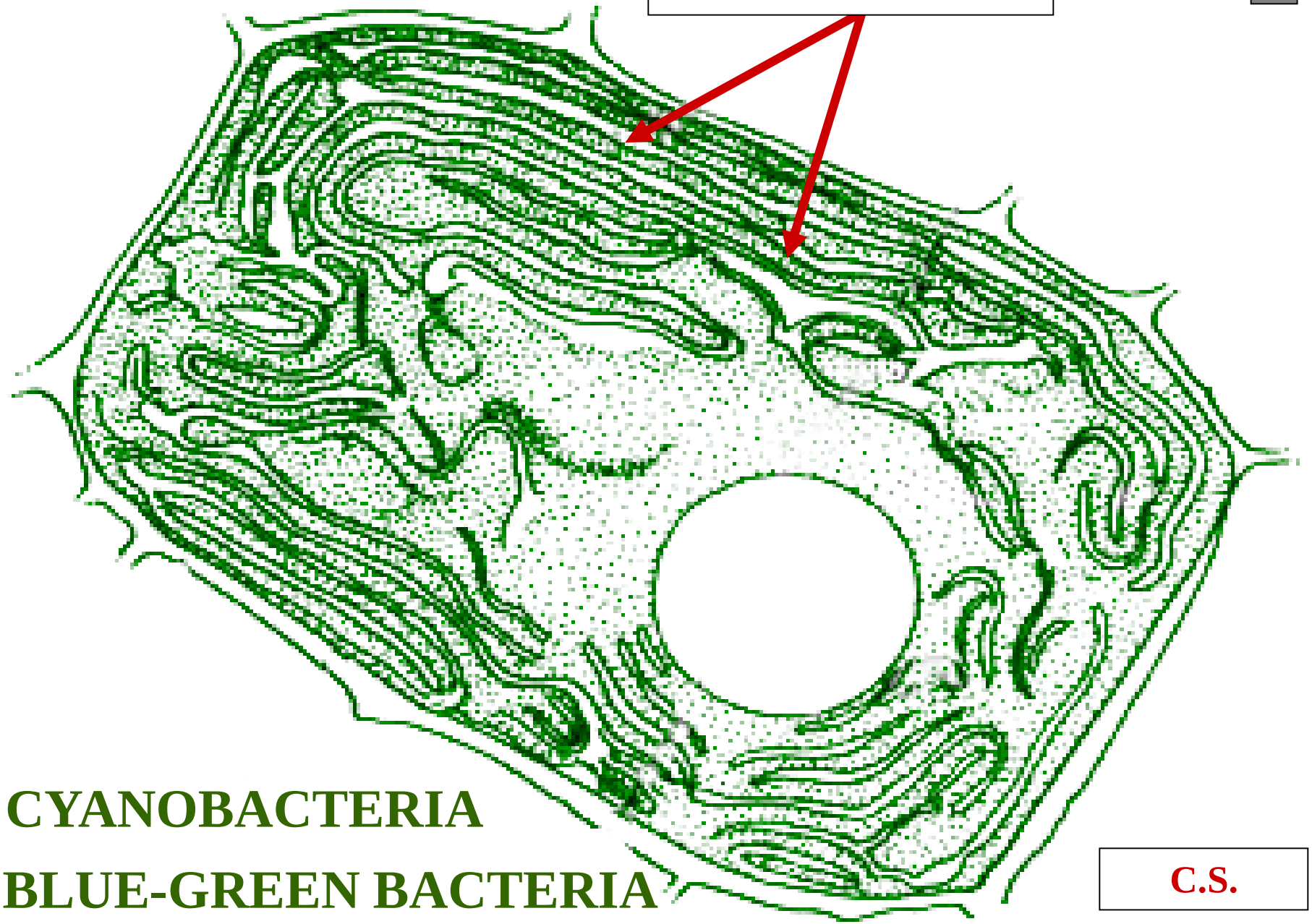
STIGONEMA

CELL MEMBRANE

CYANOBACTERIUM

CELL MEMBRANE

?



CYANOBACTERIA

BLUE-GREEN BACTERIA

C.S.

CYANOBACTERIUM

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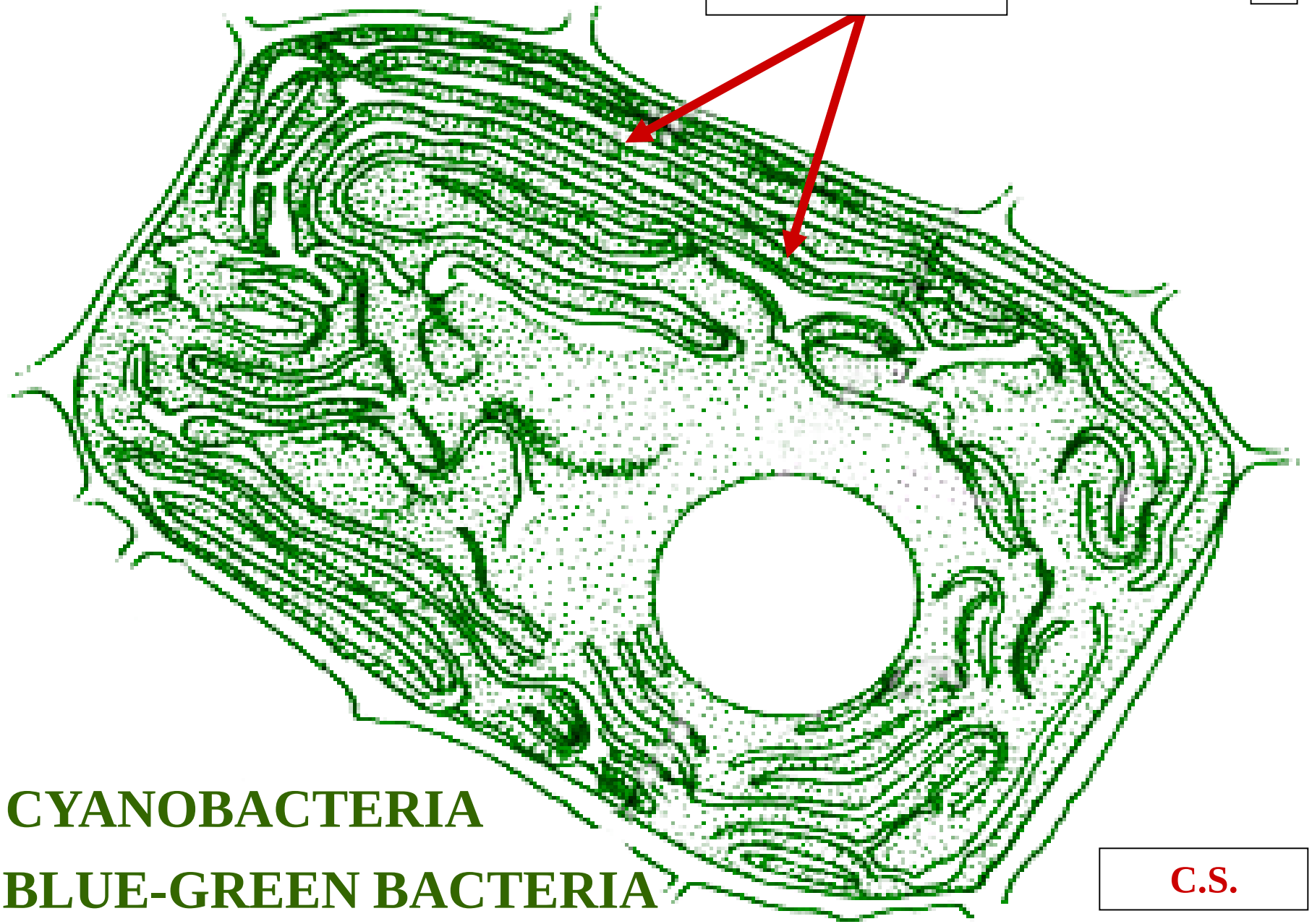
M

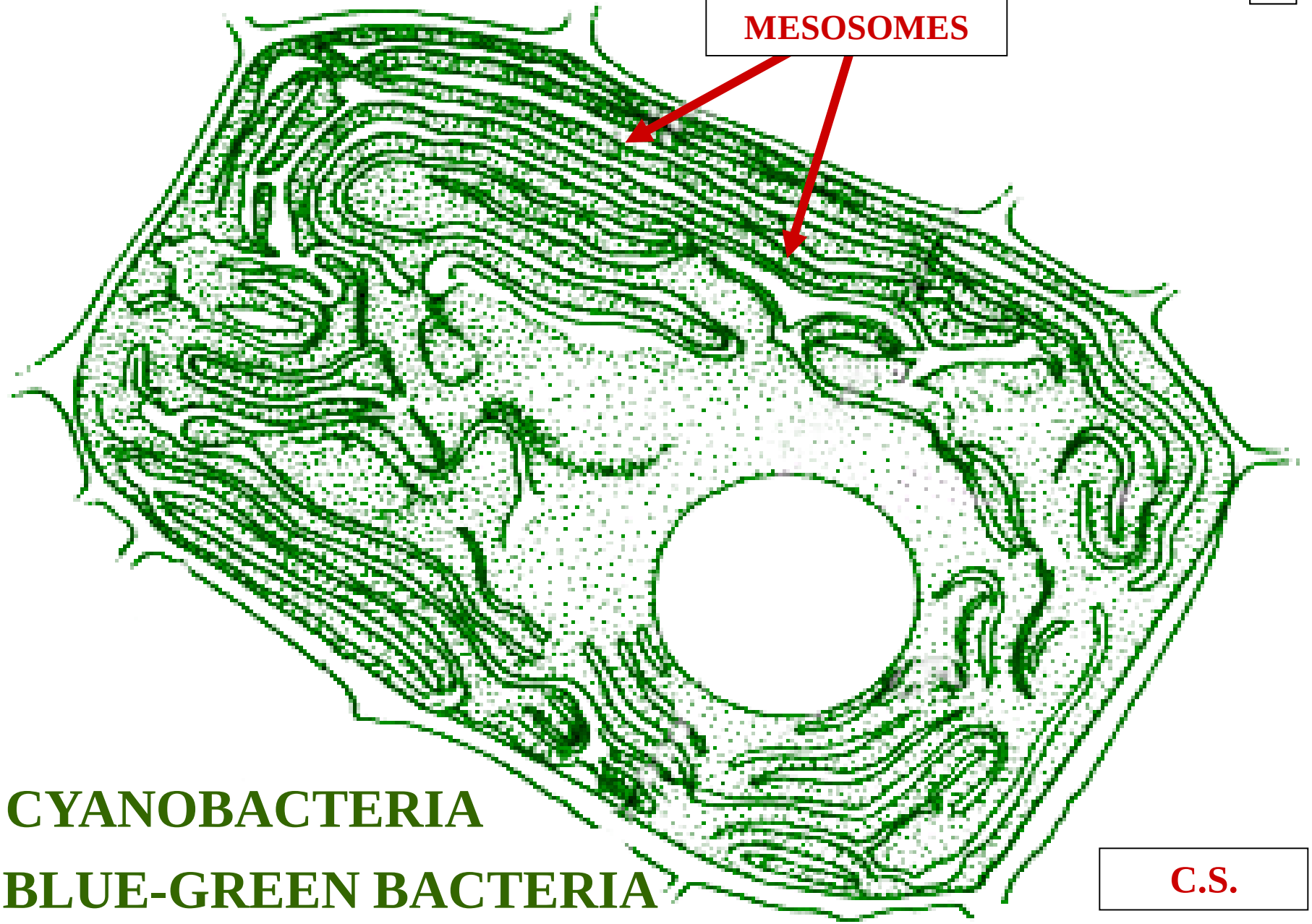


CYANOBACTERIA

BLUE-GREEN BACTERIA

C.S.

CYANOBACTERIUM



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CYANOBACTERIA

BLUE-GREEN BACTERIA

C.S.

CYANOBACTERIUM

THYLAKOID

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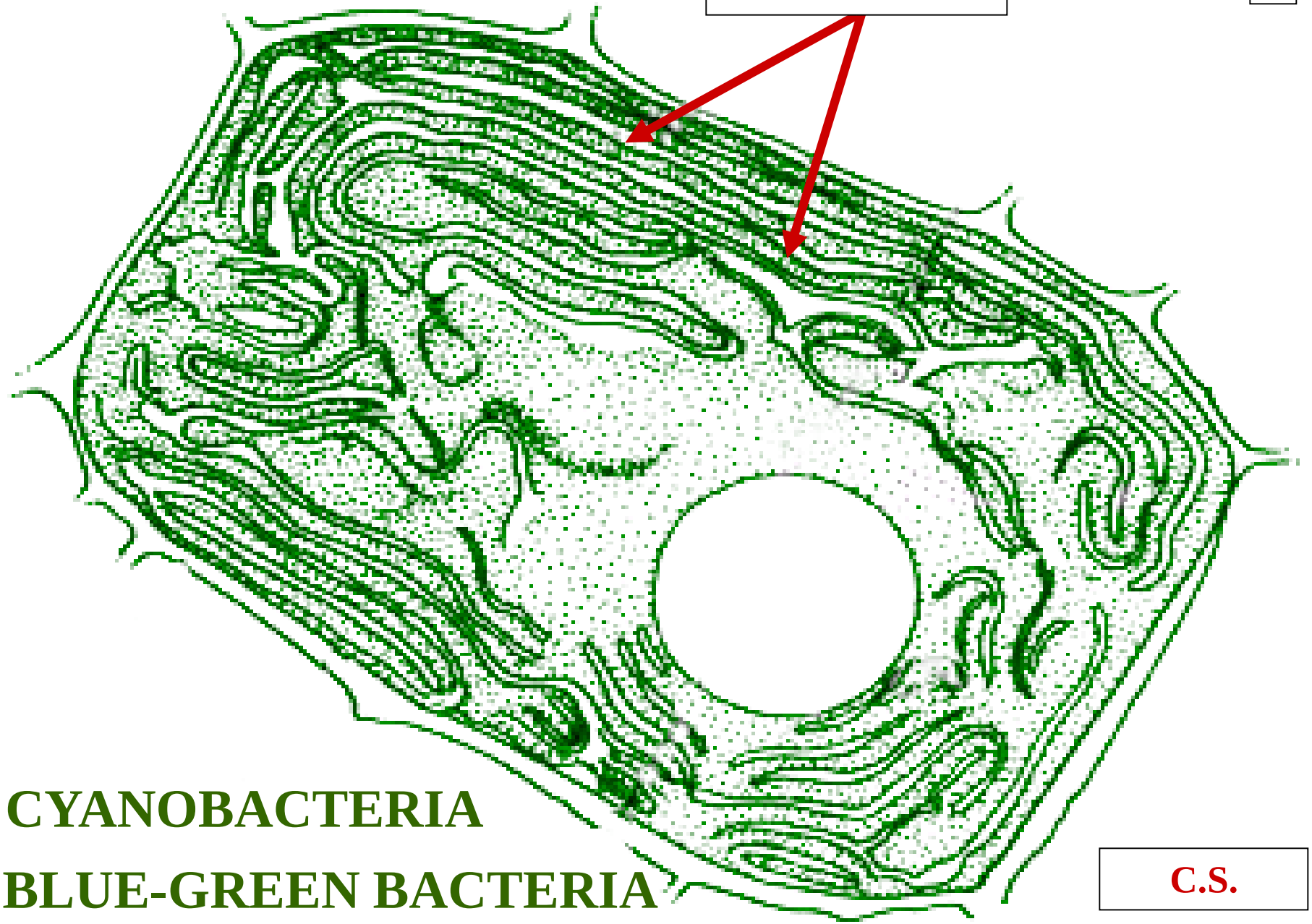

CYANOBACTERIA

BLUE-GREEN BACTERIA

C.S.

THYLAKOID