Phycology

Primary production

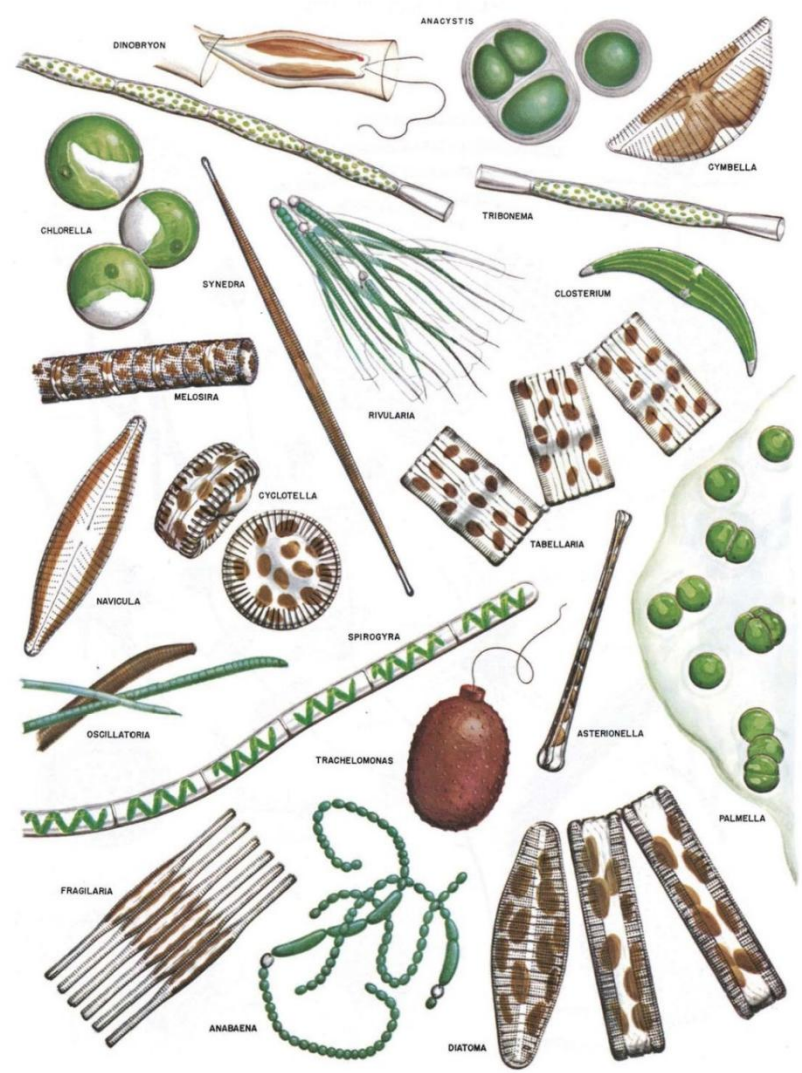
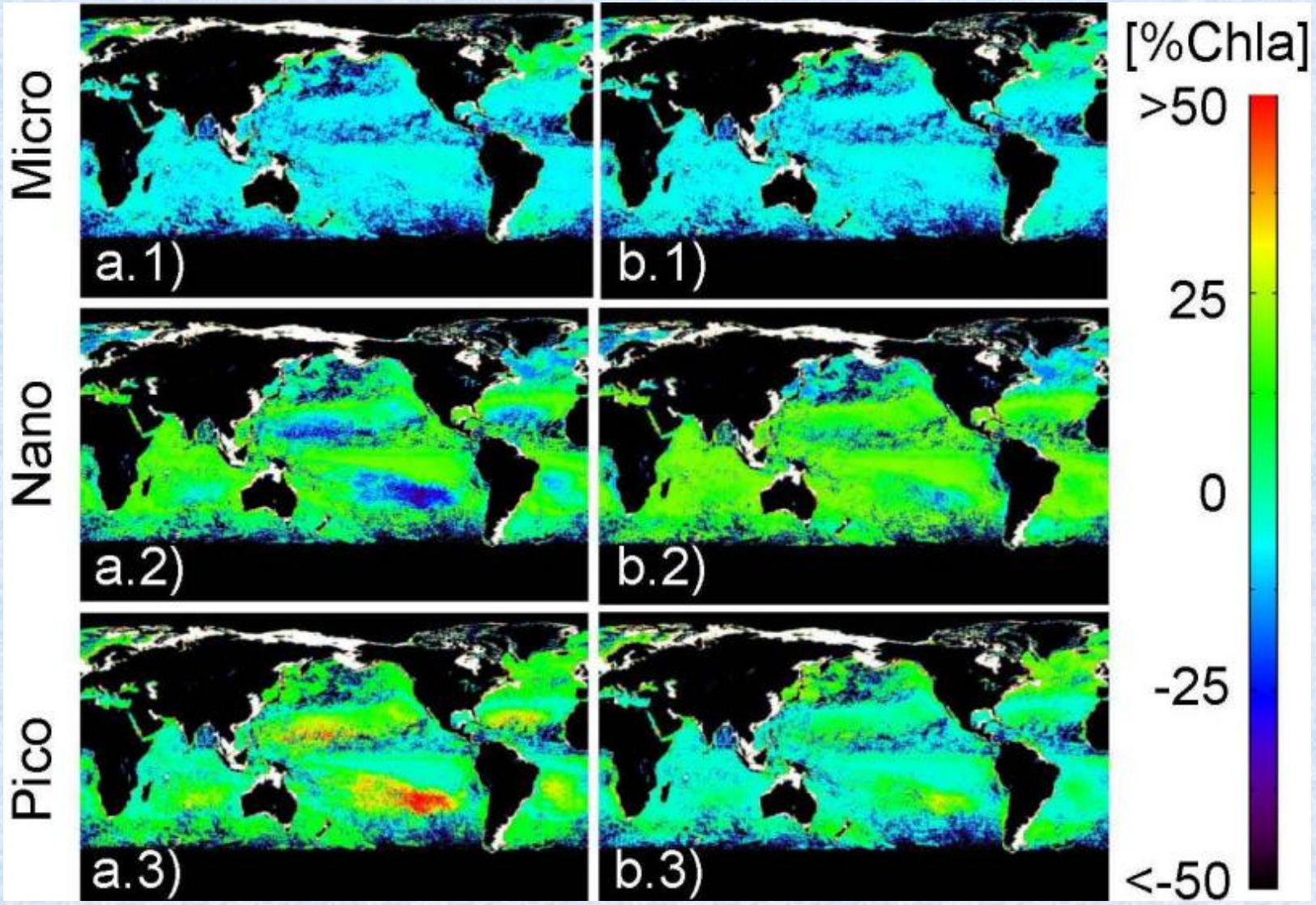
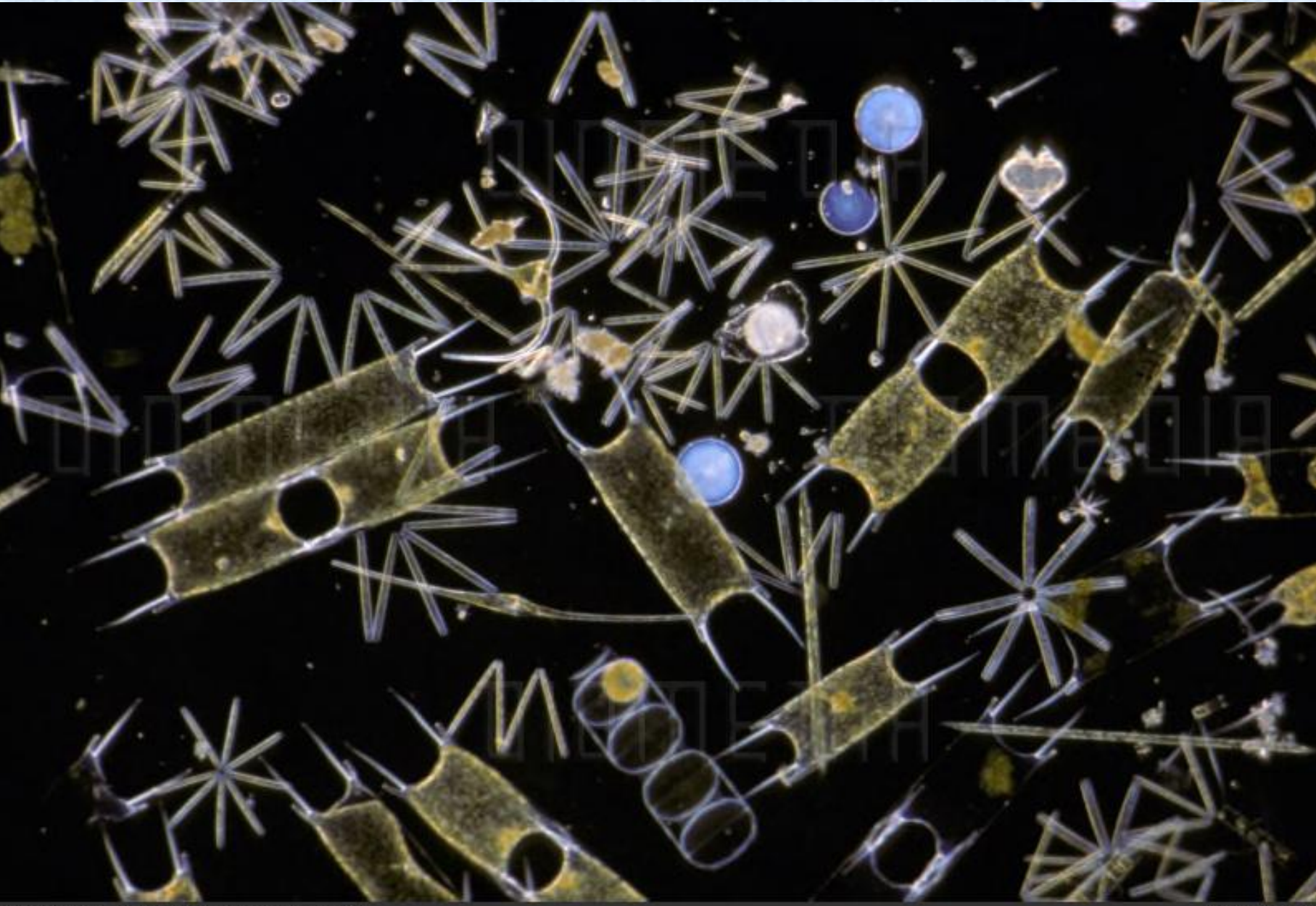


Plate 29. Filter- and screen-clogging algae.

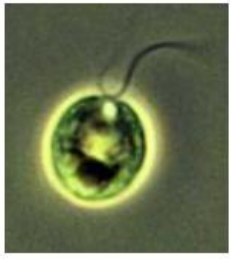
Plate 31. Clean-water algae.


Micro
Nano
Pico
a.1)
b.1)
a.2)
b.2)
a.3)
b.3)
[%Chla]
>50
25
0
-25
<-50



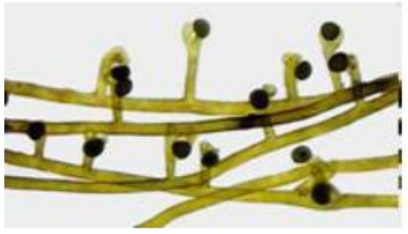
01AAS44D FLPA | www.diomedia.com 17 Mar 2016

body plans of algae



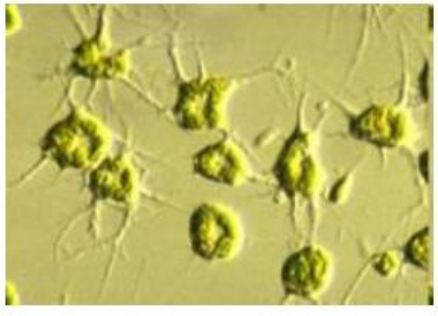
monadoid

coccoid

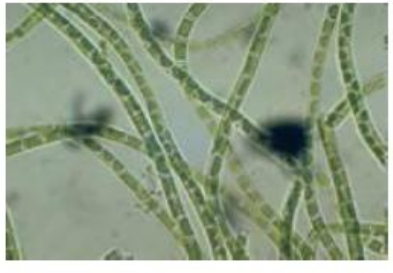


siphonal

siphonocladal



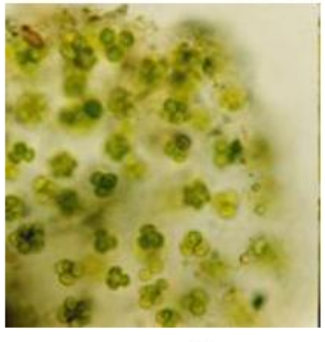
rhizopodial



trichal

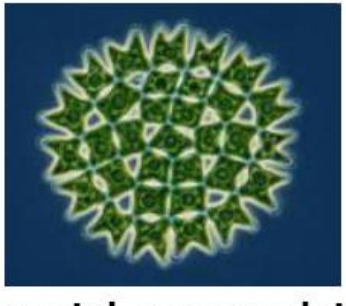
pseudoparenchymatous

tissue-like

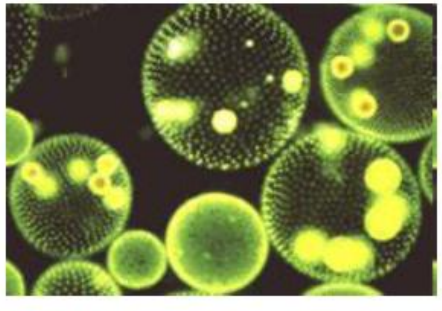


capsal

heterotrichal



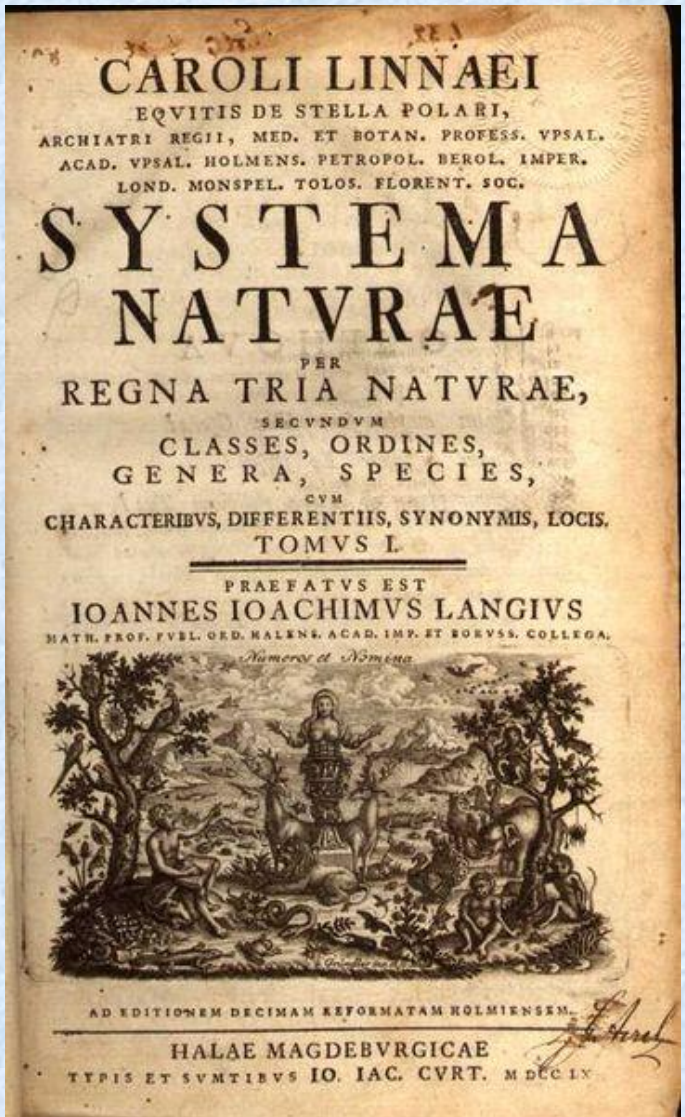
coccoid coenobium



monadoid coenobium

Classification

- **Carl Linnaeus (1758)**



CAROLI LINNAEI
EQVITIS DE STELLA POLARI,
ARCHIATRI REGII, MED. ET BOTAN. PROFESS. VPSAL.
ACAD. VPSAL. HOLMENS. PETROPOL. BEROL. IMPER.
LOND. MONSPEL. TOLOS. FLORENT. SOC.

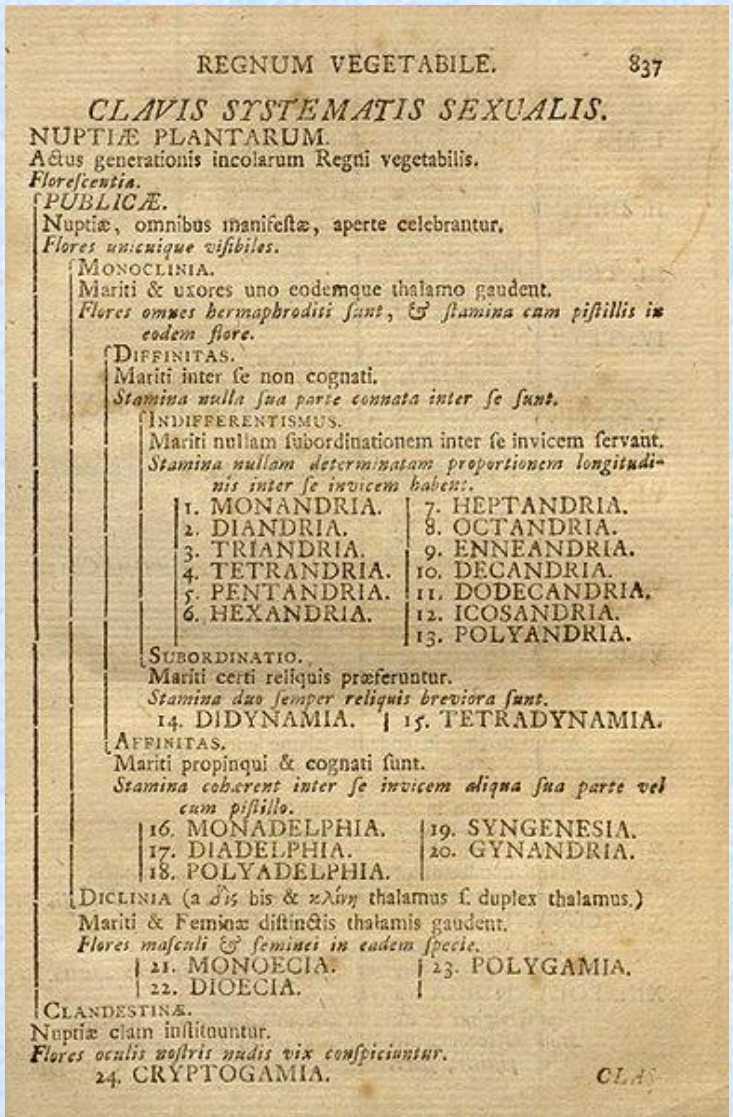
SYSTEMA
NATVRAE
PER
REGNA TRIA NATVRAE,
SECVNDVM
CLASSES, ORDINES,
GENERA, SPECIES,
CVM
CHARACTERIBVS, DIFFERENTIIS, SYNONYMIS, LOCIS.
TOMVS I.

PRAEFATVS EST
IOANNES IOACHIMVS LANGIVS
MATH. PROF. PVBL. ORD. HALENS. ACAD. IMP. ET BORVSS. COLLEGA.

Numeror et Nomina

AD EDITIONEM DECIMAM REFORMATAM HOLMIENSEM.

HALAE MAGDEBVRGICAE
TYPIS ET SVMTIBVS IO. IAC. CVRT. MDCCLX



REGNUM VEGETABILE. 837

CLAVIS SYSTEMATIS SEXUALIS.

NUPTIÆ PLANTARUM.

Actus generationis incolarum Regni vegetabilis.

Florescentia.

PUBLICÆ.

Nuptiæ, omnibus manifestæ, aperte celebrantur.

Flores unicuique visibiles.

MONOCLINIA.

Mariti & uxores uno eodemque thalamo gaudent.

Flores omnes hermaphroditi sunt, & stamina cum pistillis in eodem flore.

DIFFINITAS.

Mariti inter se non cognati.

Stamina nulla sua parte connata inter se sunt.

INDIFFERENTISMUS.

Mariti nullam subordinationem inter se invicem servant.

Stamina nullam determinatam proportionem longitudinis inter se invicem habent.

1. MONANDRIA.
2. DIANDRIA.
3. TRIANDRIA.
4. TETRANDRIA.
5. PENTANDRIA.
6. HEXANDRIA.
7. HEPTANDRIA.
8. OCTANDRIA.
9. ENNEANDRIA.
10. DECANDRIA.
11. DODECANDRIA.
12. ICOSANDRIA.
13. POLYANDRIA.

SUBORDINATIO.

Mariti certi reliquis præferuntur.

Stamina duo semper reliquis breviora sunt.

14. DIDYNAMIA. | 15. TETRADYNAMIA.

AFFINITAS.

Mariti propinqui & cognati sunt.

Stamina cohærent inter se invicem aliqua sua parte vel cum pistillo.

16. MONADELPHIA.
17. DIADELPHIA.
18. POLYADELPHIA.
19. SYNGENESIA.
20. GYNANDRIA.

DICLINIA (a δὶς bis & κλίνη thalamus s. duplex thalamus.)

Mariti & Feminæ distinctis thalamis gaudent.

Flores masculi & feminei in eadem specie.

21. MONOECIA. | 23. POLYGAMIA.
22. DIOECIA. |

CLANDESTINÆ.

Nuptiæ clam instituuntur.

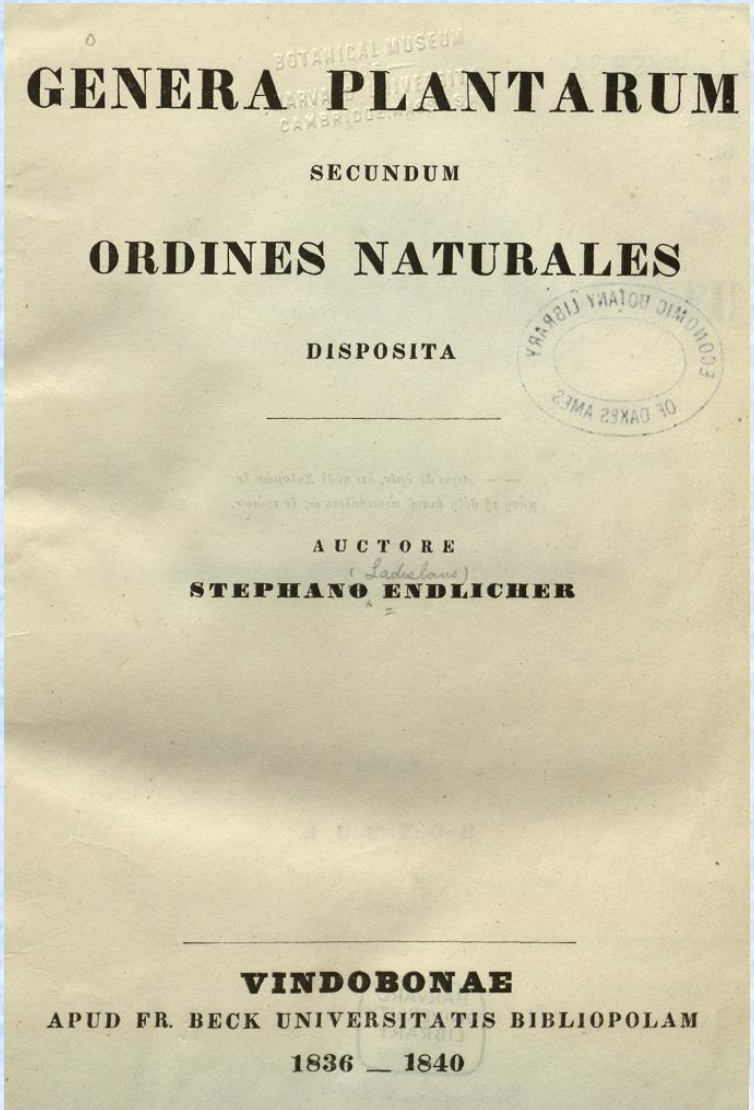
Flores oculis nostris nudis vix conspiciuntur.

24. CRYPTOGAMIA.

CLA

Classification

- **Stephano Endlicher (1836): Thallophyta (algae, fungi, lichens)**



GENERA PLANTARUM

SECUNDUM

ORDINES NATURALES

DISPOSITA

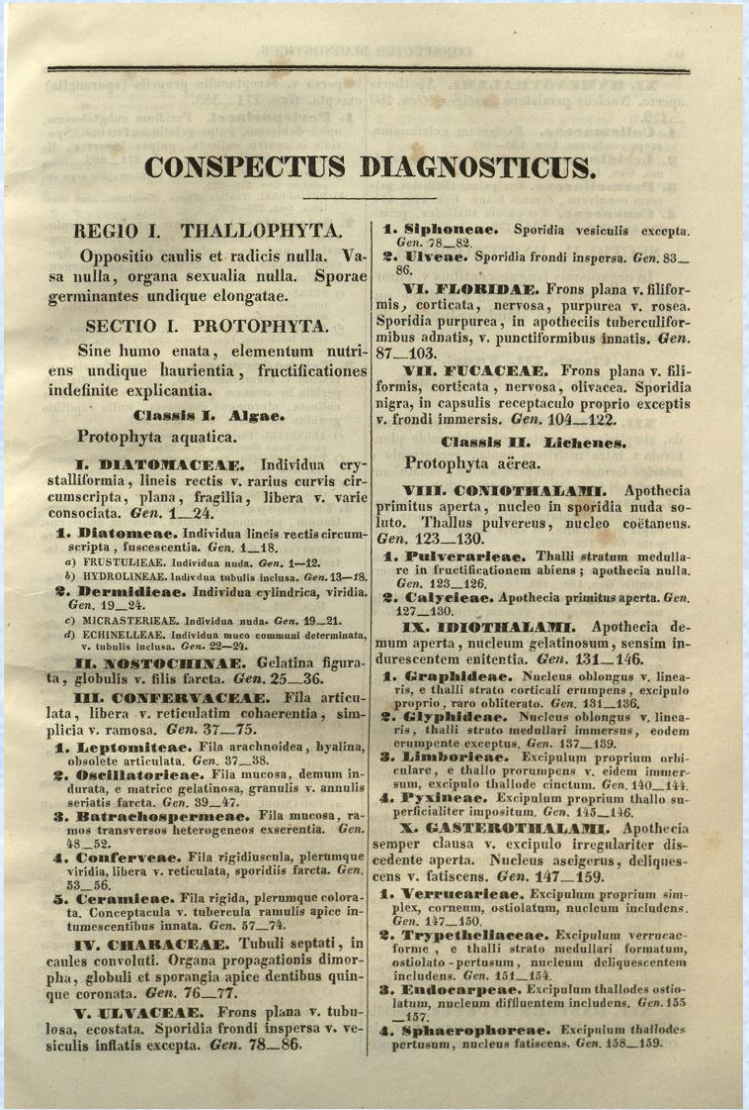
AUCTORE

STEPHANO ENDLICHER

VINDOBONAE

APUD FR. BECK UNIVERSITATIS BIBLIOPOLAM

1836 — 1840



CONSPECTUS DIAGNOSTICUS.

REGIO I. THALLOPHYTA.

Oppositio caulis et radicis nulla. Vasa nulla, organa sexualia nulla. Sporae germinantes undique elongatae.

SECTIO I. PROTOPHYTA.

Sine humo enata, elementum nutriens undique haurientia, fructificationes indefinite explicantia.

Classis I. Algae.

Protophyta aquatica.

I. DIATOMACEAE. Individua crystalliformia, lineis rectis v. rarius curvis circumscripta, plana, fragilia, libera v. varie consociata. *Gen.* 1—24.

1. Diatomeae. Individua lineis rectis circumscripta, fuscescentia. *Gen.* 1—18.

a) FRUSTULIEAE. Individua nuda. *Gen.* 1—12.

b) HYDROLINEAE. Individua tubulis inclusa. *Gen.* 13—18.

2. Dermidieae. Individua cylindrica, viridia. *Gen.* 19—24.

c) MICRASTERIEAE. Individua nuda. *Gen.* 19—21.

d) ECHINELLEAE. Individua muco communi determinata, v. tubulis inclusa. *Gen.* 22—24.

II. NOSTOCHINAE. Gelatina figurata, globulis v. filis farcta. *Gen.* 25—36.

III. CONFERVACEAE. Fila articulata, libera v. reticulatim cohaerentia, simplicia v. ramosa. *Gen.* 37—75.

1. Leptomiteae. Fila arachnoidea, hyalina, obsolete articulata. *Gen.* 37—38.

2. Oscillatorieae. Fila mucosa, demum indurata, e matrice gelatinosa, granulis v. annulis seriatis farcta. *Gen.* 39—47.

3. Batrachospermeae. Fila mucosa, ramos transversos heterogeneos exserentia. *Gen.* 48—52.

4. Conferveae. Fila rigidiuscula, plerumque viridia, libera v. reticulata, sporidiis farcta. *Gen.* 53—56.

5. Ceramieae. Fila rigida, plerumque colorata. Conceptacula v. tubercula ramulis apice intumescentibus innata. *Gen.* 57—74.

IV. CHARACEAE. Tubuli septati, in caules convoluti. Organa propagationis dimorpha, globuli et sporangia apice dentibus quinque coronata. *Gen.* 76—77.

V. ULVACEAE. Frons plana v. tubulosa, ecostata. Sporidia frondi inspersa v. vesiculis inflatis excepta. *Gen.* 78—86.

1. Siphoneae. Sporidia vesiculis excepta. *Gen.* 78—82.

2. Ulveae. Sporidia frondi inspersa. *Gen.* 83—86.

VI. FLORIDAE. Frons plana v. filiformis, corticata, nervosa, purpurea v. rosea. Sporidia purpurea, in apotheciis tuberculiformibus adnatis, v. punctiformibus innatis. *Gen.* 87—103.

VII. FUCACEAE. Frons plana v. filiformis, corticata, nervosa, olivacea. Sporidia nigra, in capsulis receptaculo proprio exceptis v. frondi immersis. *Gen.* 104—122.

Classis II. Lichenes.

Protophyta aërea.

VIII. CONIOTHALAMI. Apothecia primitus aperta, nucleo in sporidia nuda soluto. Thallus pulvereus, nucleo coëtaneus. *Gen.* 123—130.

1. Pulverarieae. Thalli stratum medullare in fructificationem abiens; apothecia nulla. *Gen.* 123—126.

2. Calycieae. Apothecia primitus aperta. *Gen.* 127—130.

IX. IDIOTHALAMI. Apothecia demum aperta, nucleum gelatinosum, sensim indurescentem enitentia. *Gen.* 131—146.

1. Graphideae. Nucleus oblongus v. linearis, e thalli strato corticali erumpens, excipulo proprio, raro obliterato. *Gen.* 131—136.

2. Glyphideae. Nucleus oblongus v. linearis, thalli strato medullari immersus, eodem erumpente exceptus. *Gen.* 137—139.

3. Limborieae. Excipulum proprium orbiculare, e thallo prorumpens v. eidem immersum, excipulo thallode cinctum. *Gen.* 140—144.

4. Pyxineae. Excipulum proprium thallo superficialiter impositum. *Gen.* 145—146.

X. GASTEROTHALAMI. Apothecia semper clausa v. excipulo irregulariter discedente aperta. Nucleus ascigerus, deliquescens v. fatiscens. *Gen.* 147—159.

1. Verrucarieae. Excipulum proprium simplex, corneum, ostiolatum, nucleum includens. *Gen.* 147—150.

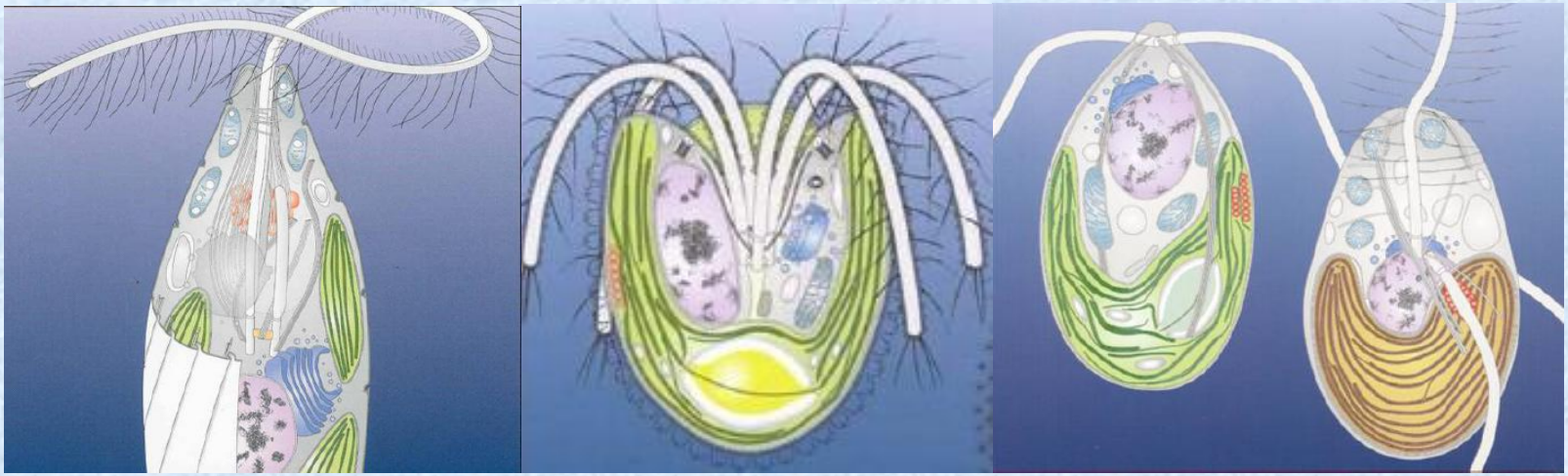
2. Trypetheliaceae. Excipulum verrucaeforme, e thalli strato medullari formatum, ostiolato-pertusum, nucleum deliquescentem includens. *Gen.* 151—154.

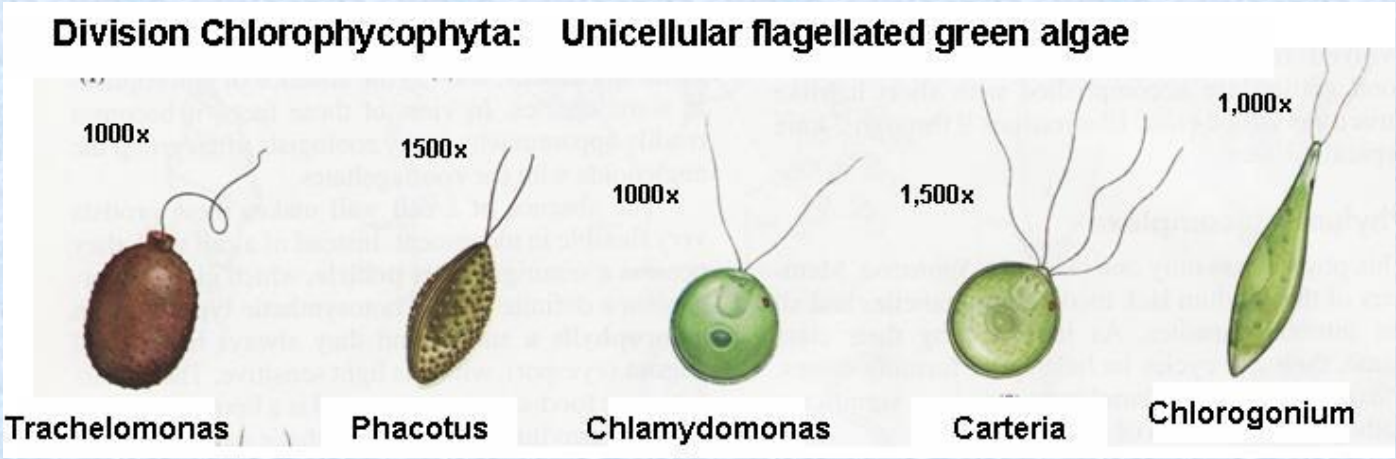
3. Endocarpeae. Excipulum thallodes ostiolatum, nucleum diffluentem includens. *Gen.* 155—157.

4. Sphaerophoreae. Excipulum thallodes pertusum, nucleus fatiscens. *Gen.* 158—159.

Classification

- **19th /20th century:**
  - **evolutionary view**

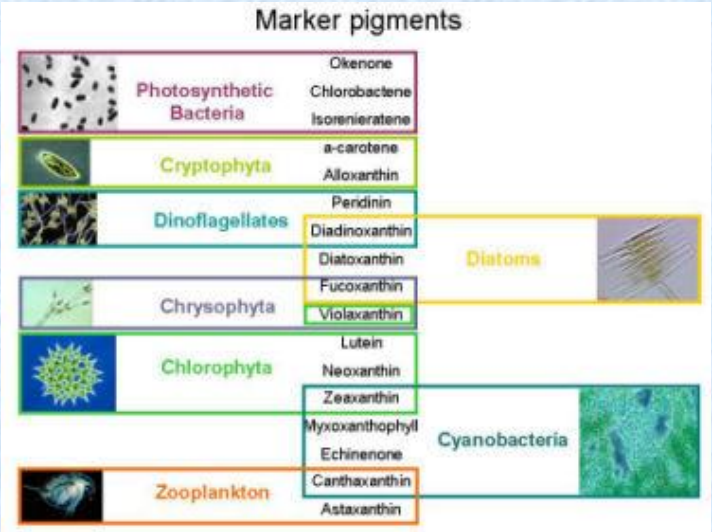


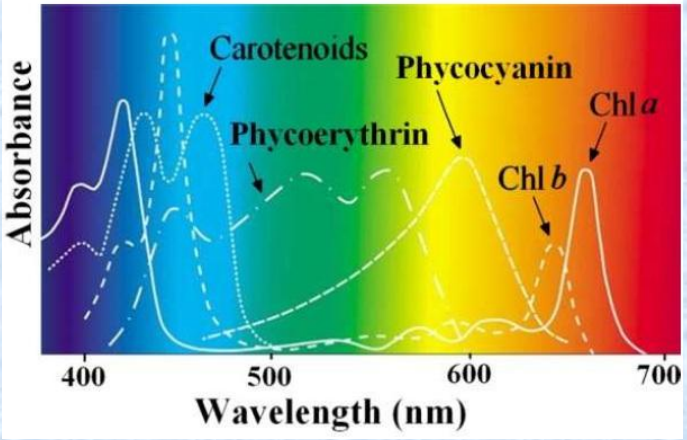


počet, uspořádání, a délka bičíků

Classification

- **19th /20th century:**
  - **evolutionary view**

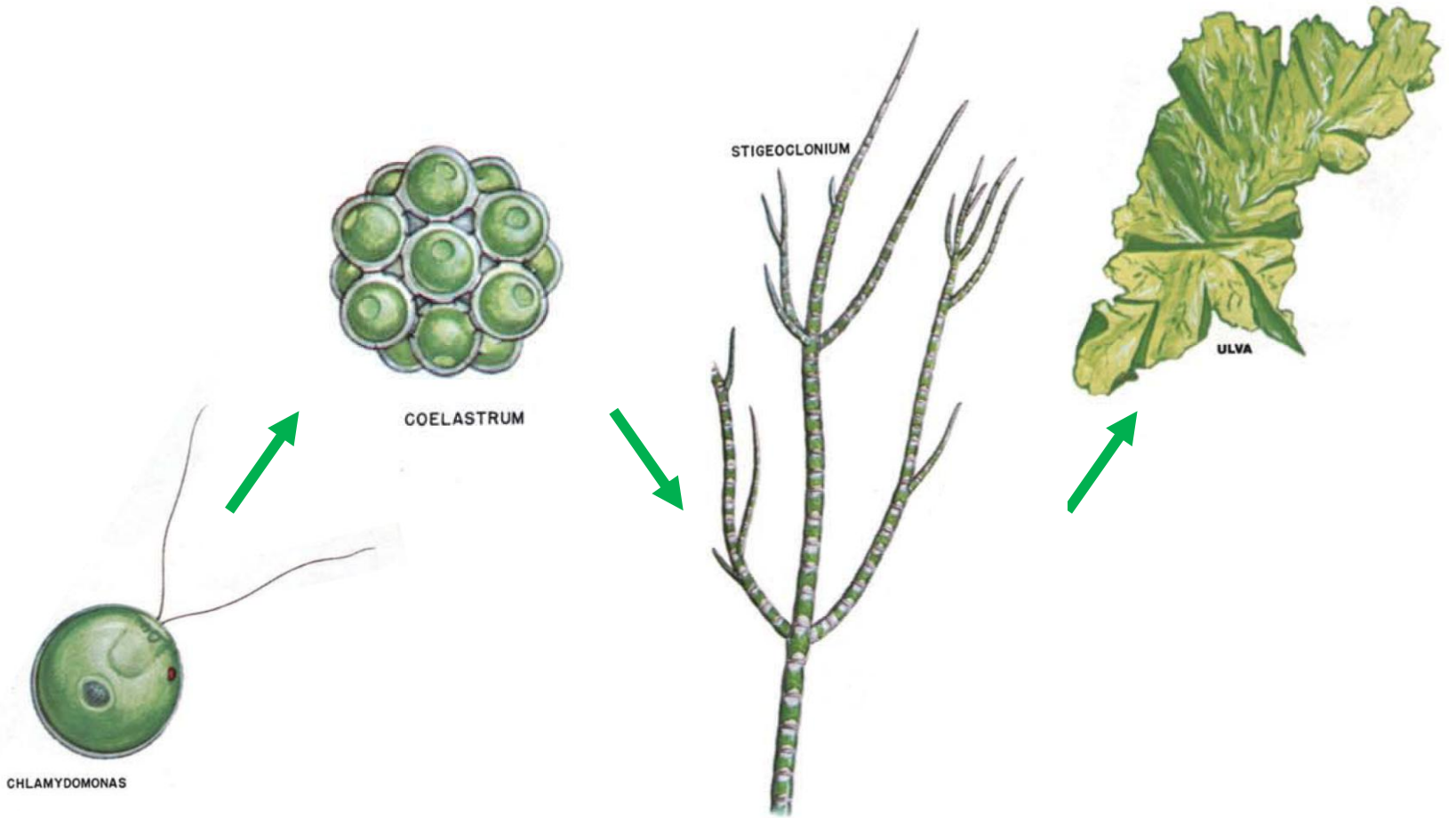




složení pigmentů, zásobních látek

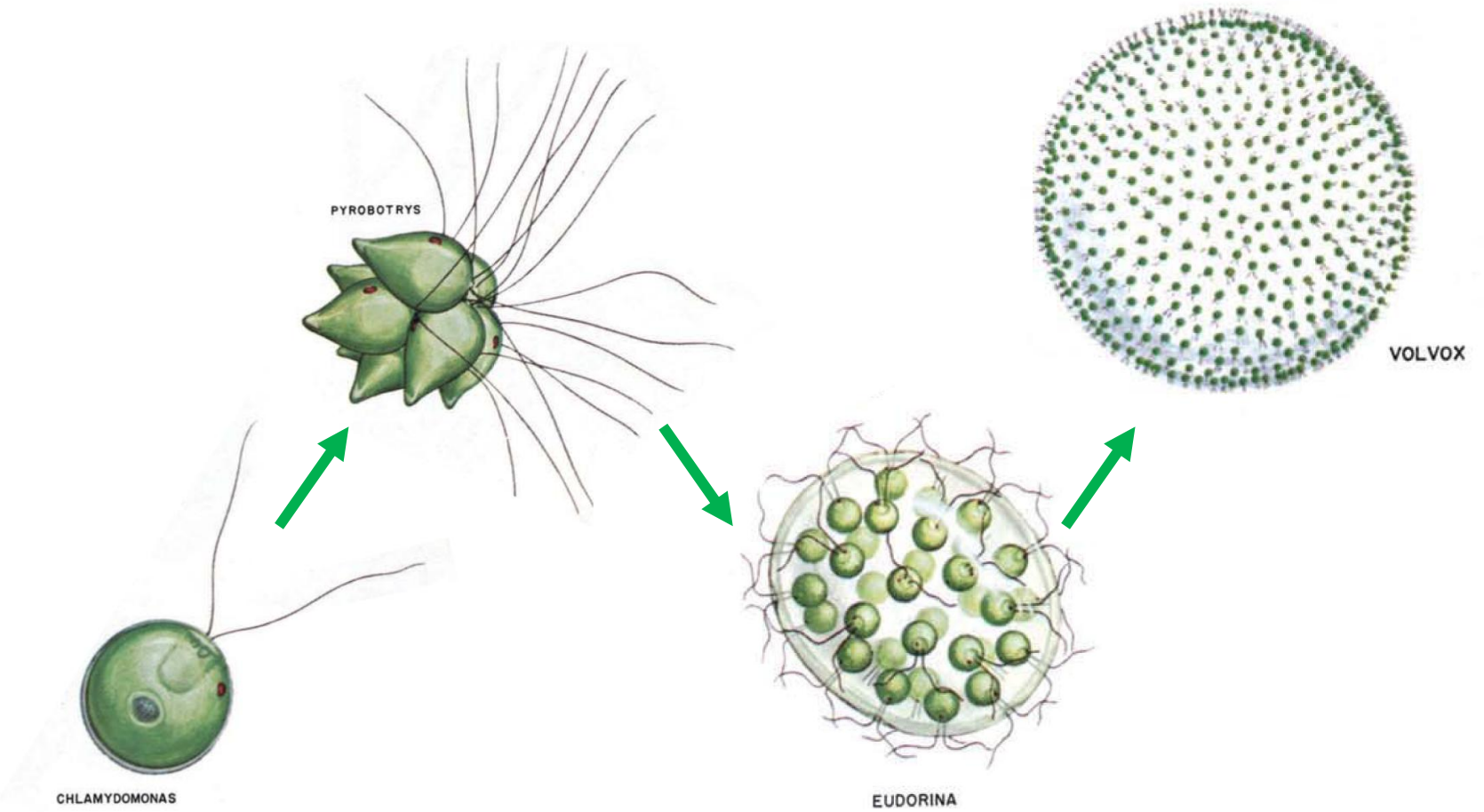
Classification

- **concepts of algal evolution**
  - **from flagellates to complex morphologies**



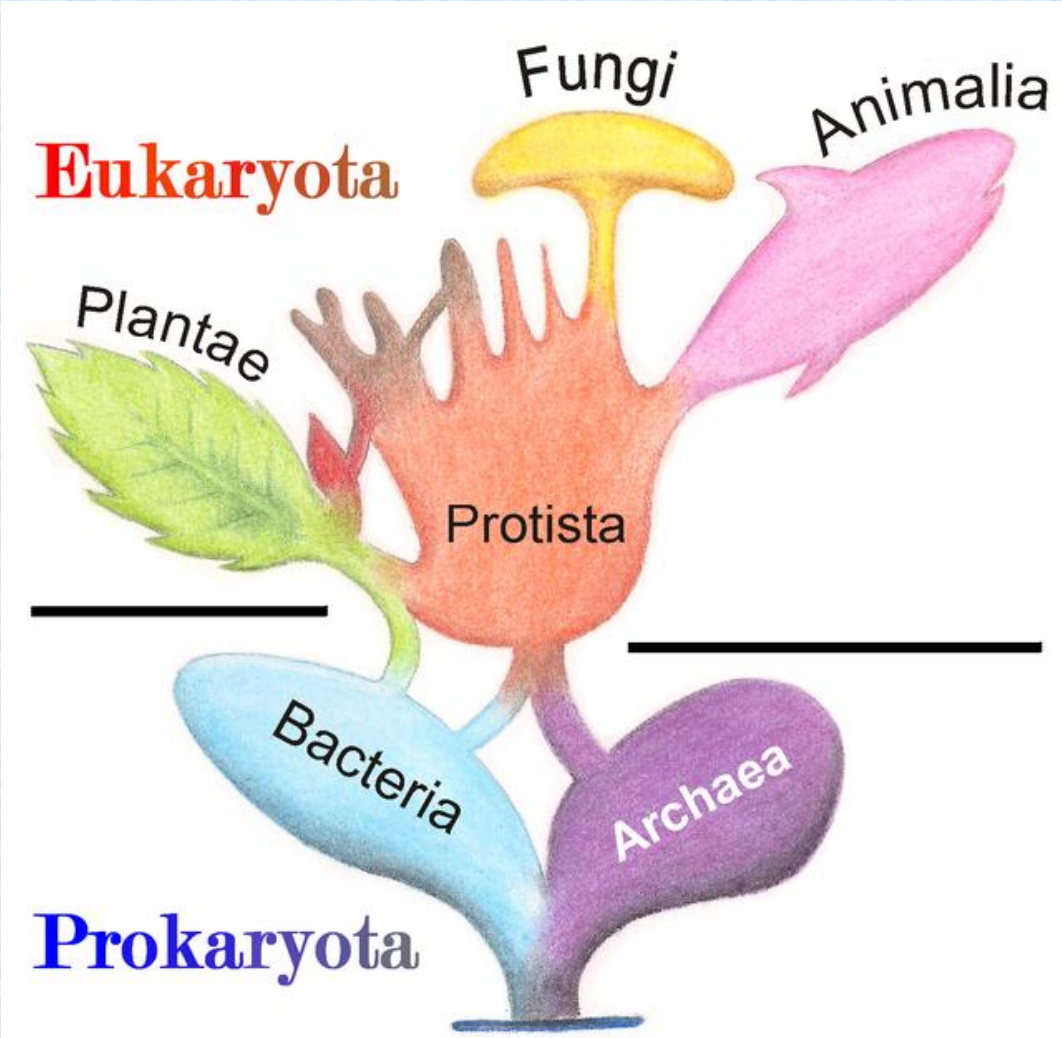
Classification

- **concepts of algal evolution**
  - **e.g. Volvocine evolution**



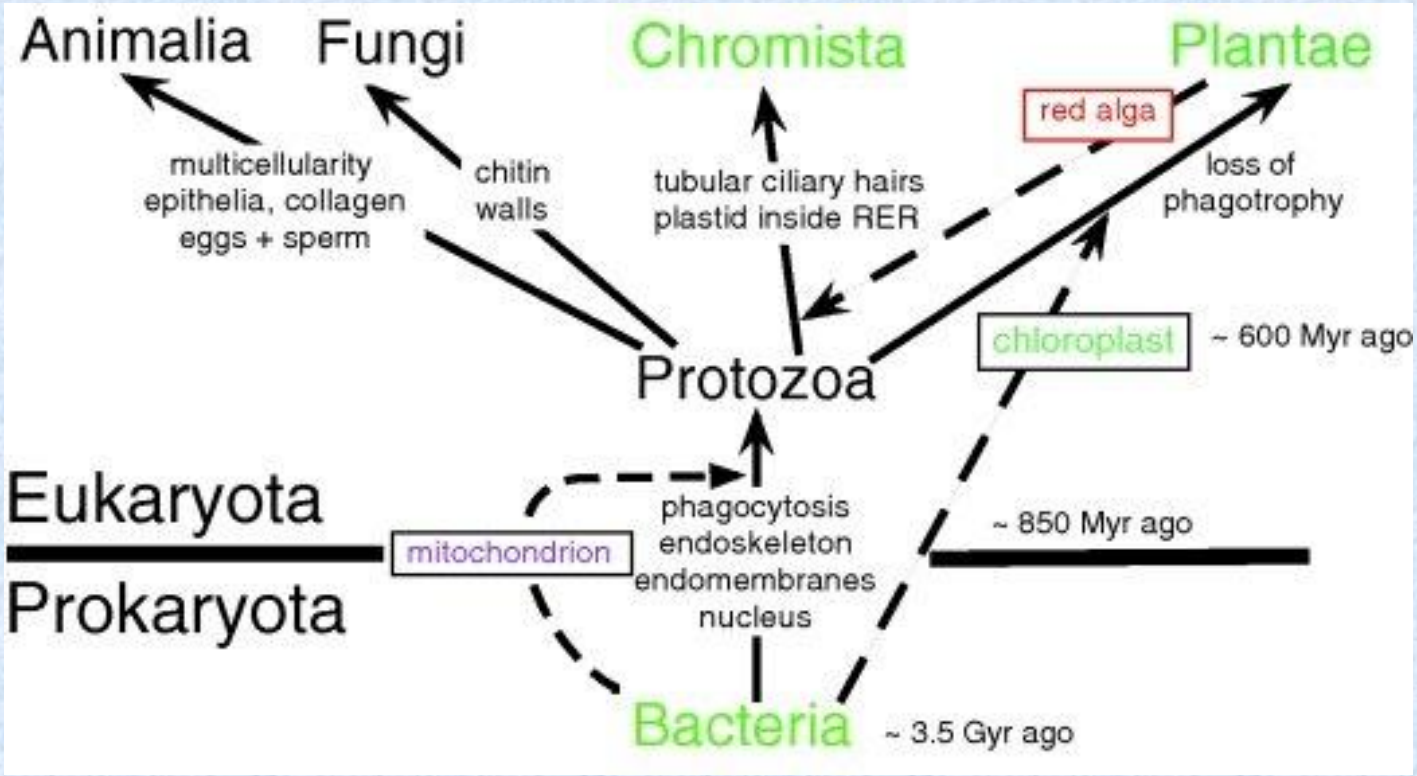
Classification

- **Whittaker, 1959**

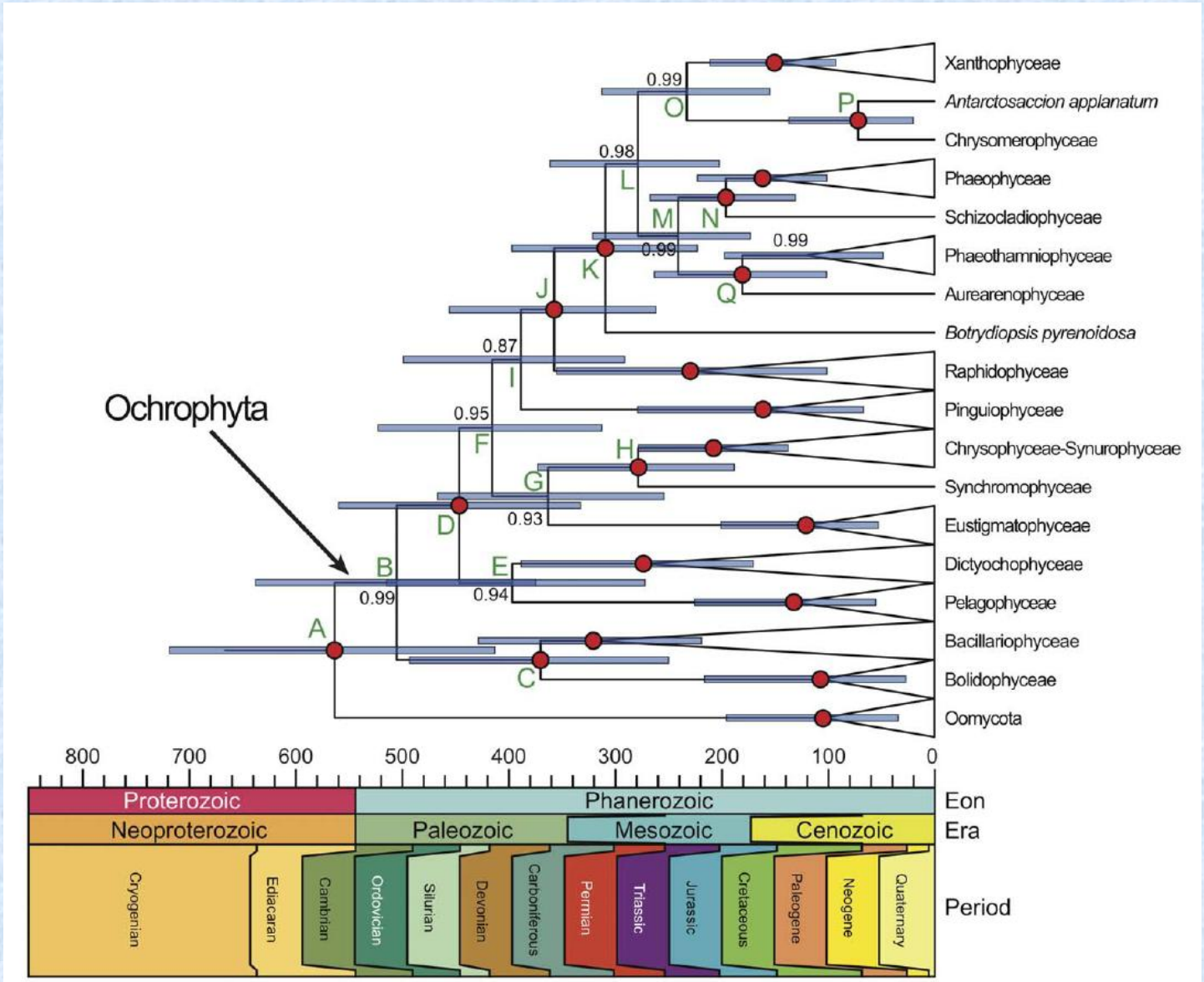


Classification

- **Cavalier-Smith, 1981: Chromista**

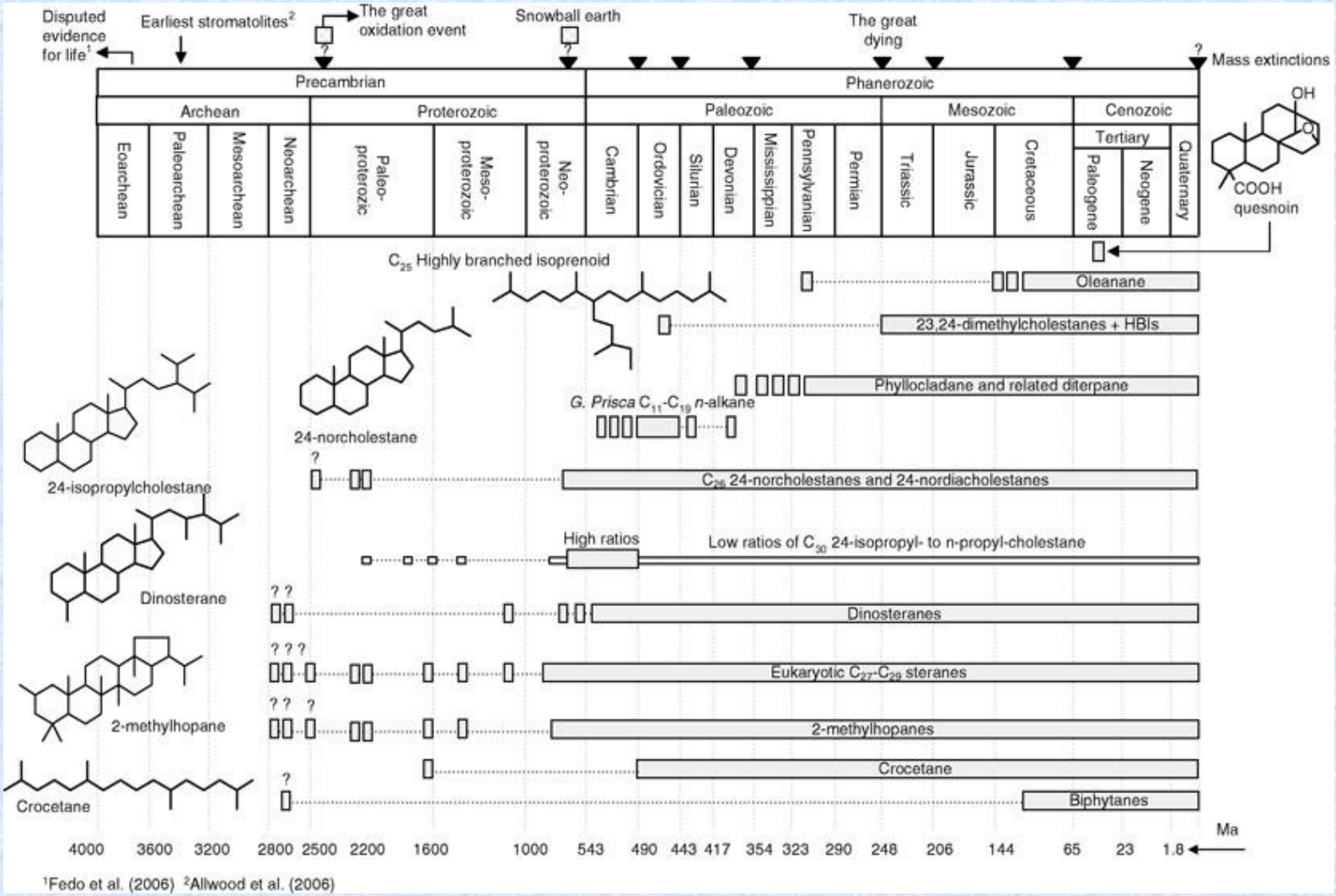


Molecular revolution

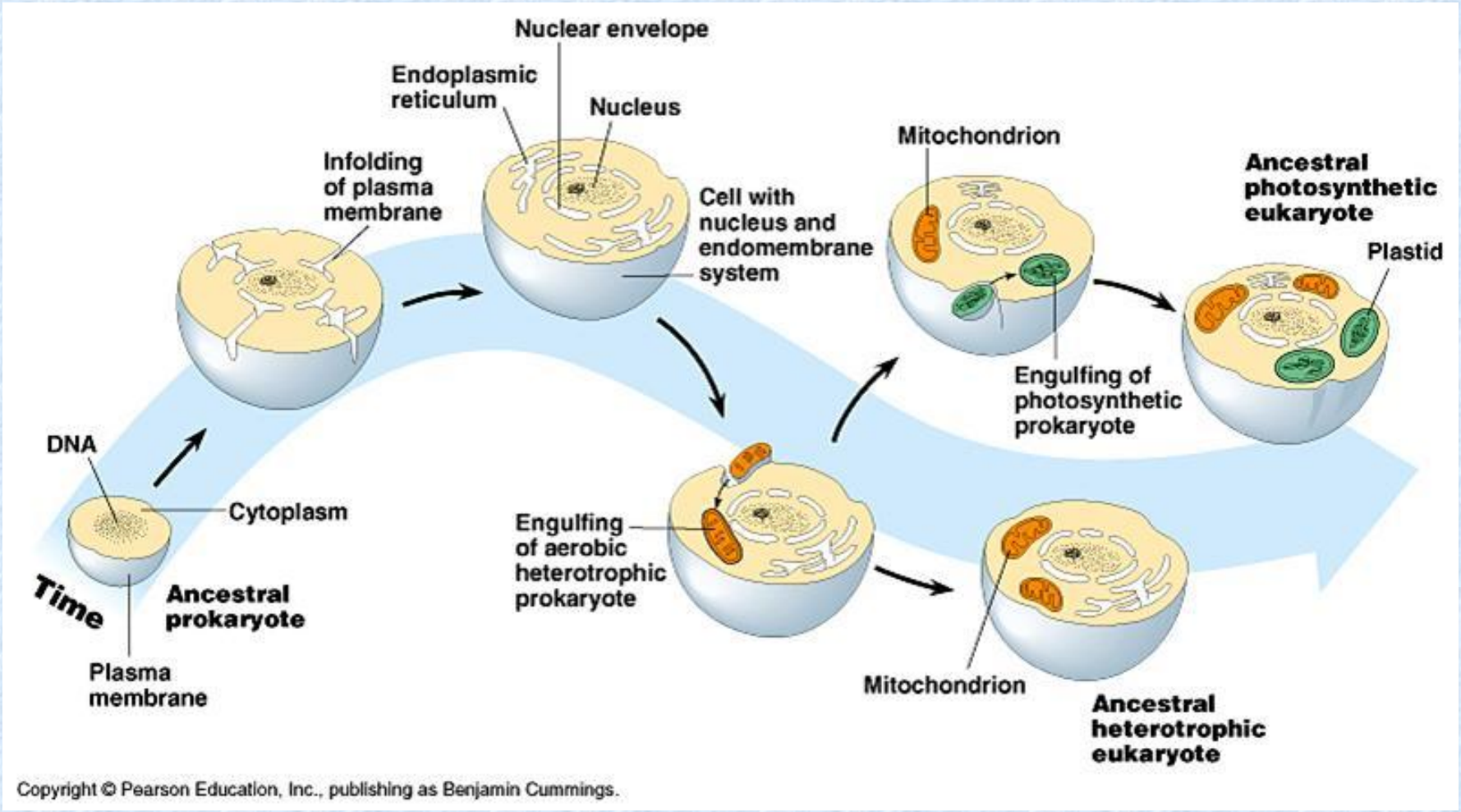


Molecular revolution

- **biogeochemical markers**



Endosymbioses



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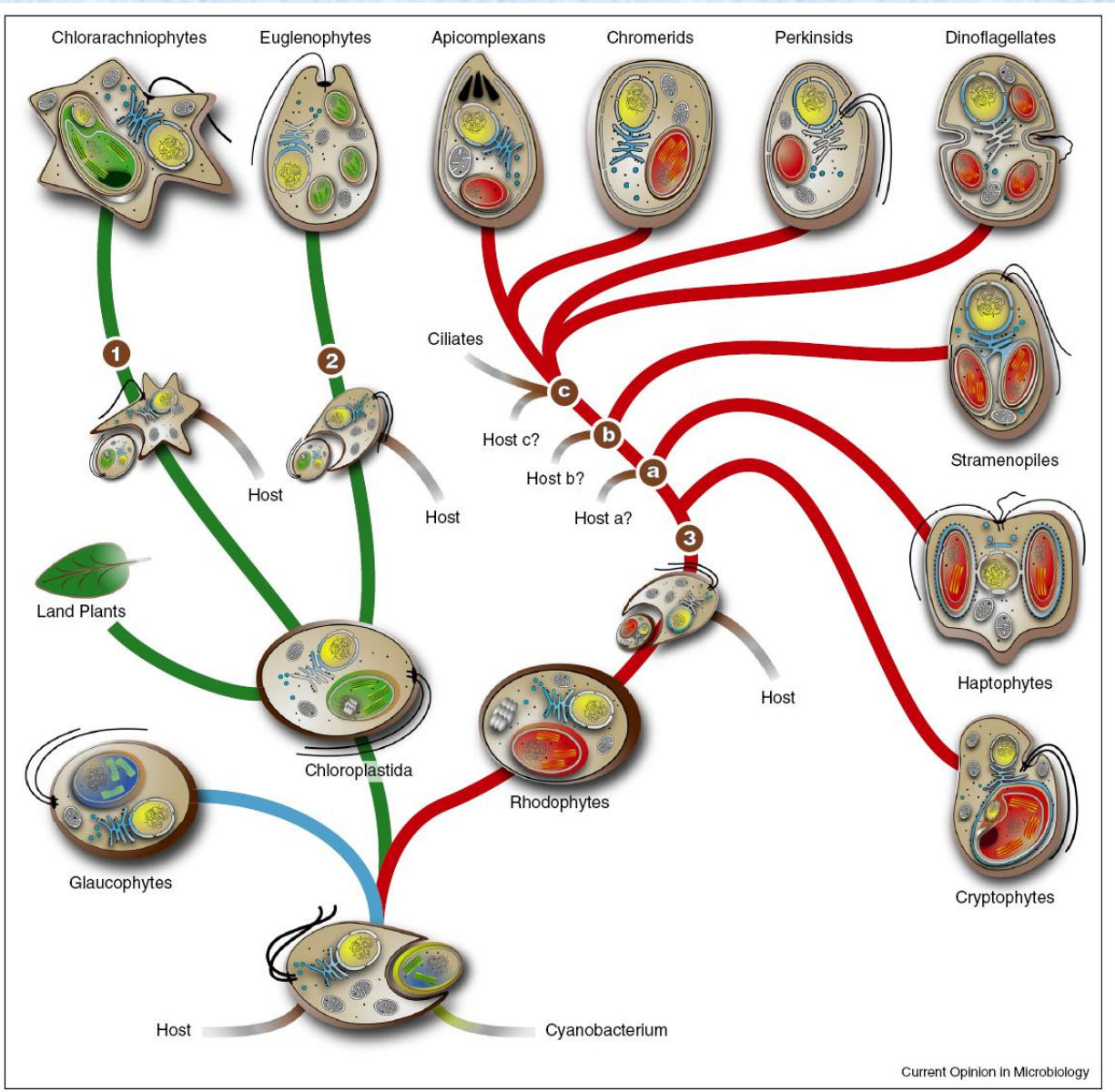
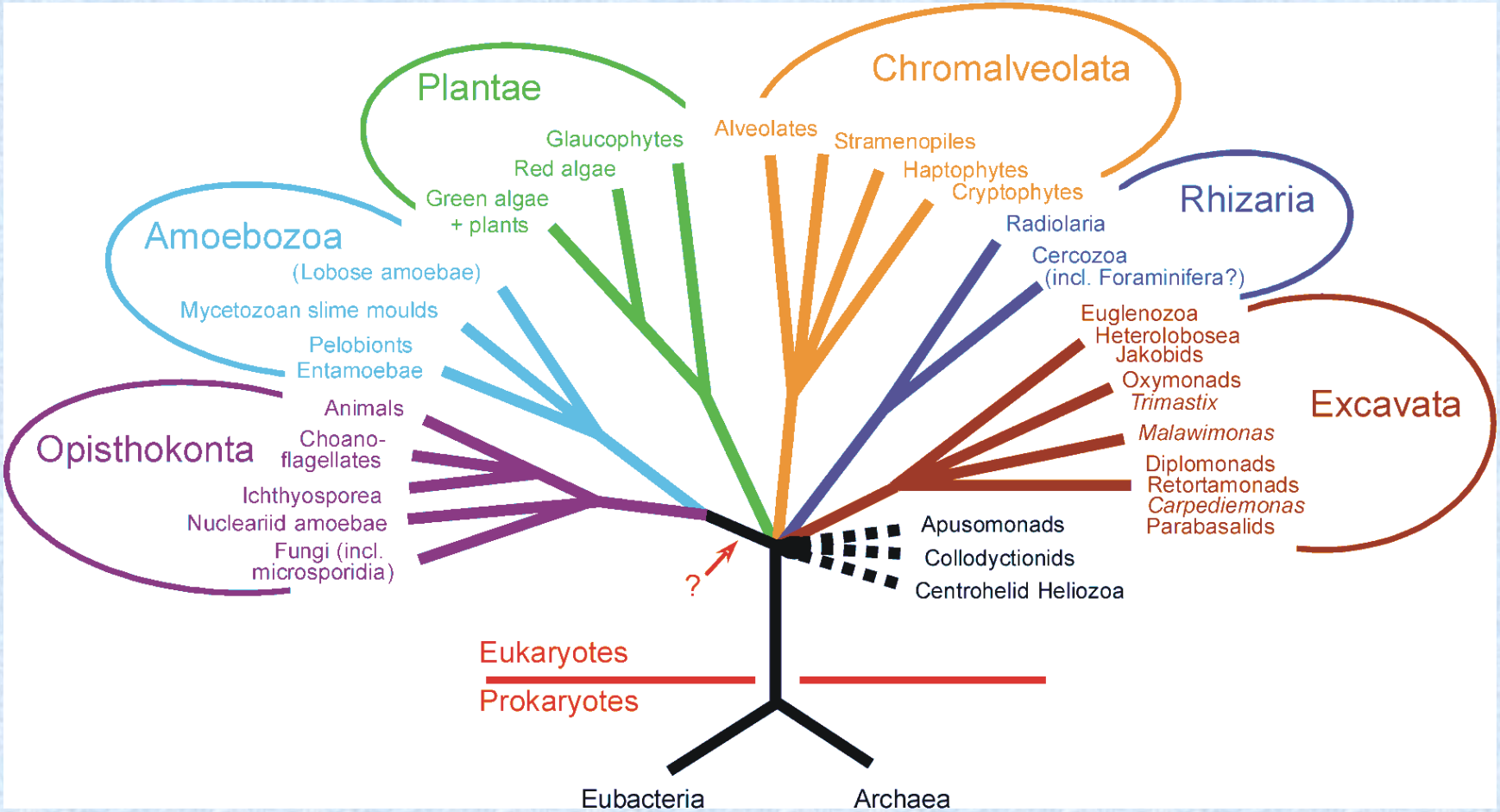
Endosymbioses

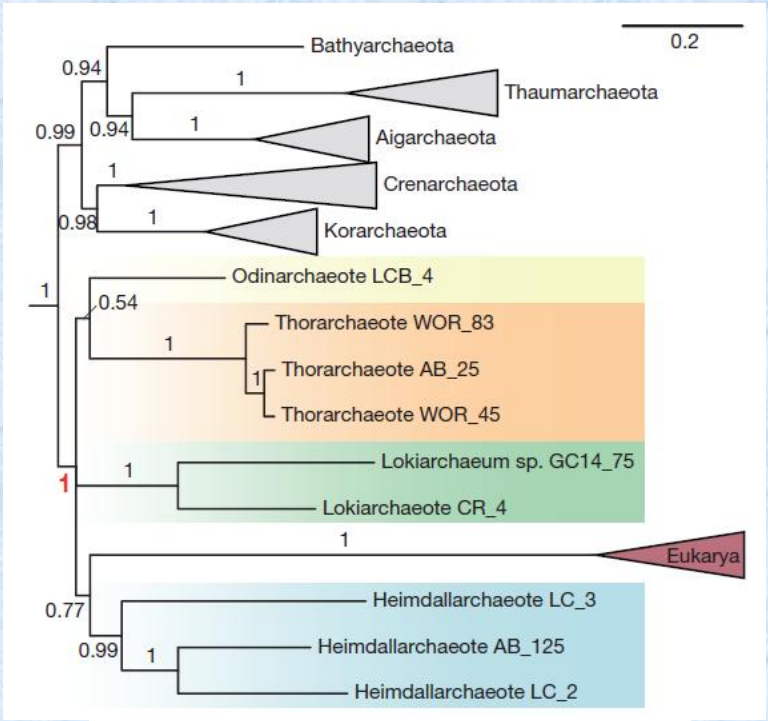


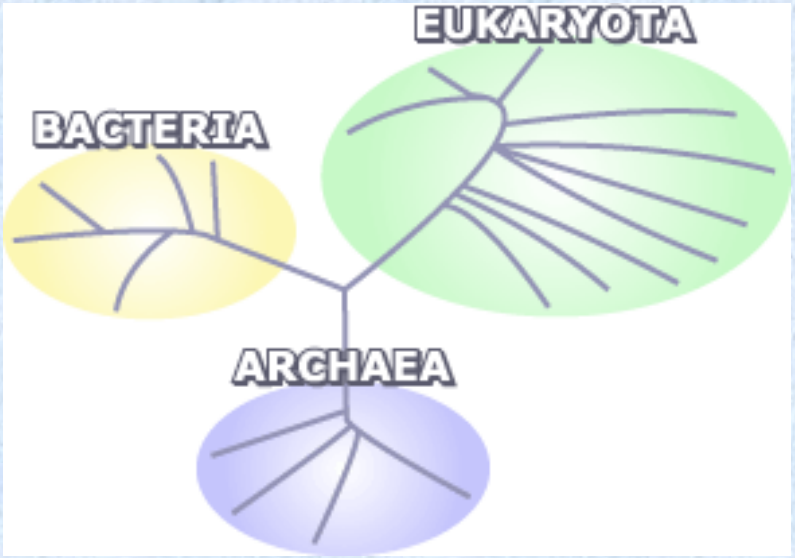
Classification

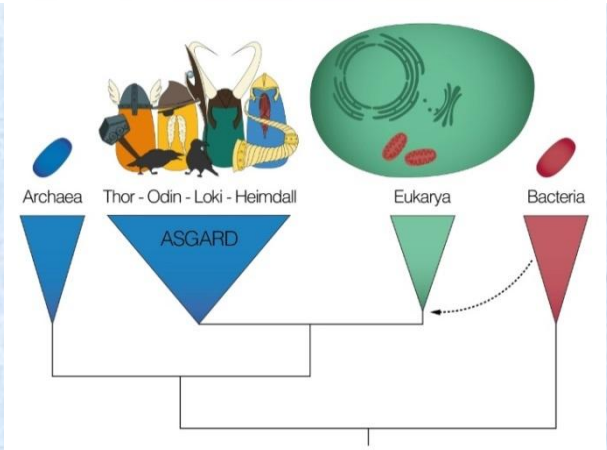
- **Simpson, Roger 2004**

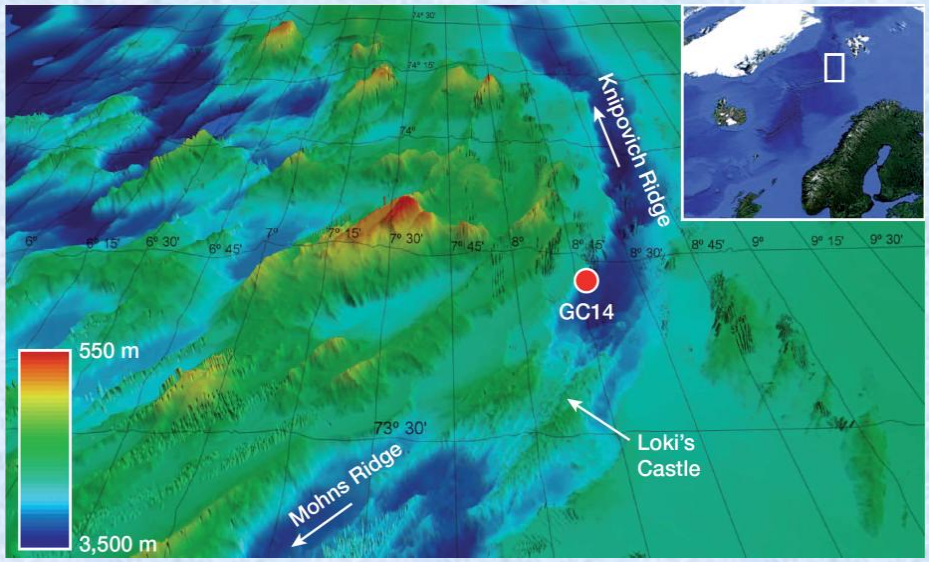


Eukaryogenesis

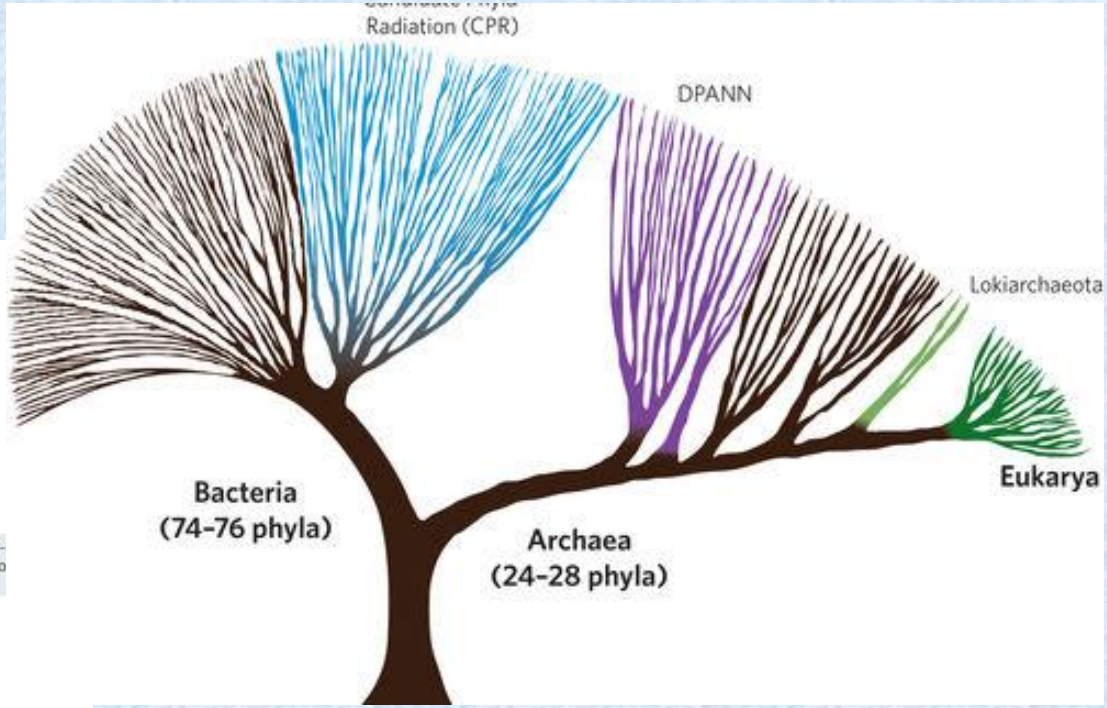


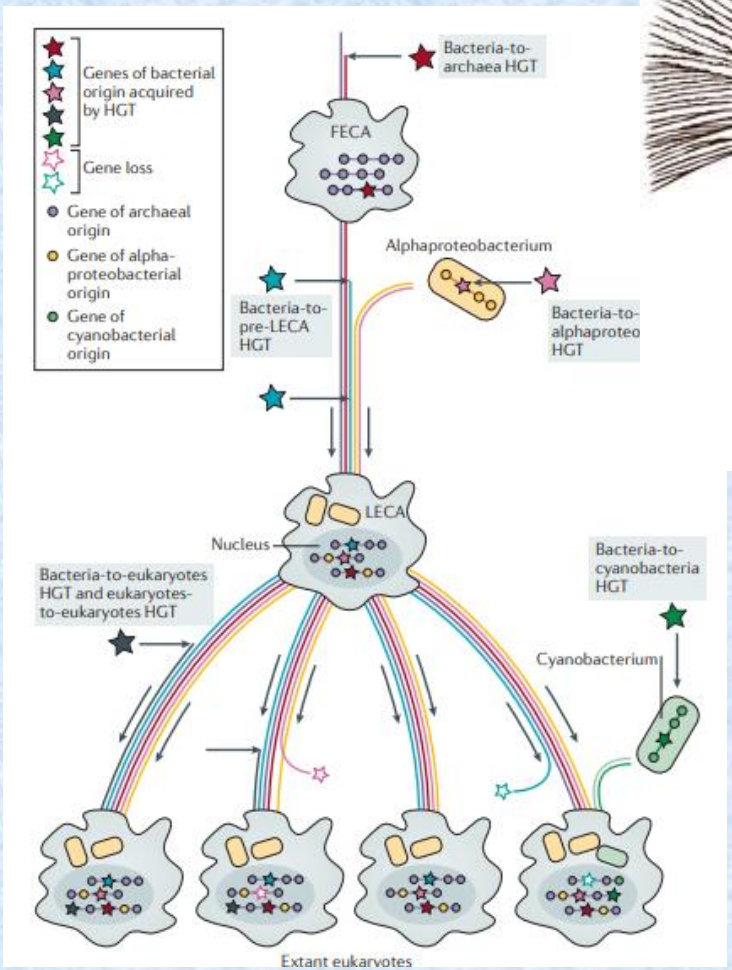


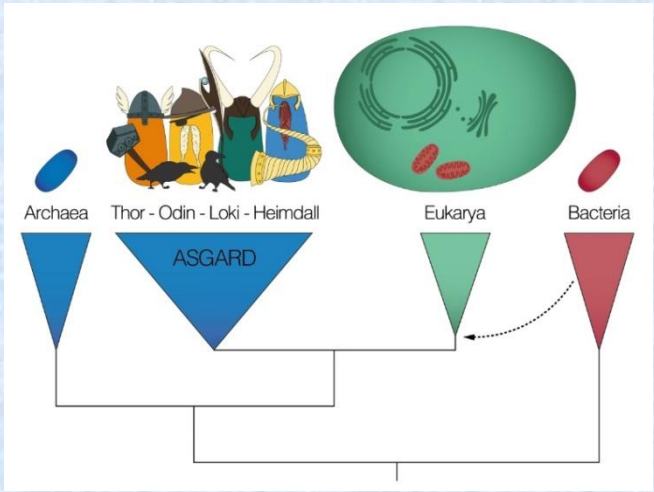




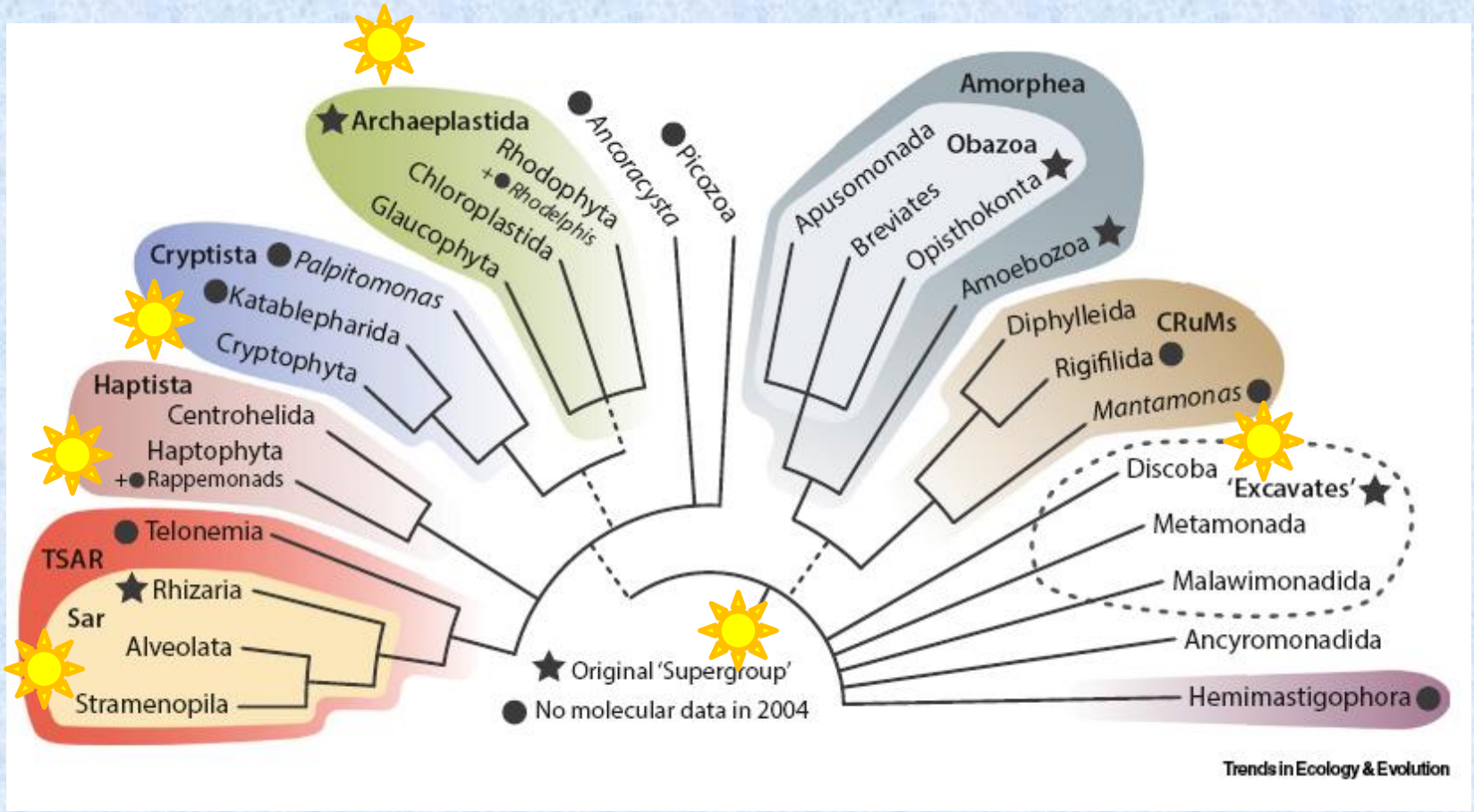
Eukaryogenesis



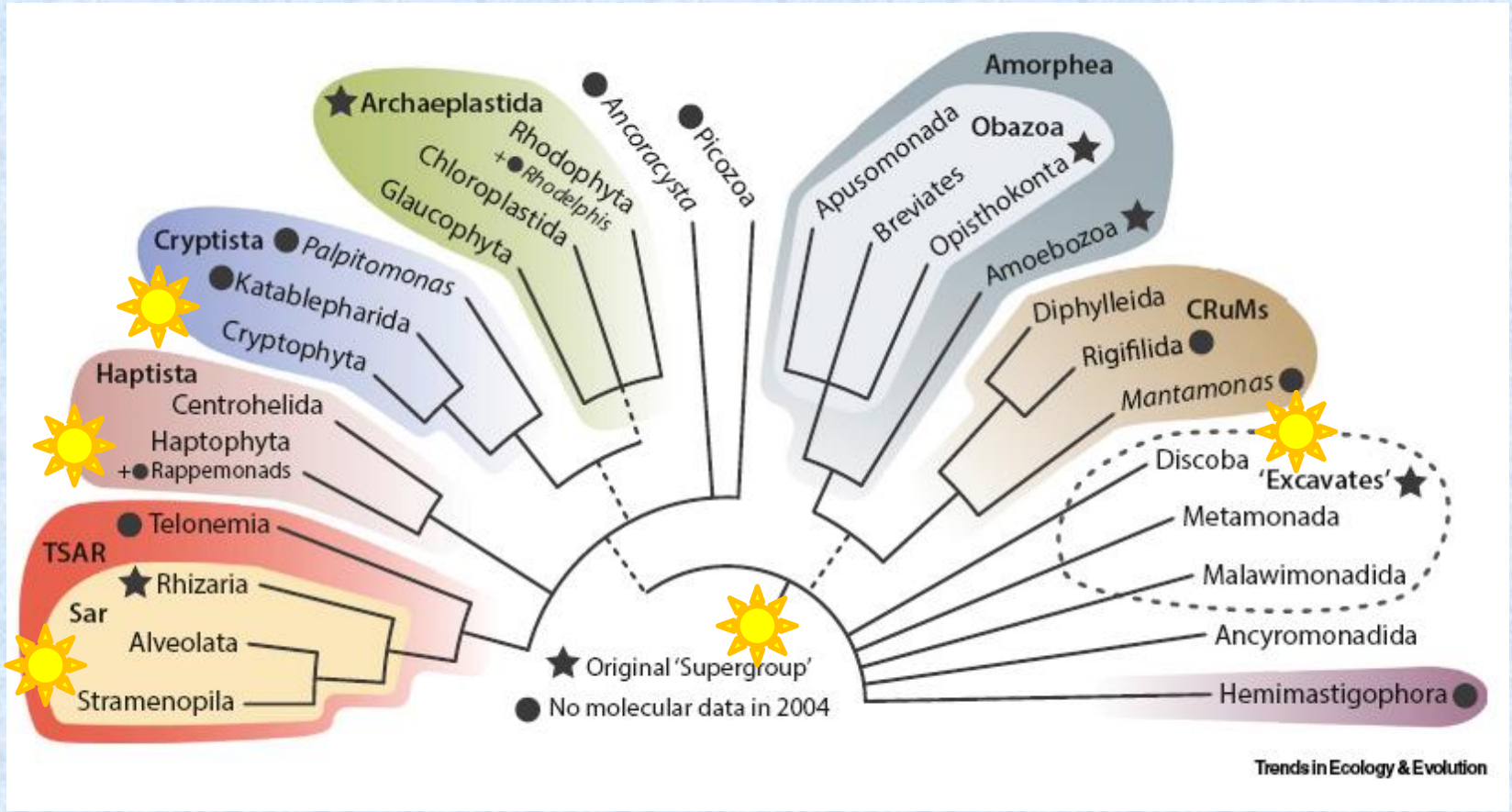




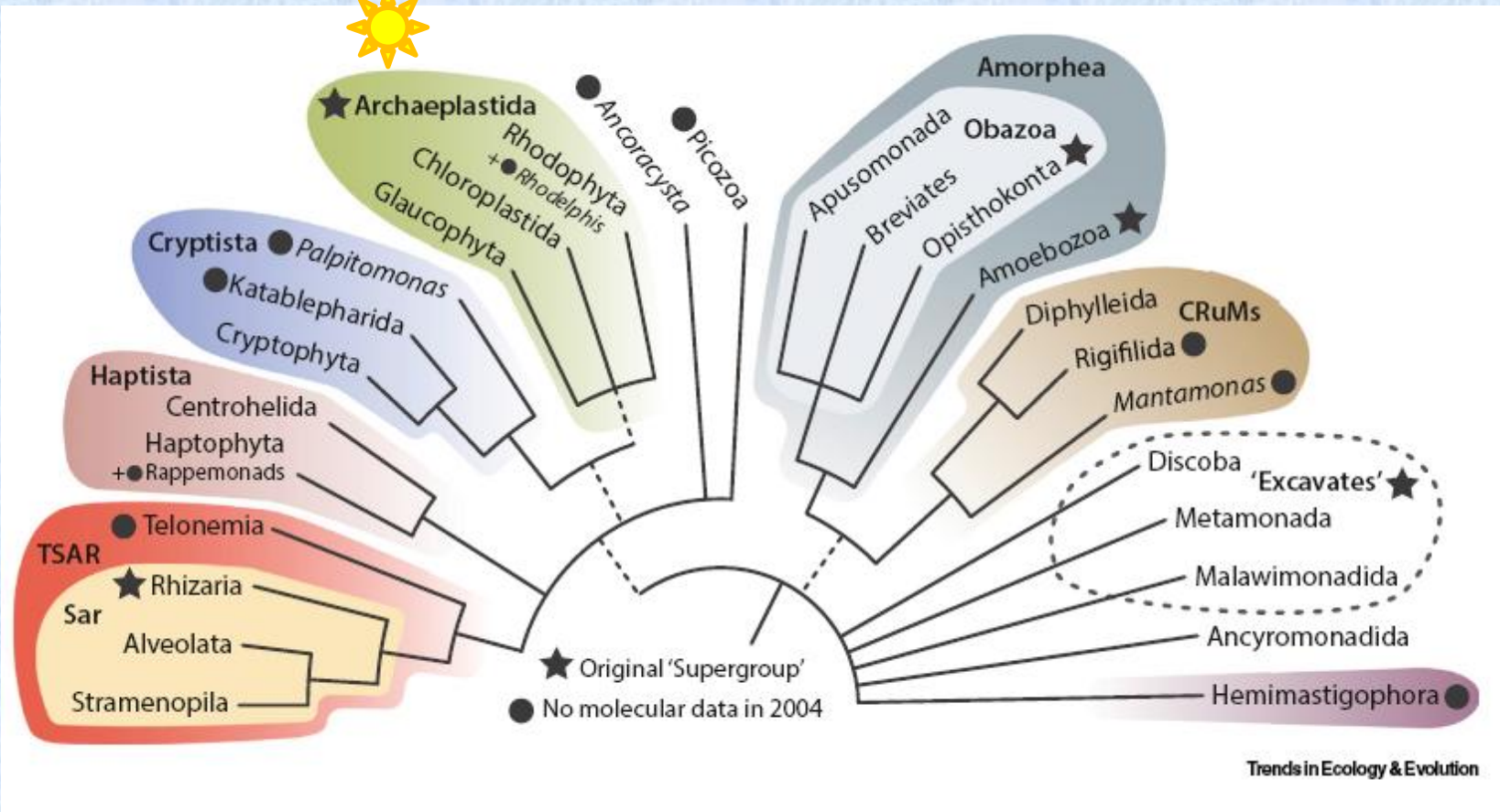
Classification



Phycology I.

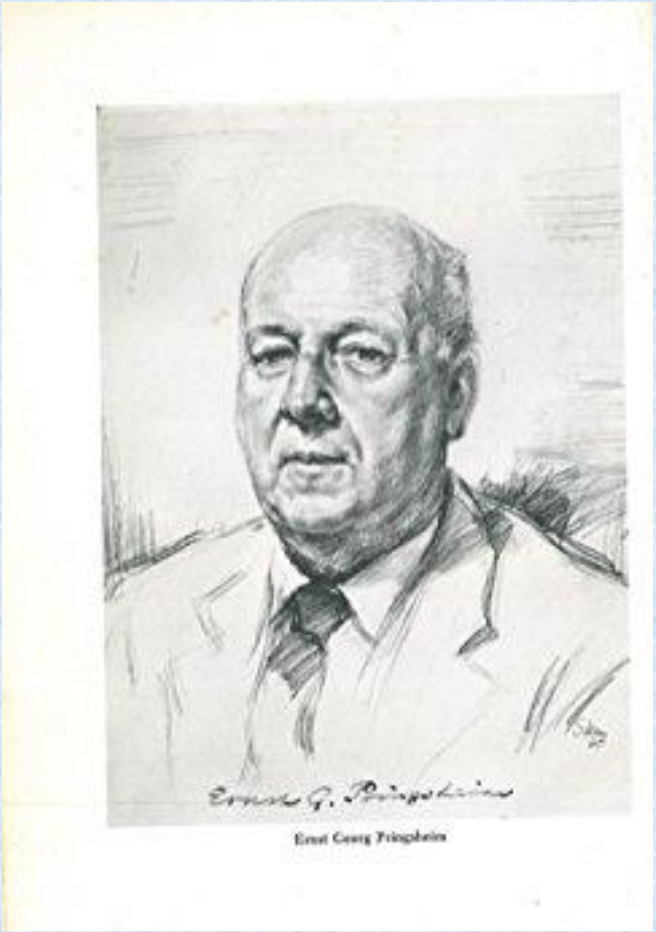

Archaeplastida
Rhodophyta
+ Rhodelphis
Chloroplastida
Glaucophyta
Ancoracysta
Picozoa
Amorphea
Apusomonada
Obazoa
Breviates
Opisthokonta
Amoebozoa
Cryptista
Palpitomonas
Katablepharida
Cryptophyta
Diphylleida
CRuMs
Rigifilida
Mantamonas
Haptista
Centrohelida
Haptophyta
+ Rappemonads
Discoba
'Excavates'
Metamonada
Malawimonadida
Telonemia
TSAR
Rhizaria
Sar
Alveolata
Ancyromonadida
Stramenopila
Hemimastigophora
Original 'Supergroup'
No molecular data in 2004
Trends in Ecology & Evolution

Phycology II.



Ernest George Pringsheim (1881 Wroclaw – 1970 Göttingen)

- He came from a prominent Jewish family in Silesia
- 1922 - Prague - professor of plant physiology, founded a collection of algae, acquired Czech citizenship
- 1939 - emigrated to London, founded other algal collections in Europe

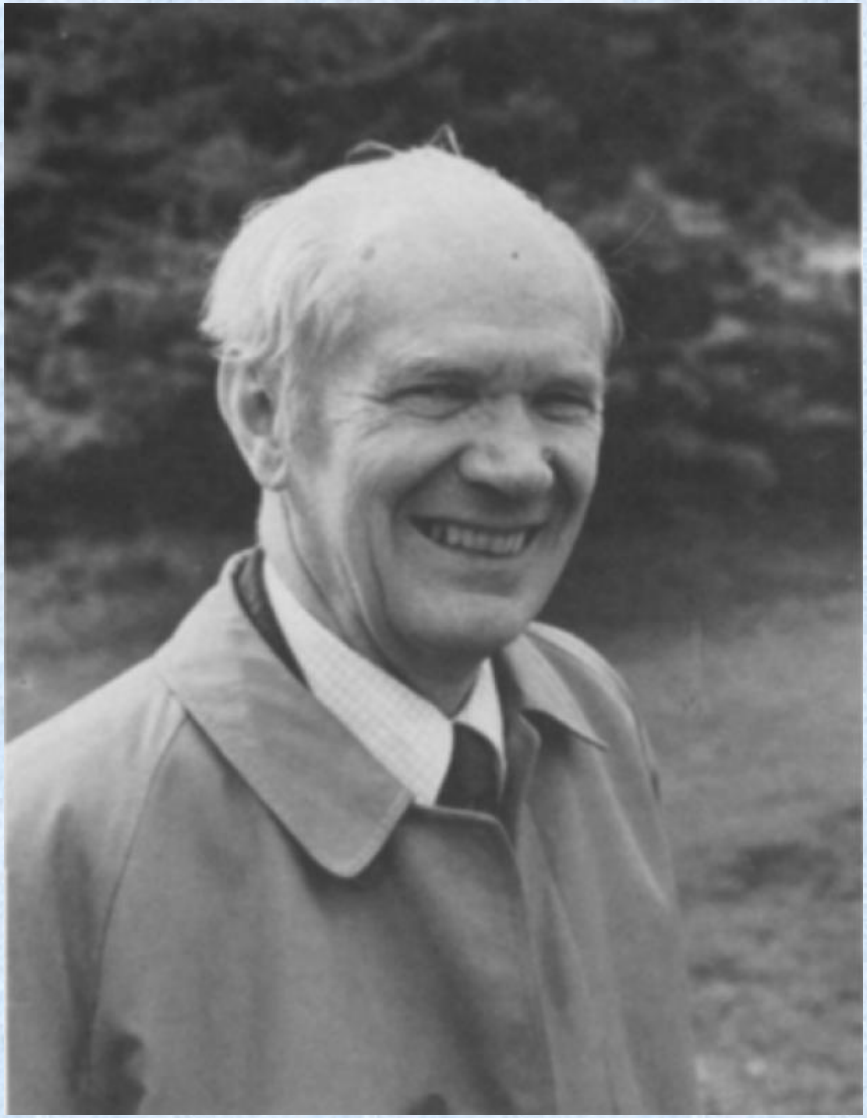


Adolf Pascher (1881 Stožec – 1945 Praha)

- Pringsheim's colleague of a rather different character
- 1908 - founded a hydrobiological workplace in Doksy near Mácha Lake
- Member of the NSDAP during the war, shot himself at the end of the war (his wife, a convinced Nazi, poisoned herself with cyanide)

Bohuslav Fott (1908 Příbram – 1976 Praha)

- Post-war development of Czech algology (Head of the Department of Botany in 1954-1970)



Hanuš Ettl (1931 Praha – 1997 Půlpecen)

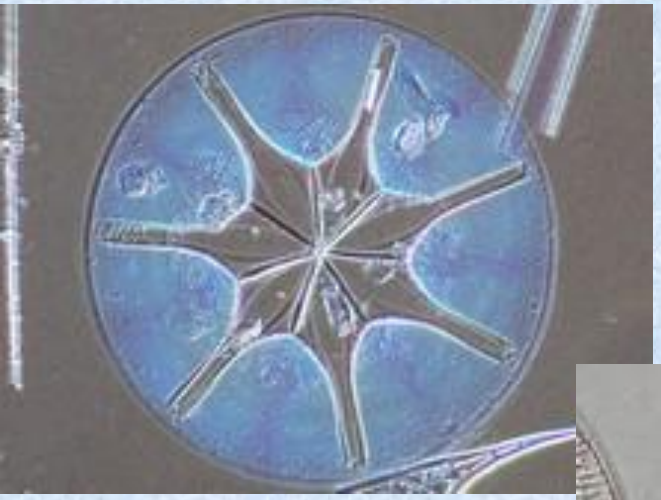
- assistant of Fott, expelled from the University by the Communists in 1959, then a teacher at schools in the Svitavy area. Settled in Půlpecen, where he studied the local ponds
- 1968 rehabilitated, doctorate in Brno
- University of Marburg offered him a professorship, but the regime did not grant him an exit permit

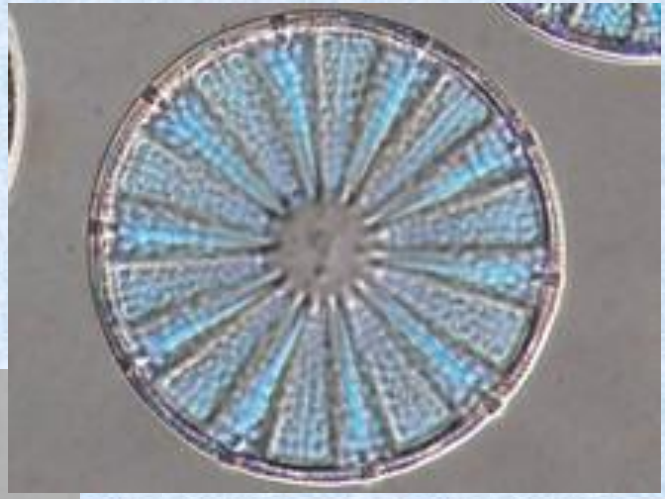
Phycology

- **Botany of non-vascular plants**
  - in English in summer semester
- **Protistology**
  - in Czech only (winter semester)

Phycology I.

- lecture: wednesday, 13:10 – 15:25
- practicum: tuesday, 11:30 – 13:00





Phycology I. - lecture

- http://botany.natur.cuni.cz/algo/predmety.html

Program of lectures:

date	lecture	presentation	paper	presented by
1.10. (P)	introductory lecture		-	-
8.10. (Y)	Cyanobacteria I		PDF	
15.10. (Y)	Cyanobacteria II			
22.10. (P)	Dinophyta I			
29.10. (P)	Dinophyta II			
5.11. (Ja)	Hapto-, Cryptophyta			
12.11. (Y)	Eugleno-, Chlorarachnioph.			
19.11. (Y)	Stramenopiles, SII clade			
26.11. (Ja)	Stramenopiles, SIII + PX clade			
3.12. (Ji)	Phaeophyceae I			
10.12. (Ji)	Phaeophyceae II			
17.12. (Ja)	Bacillariophyceae I			
7.1. (Ja)	Bacillariophyceae II			

(Ja) Janice, (Ji) Jirka, (P) Pavel, (Y) Yvonne

Pavel

Yvonne

Jirka

Janice

Phycology I. - lecture

Jana Hamplová	Klára Chalupová	Agáta Chvojková
Klára Kocsisová	Natálie Kubartová	Elena Osipenko
Klára Sazimová	Michaela Vávrová	Terezie Zemanová

Phycology I. - lecture

- http://botany.natur.cuni.cz/algo/predmety.html

Program of lectures:

date	lecture	presentation	paper	presented by	prezentující
1.10. (P)	introductory lecture		-	-	-
8.10. (Y)	Cyanobacteria I		PDF		Jana
15.10. (Y)	Cyanobacteria II				Klára Ch.
22.10. (P)	Dinophyta I				Agáta
29.10. (P)	Dinophyta II				-
5.11. (Ja)	Hapto-, Cryptophyta				Klára K.
12.11. (Y)	Eugleno-, Chlorarachnioph.				Natálie
19.11. (Y)	Stramenopiles, SII clade				-
26.11. (Ja)	Stramenopiles, SIII + PX clade				Elena
3.12. (Ji)	Phaeophyceae I				Klára S.
10.12. (Ji)	Phaeophyceae II				-
17.12. (Ja)	Bacillariophyceae I				Michaela
7.1. (Ja)	Bacillariophyceae II				Terezie

(Ja) Janice, (Ji) Jirka, (P) Pavel, (Y) Yvonne

Phycology I. - practicum

- obligatory
- http://botany.natur.cuni.cz/algo/predmety.html

Honza

Pavel

Janice

Martina

…

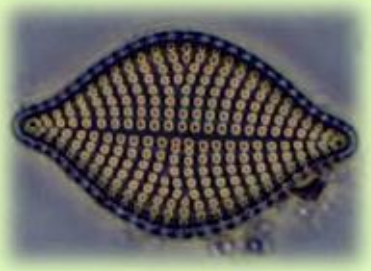
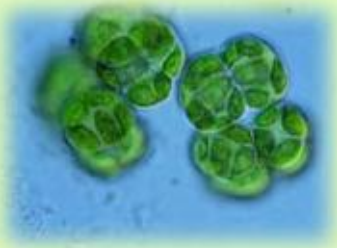
Phycology I. - practicum

> HOME <
1. Cyanobacteria
2. Euglenophyta
3. Cryptophyta
4. Dinophyta
5. Phaeophyceae
6. Chrysophyceae
7. Xanthophyceae
8. Eustigmatophyceae
9. Dictyochophyceae
10. Bacillariophyceae I.
11. Bacillariophyceae II.
12. Glaucophyta
13. Rhodophyta I.
14. Rhodophyta II.
15. Prasinophyceae
16. Ulvophyceae
17. Chlorophyceae
18. Trebouxiophyceae
19. Charophyceae
20. Zygnematophyceae
21. ostatní Streptophyta

Virtuální algologické praktikum

Vítejte na stránkách virtuálního praktika k předmětům Algologie I. a II.

Zde naleznete obrazovou dokumentaci k objektům prezetovaným na praktických cvičeních. Seznam řas a sinic aktuálně prezentovaných v tomto semestru (včetně požadavků k poznávačce) najdete na těchto stránkách: ZS, LS.

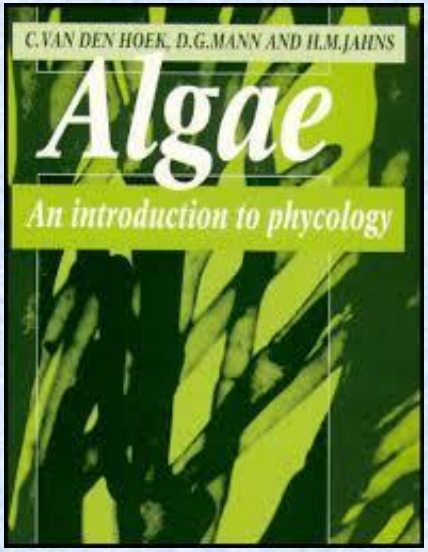
» Stránky algologického pracoviště «

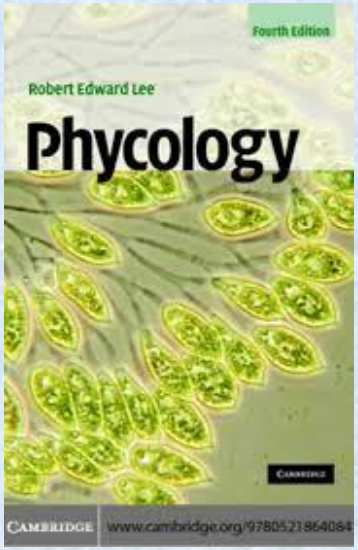
Tyto webové stránky byly realizovány v rámci projektu FRVŠ 255/2008.

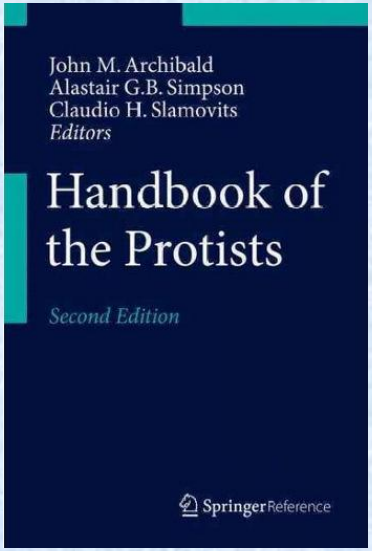
Phycology I.

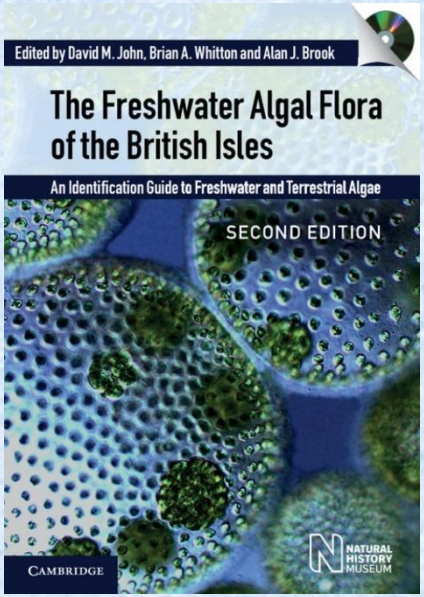
- Practicum: Determination test
- Lecture: Oral exam

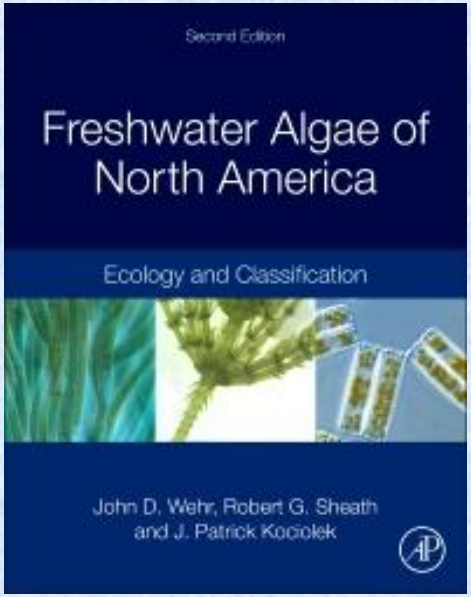
Literature


C.VAN DEN HOEK, D.G.MANN AND H.M.JAHNS
Algae
An introduction to phycology


Fourth Edition
Robert Edward Lee
Phycology
CAMBRIDGE
www.cambridge.org/9780521864084


John M. Archibald
Alastair G.B. Simpson
Claudio H. Slamovits
Editors
Handbook of the Protists
Second Edition
SpringerReference


Edited by David M. John, Brian A. Whitton and Alan J. Brook
The Freshwater Algal Flora of the British Isles
An Identification Guide to Freshwater and Terrestrial Algae
SECOND EDITION
CAMBRIDGE
NATURAL HISTORY MUSEUM


Second Edition
Freshwater Algae of North America
Ecology and Classification
John D. Wehr, Robert G. Sheath
and J. Patrick Kociolek


Atlas sinic a fas 2
Atlas sinic a fas 1