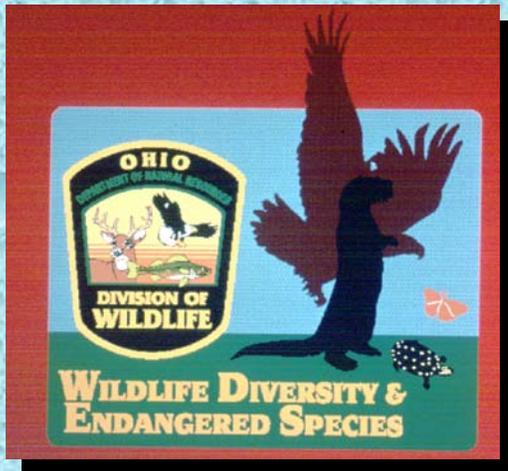




# **Freshwater Mussels: From Living Rocks to Mean Mothers**



**G. Thomas Watters, PhD**  
**Curator of Molluscs**  
**Department of Evolution, Ecology,**  
**and Organismal Biology**  
**The Ohio State University**



19032.3

19032.2



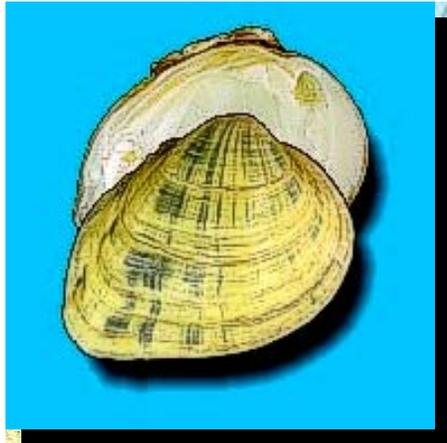




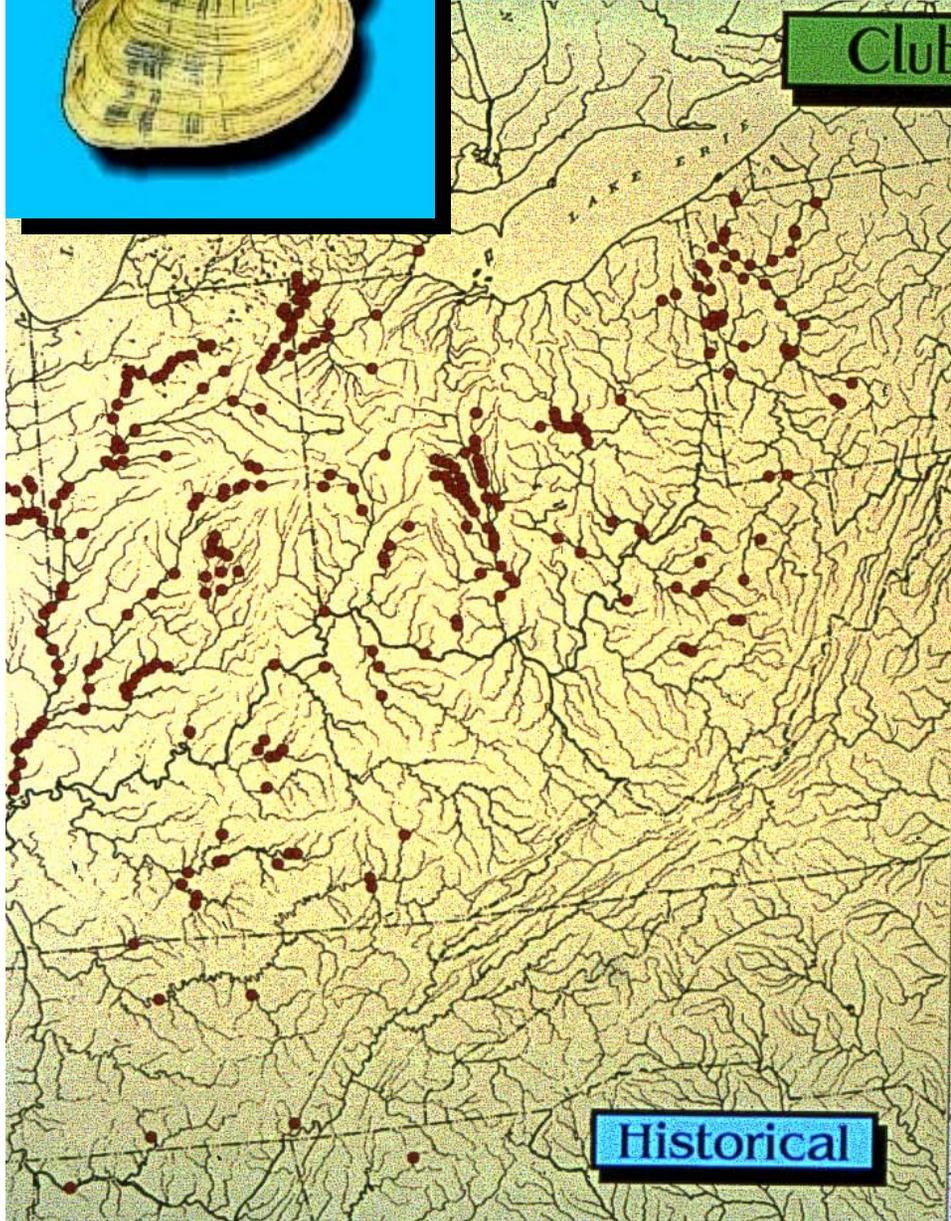


**They  
are  
Extinct**

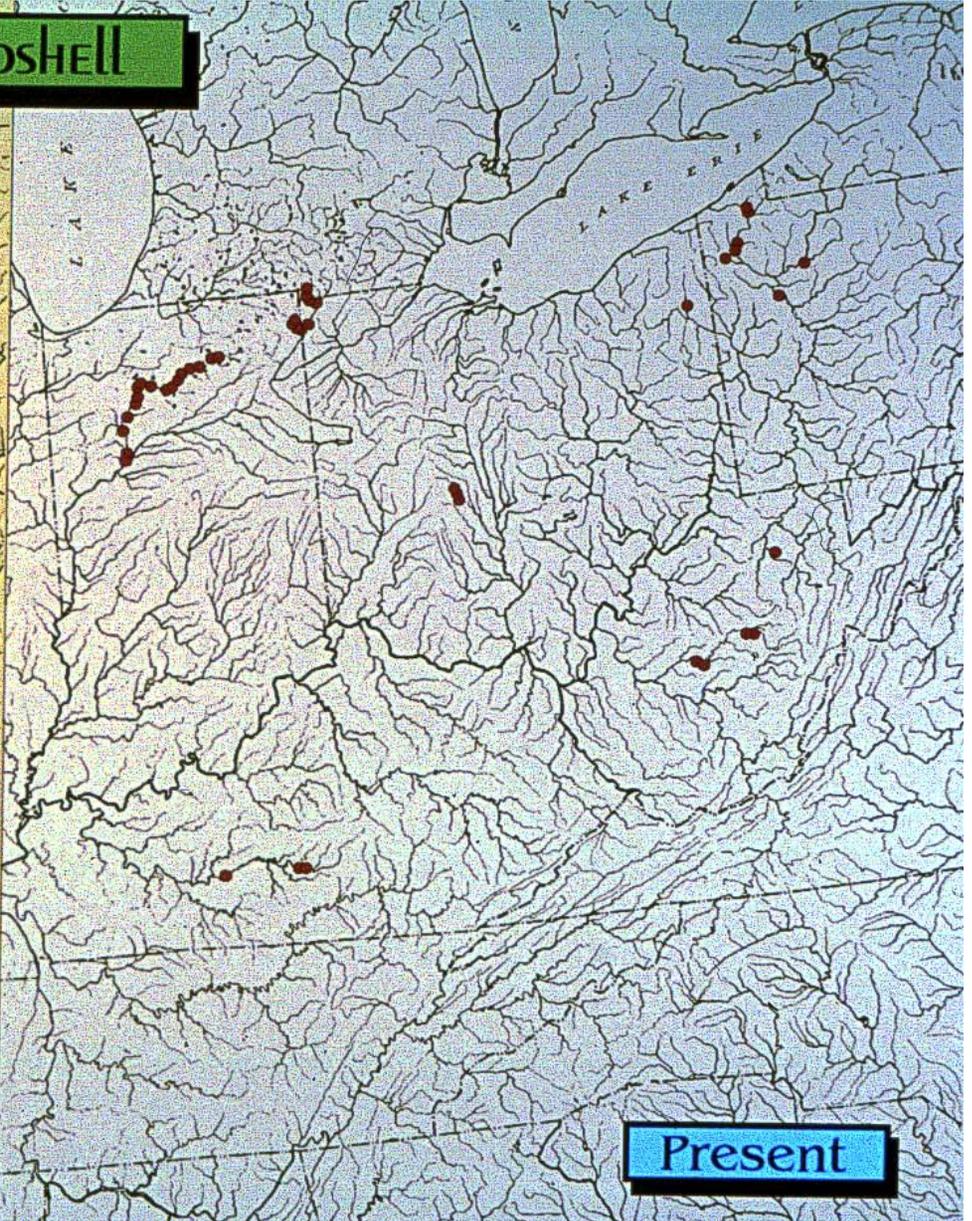




# Clubshell

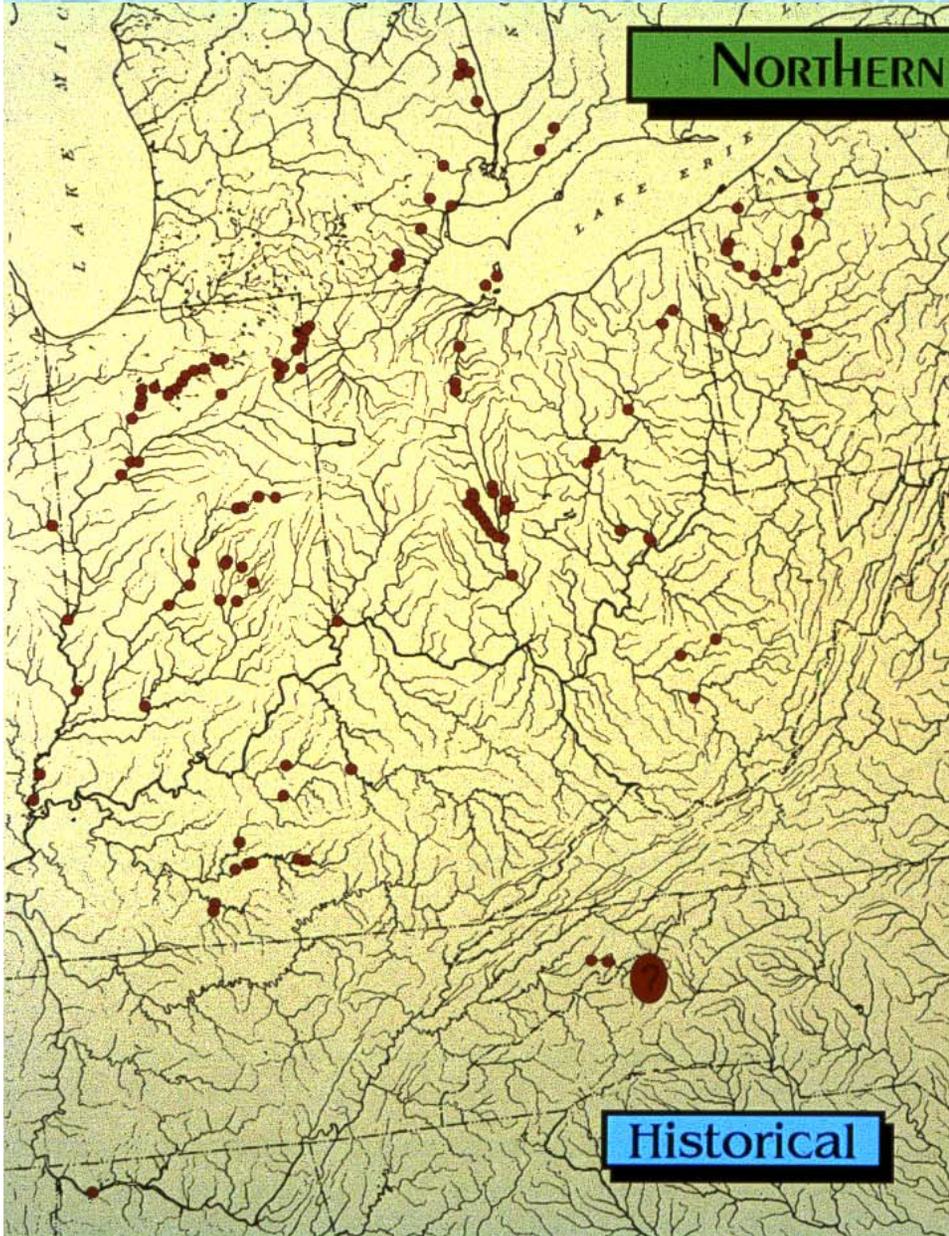


Historical



Present

# NORTHERN RIFFLESHELL



Historical



Present

# Box Score

Taxa	# Endangered	% Endangered
Birds	78	8
Fishes	71	10
Mammals	65	14
Freshwater mussels	62	20
Insects	35	<< 1
Snails	21	1
Crustaceans	18	1
Reptiles	14	4
Amphibians	12	5
Arachnids	12	< 1



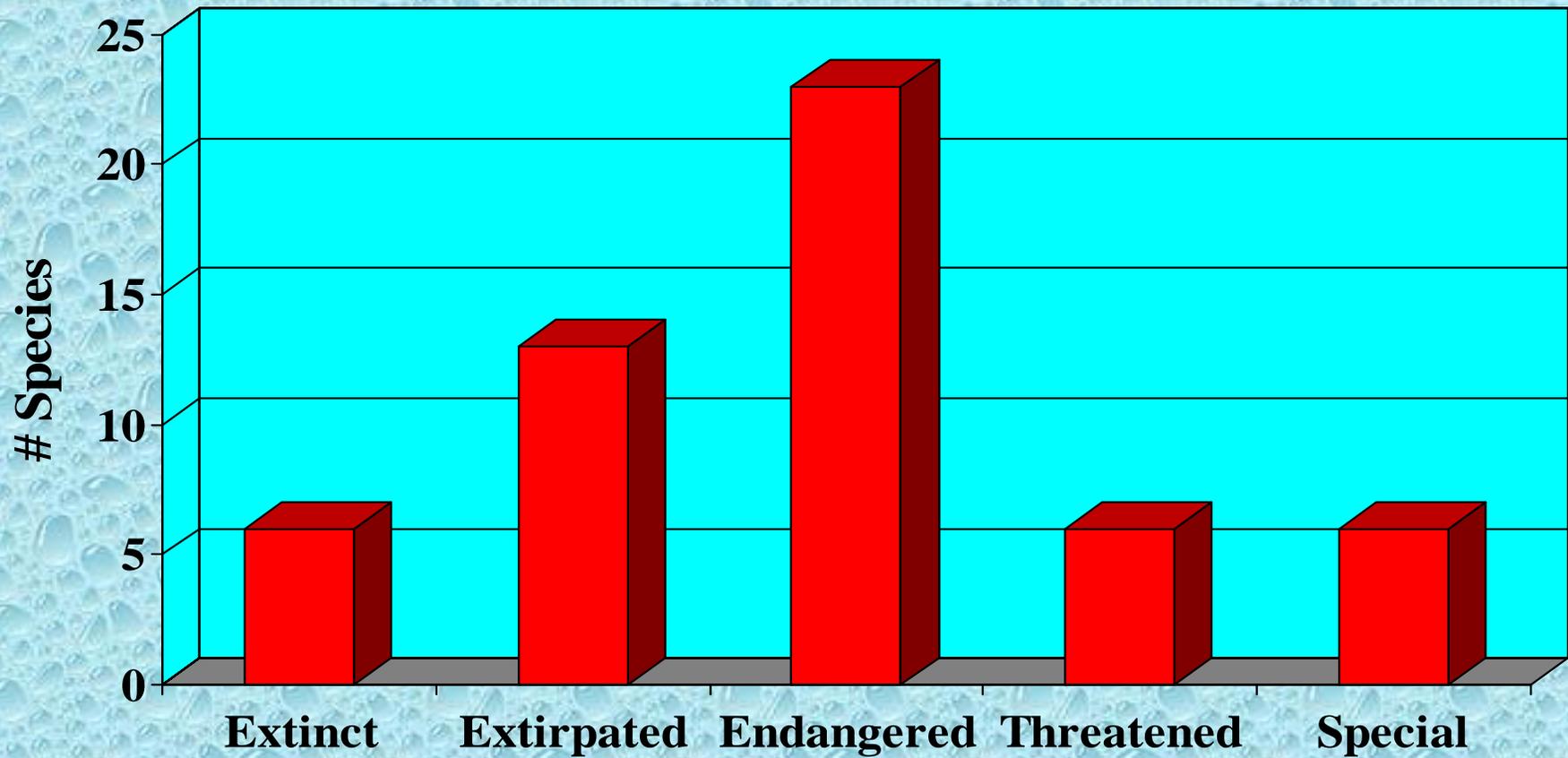
**X**



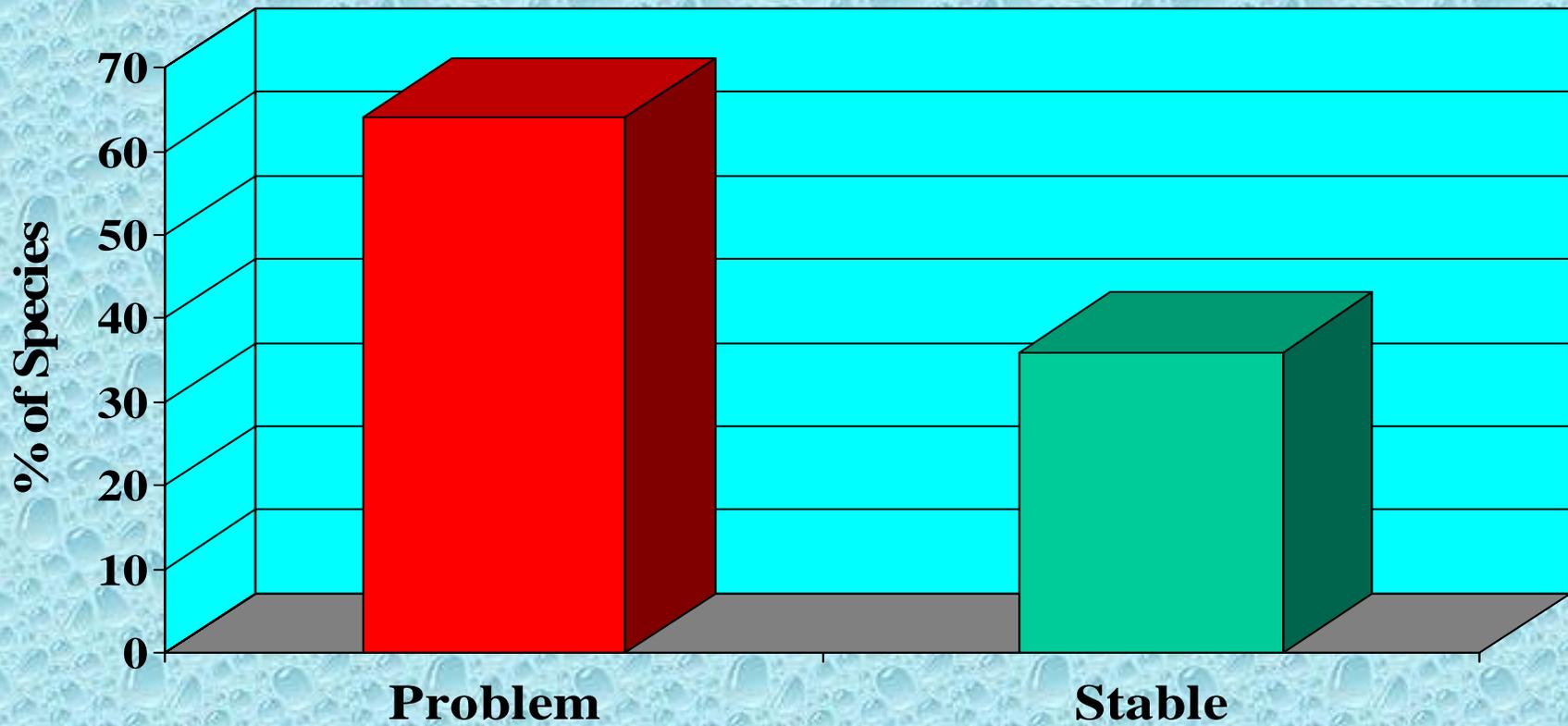
**X**



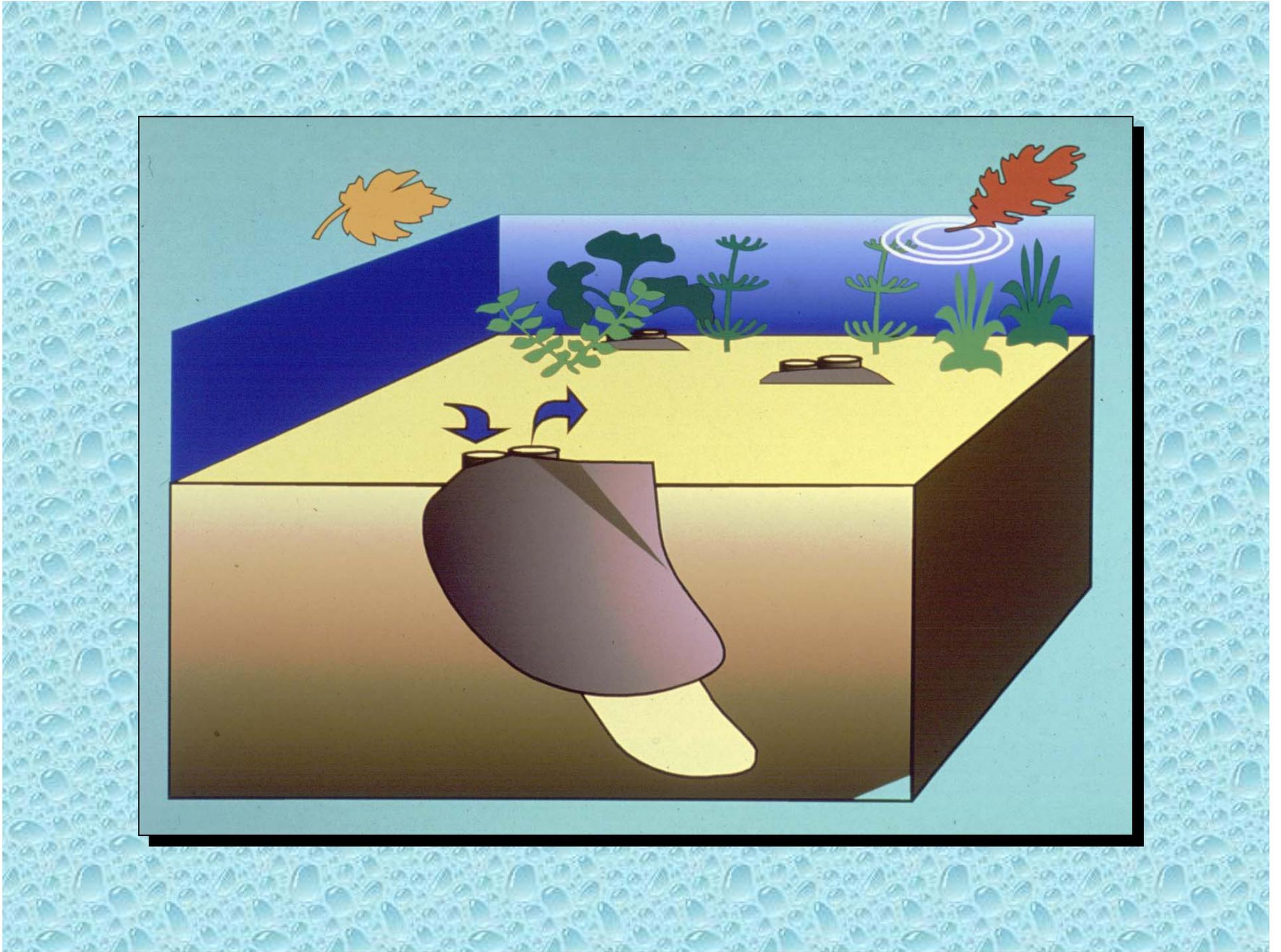
# Species in Ohio

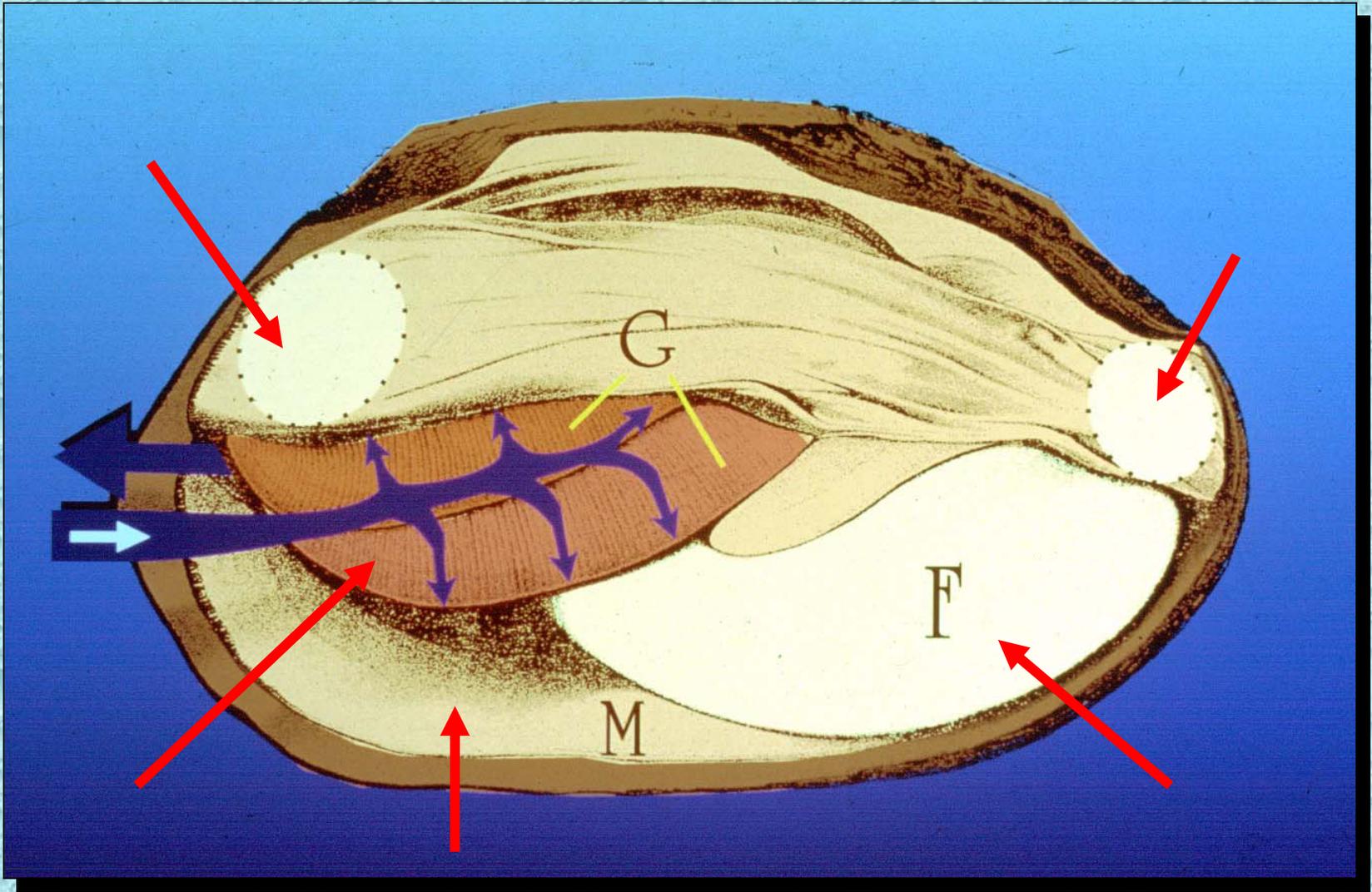


# Species in Ohio



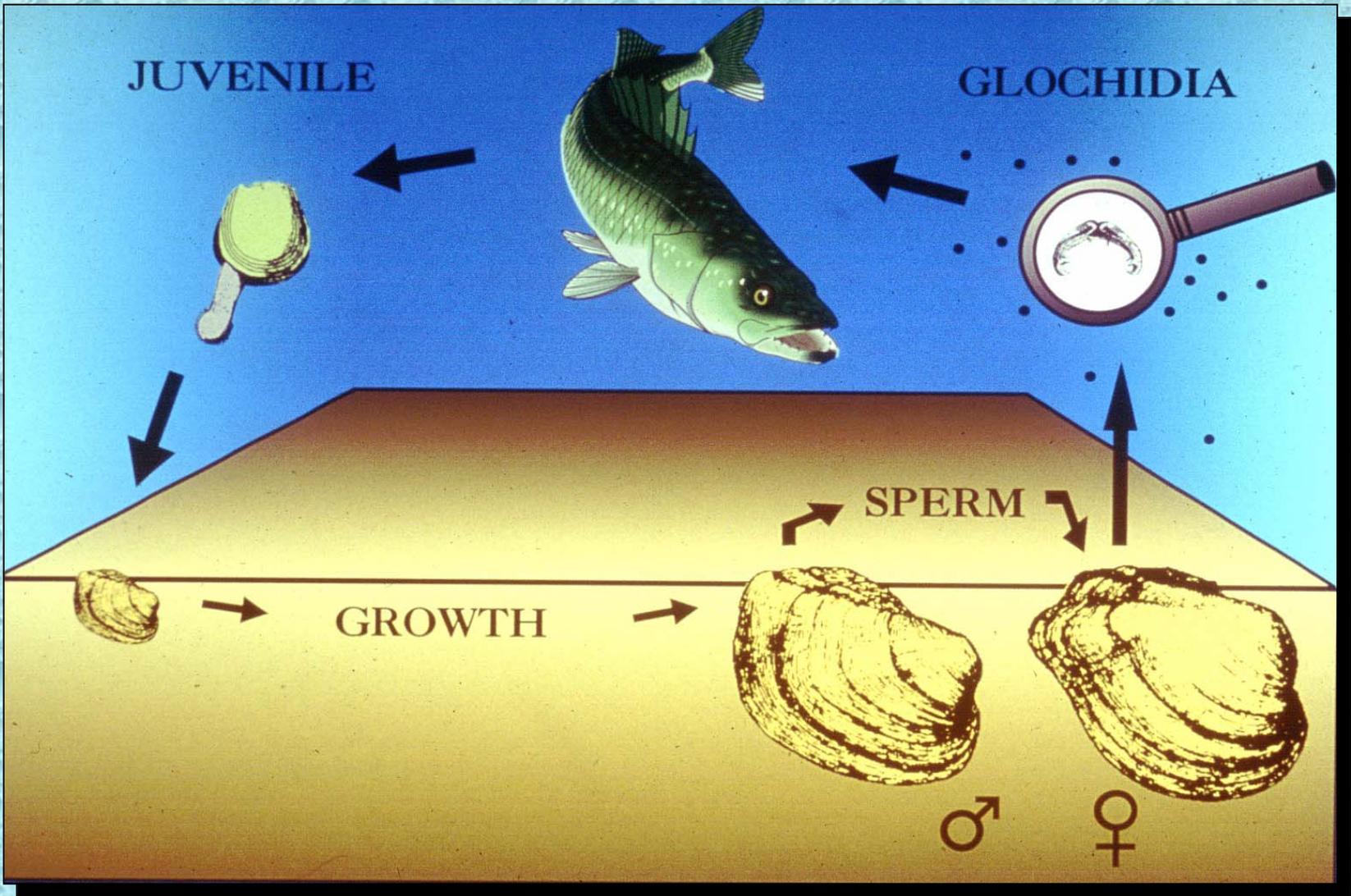


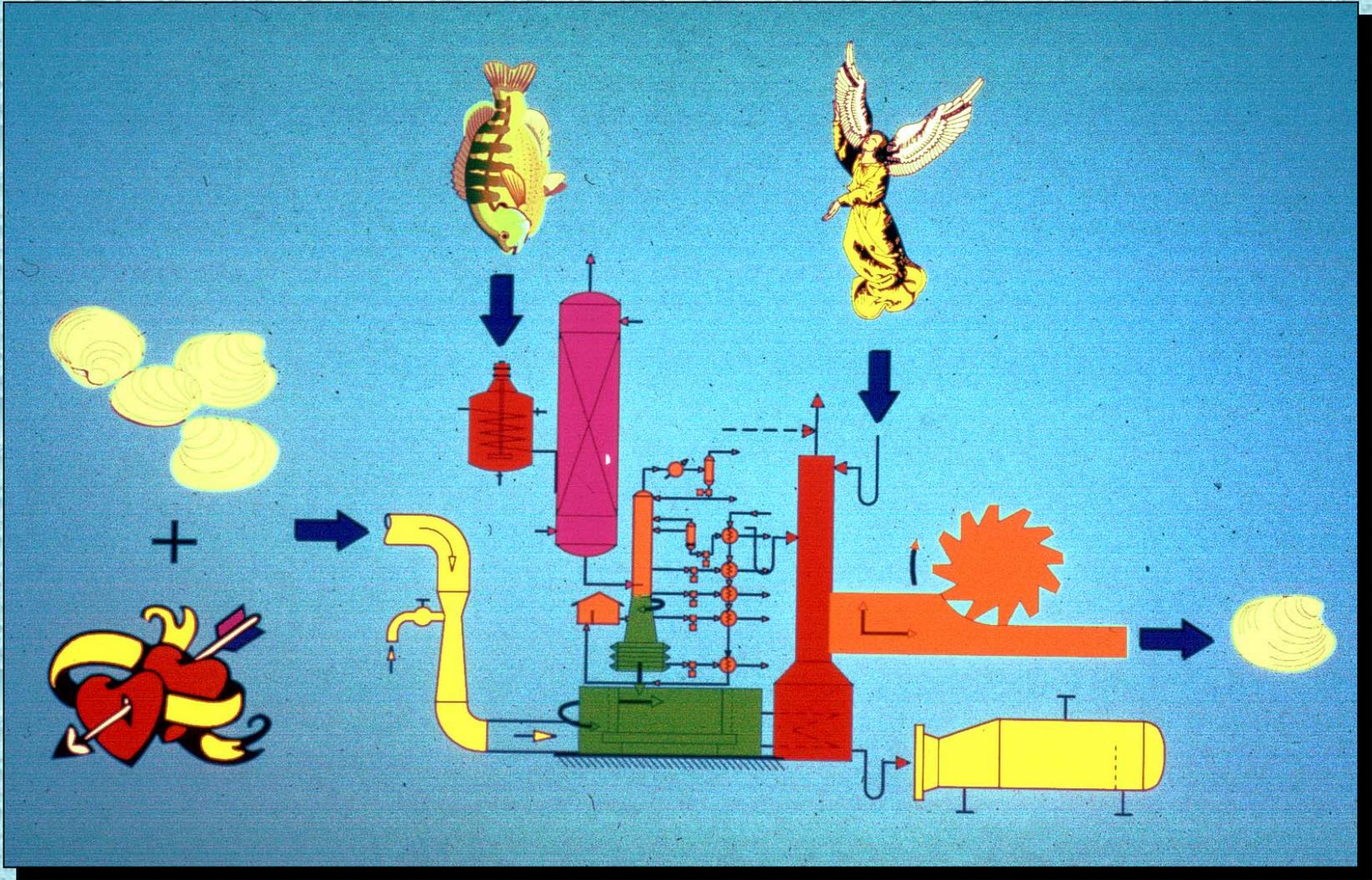












ANTONII van LEEUWENHOEK

Continuatio

ARCANORUM  
NATURÆ  
DETECTORUM,

Qua continetur

*Quicquid hactenus ab Auctore lingua Ver-  
nacula editum, & in linguam Lati-  
nam transfusum non fuit.*



DELPHIS BATAVORUM,

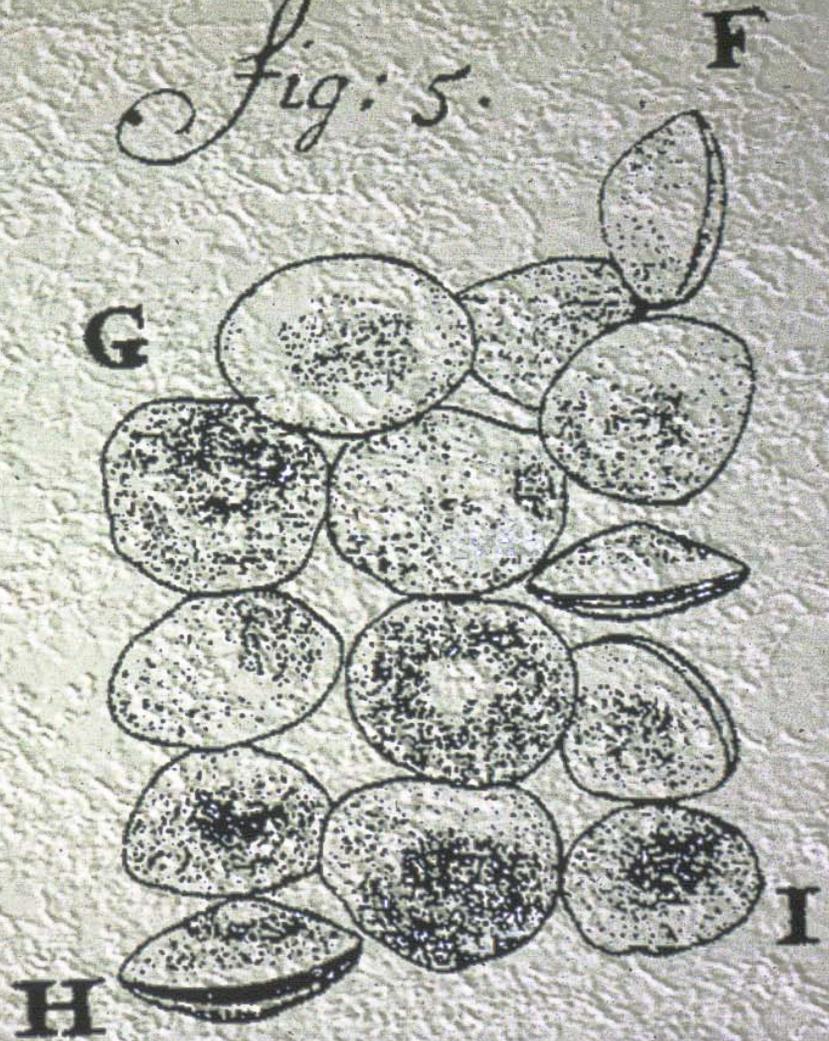
Apud HENRICUM a KROONEVELT,  
M D O X C V I I

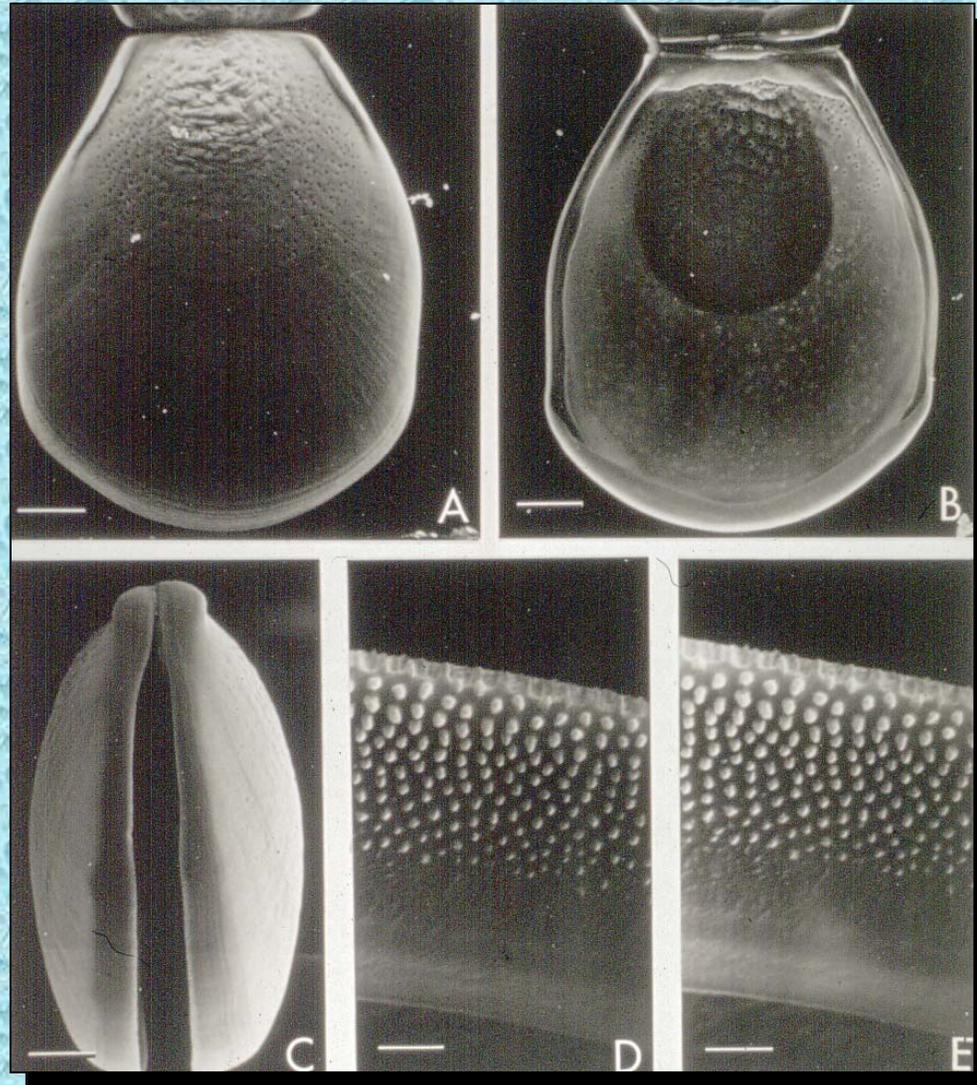


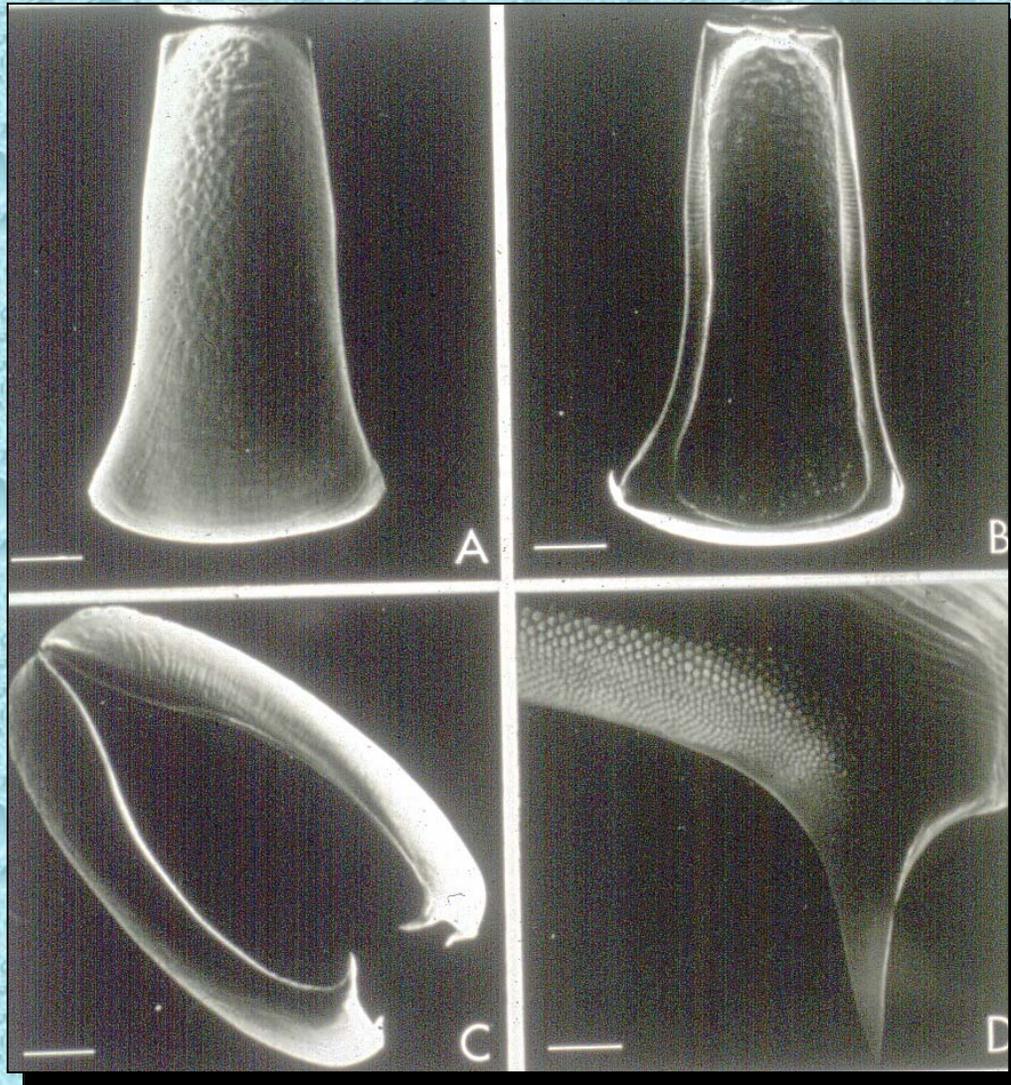
*Antoni van Leeuwenhoek  
(1632 - 1723)*

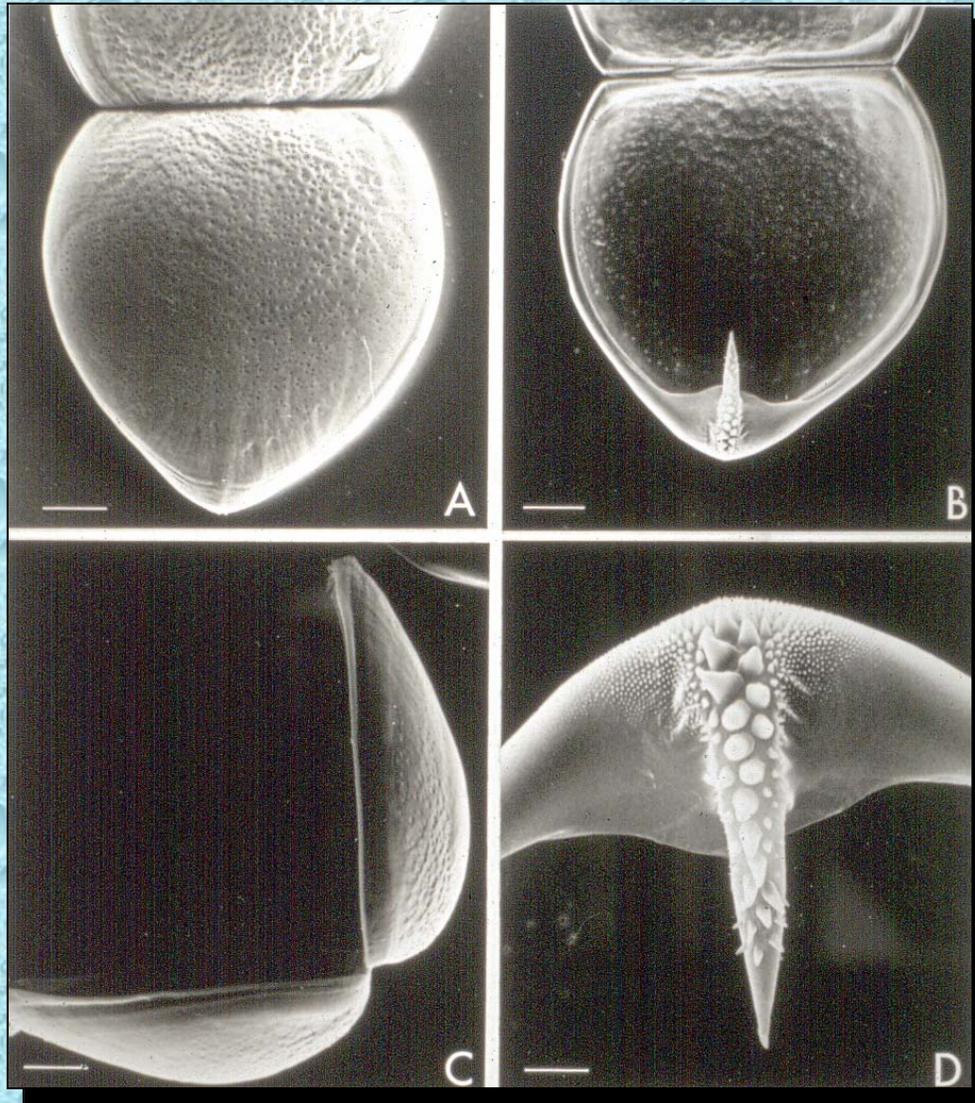
*"ostrea  
nondum  
nata"*

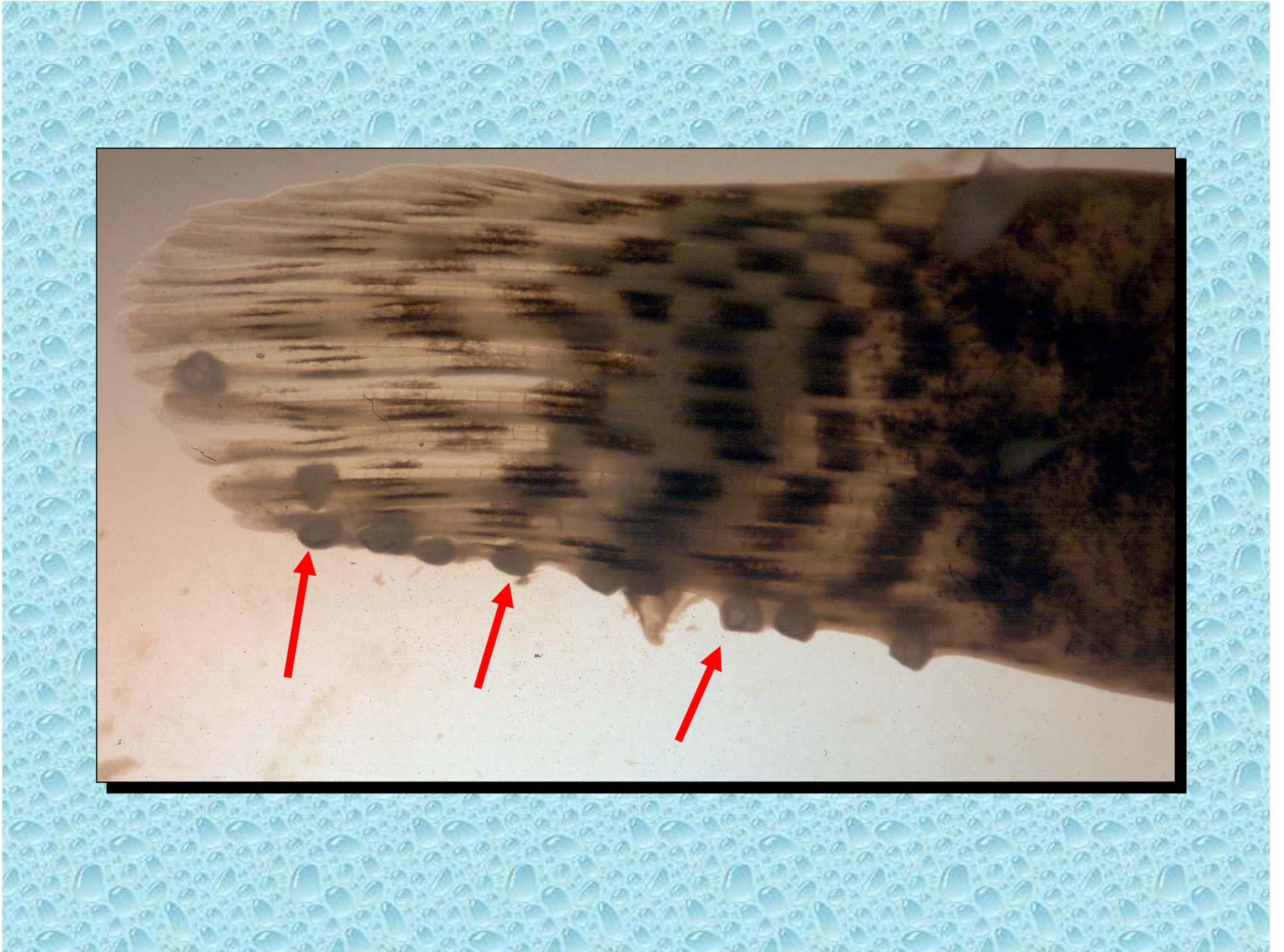
*Fig: 5.*

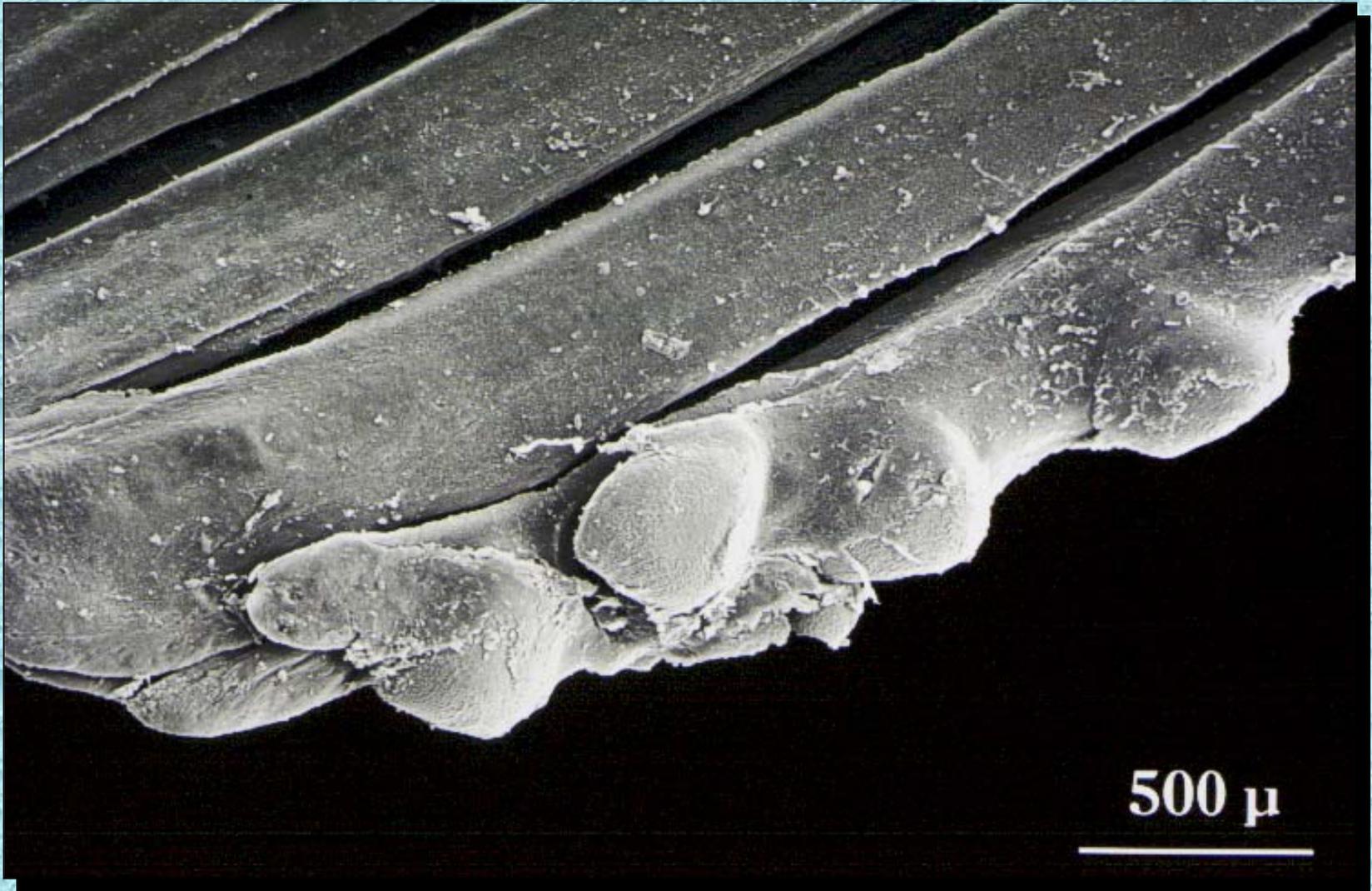




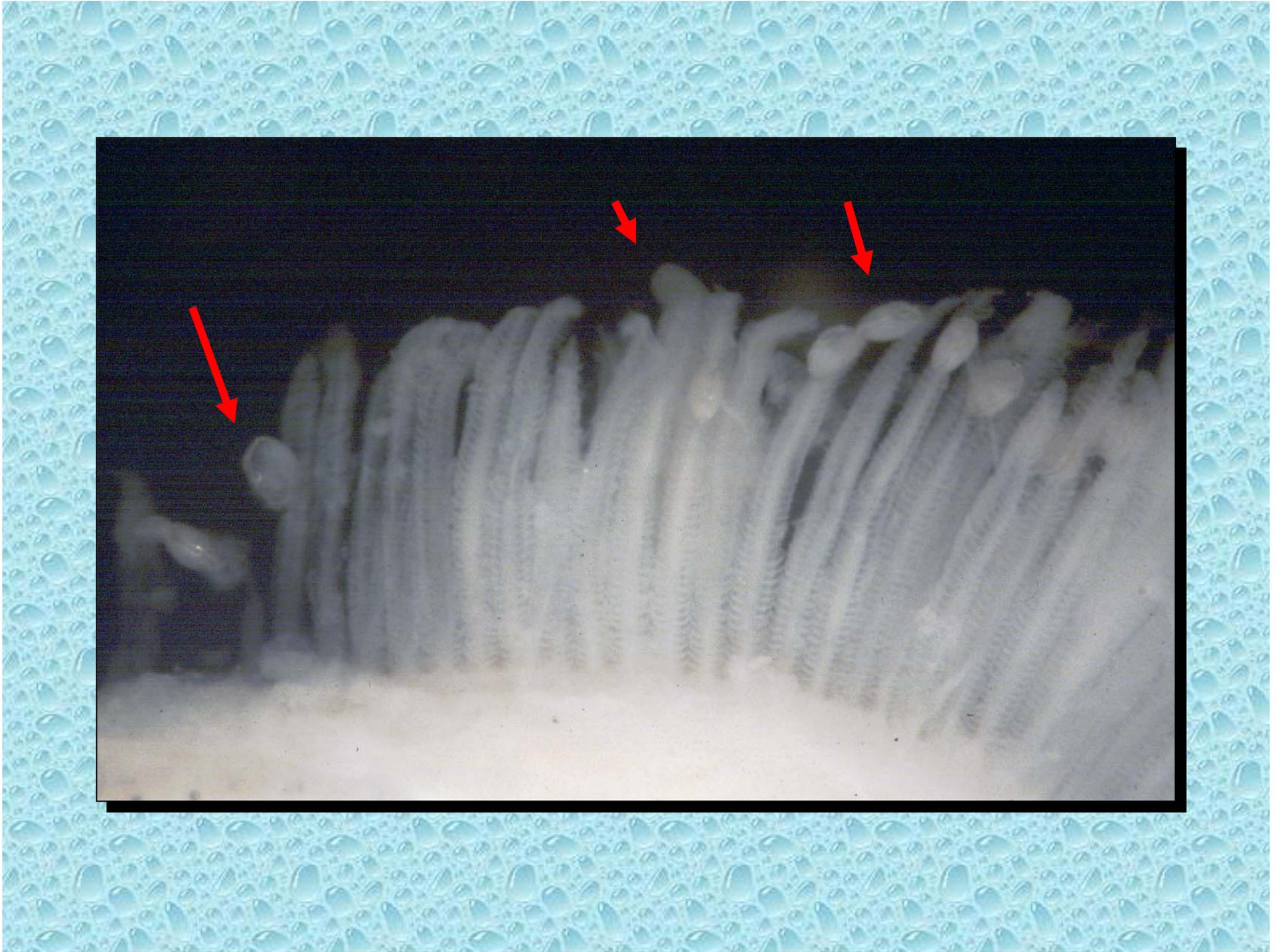


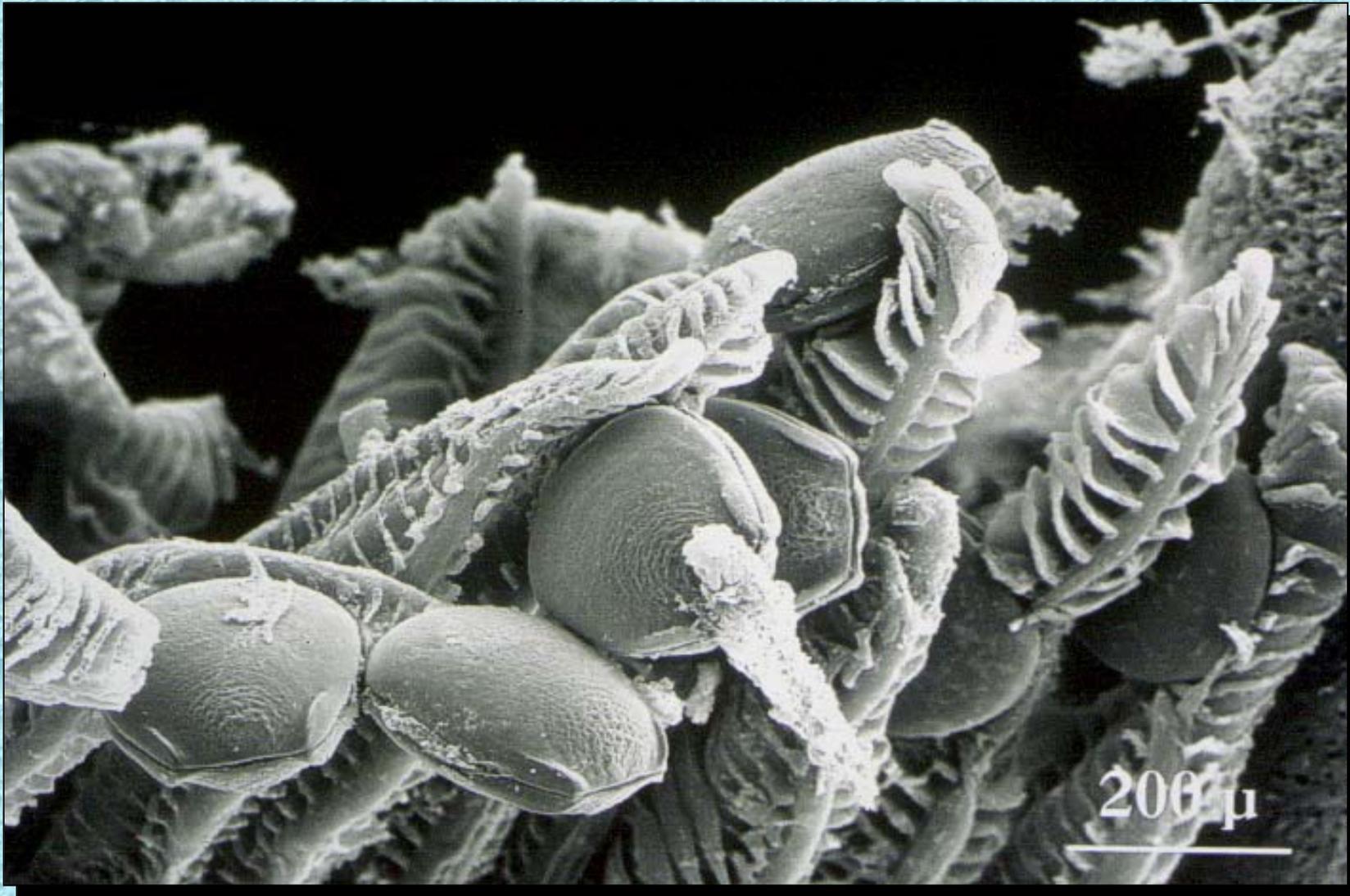






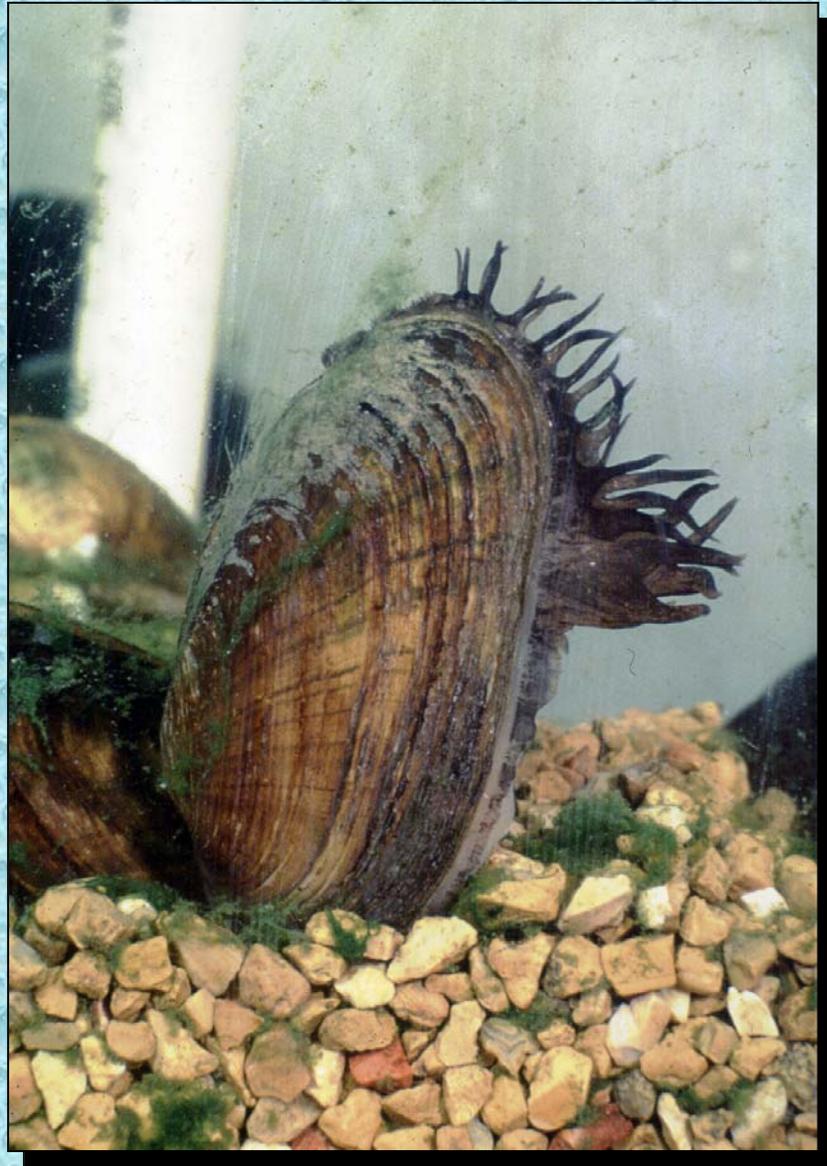
500  $\mu$





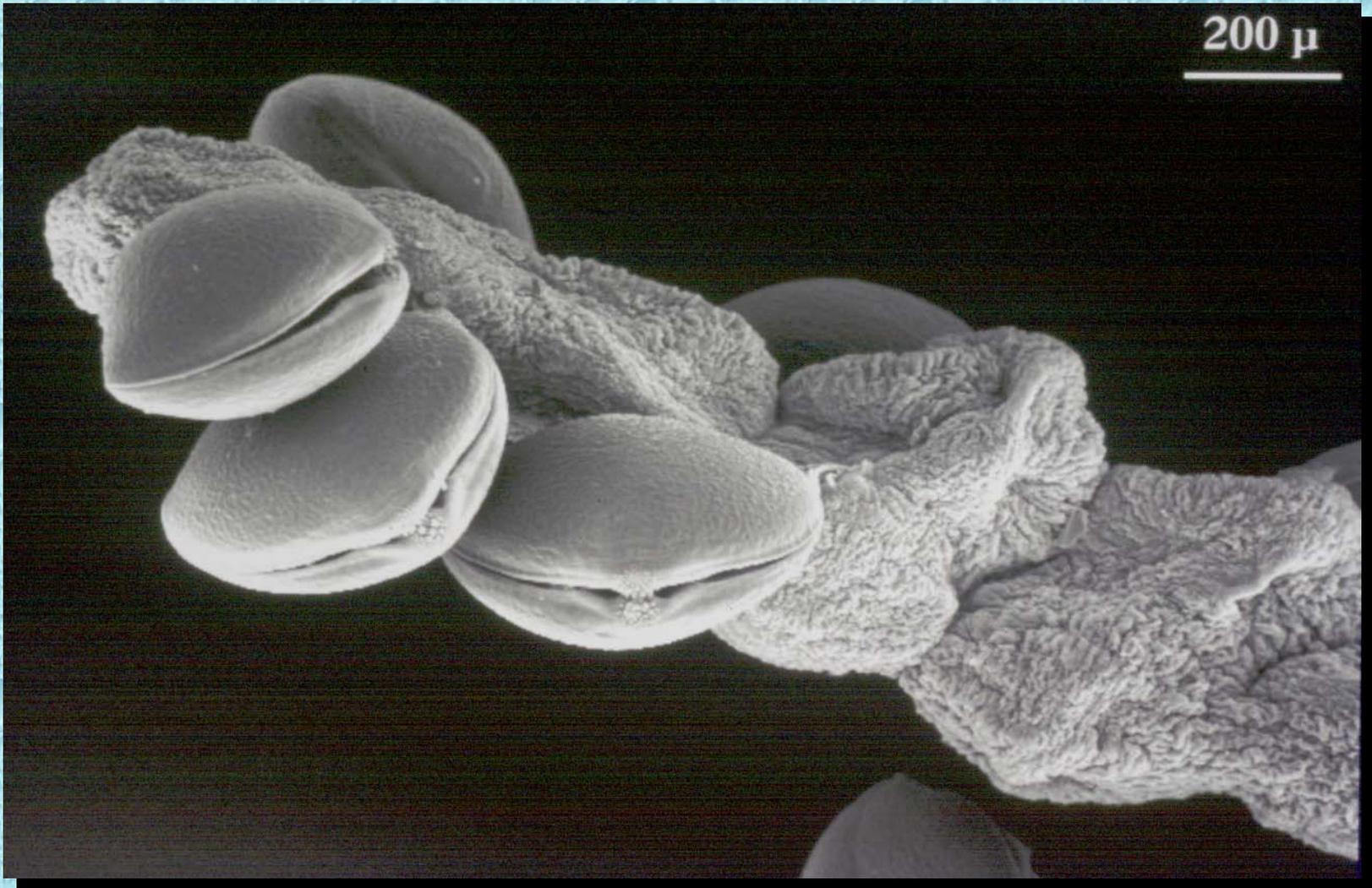




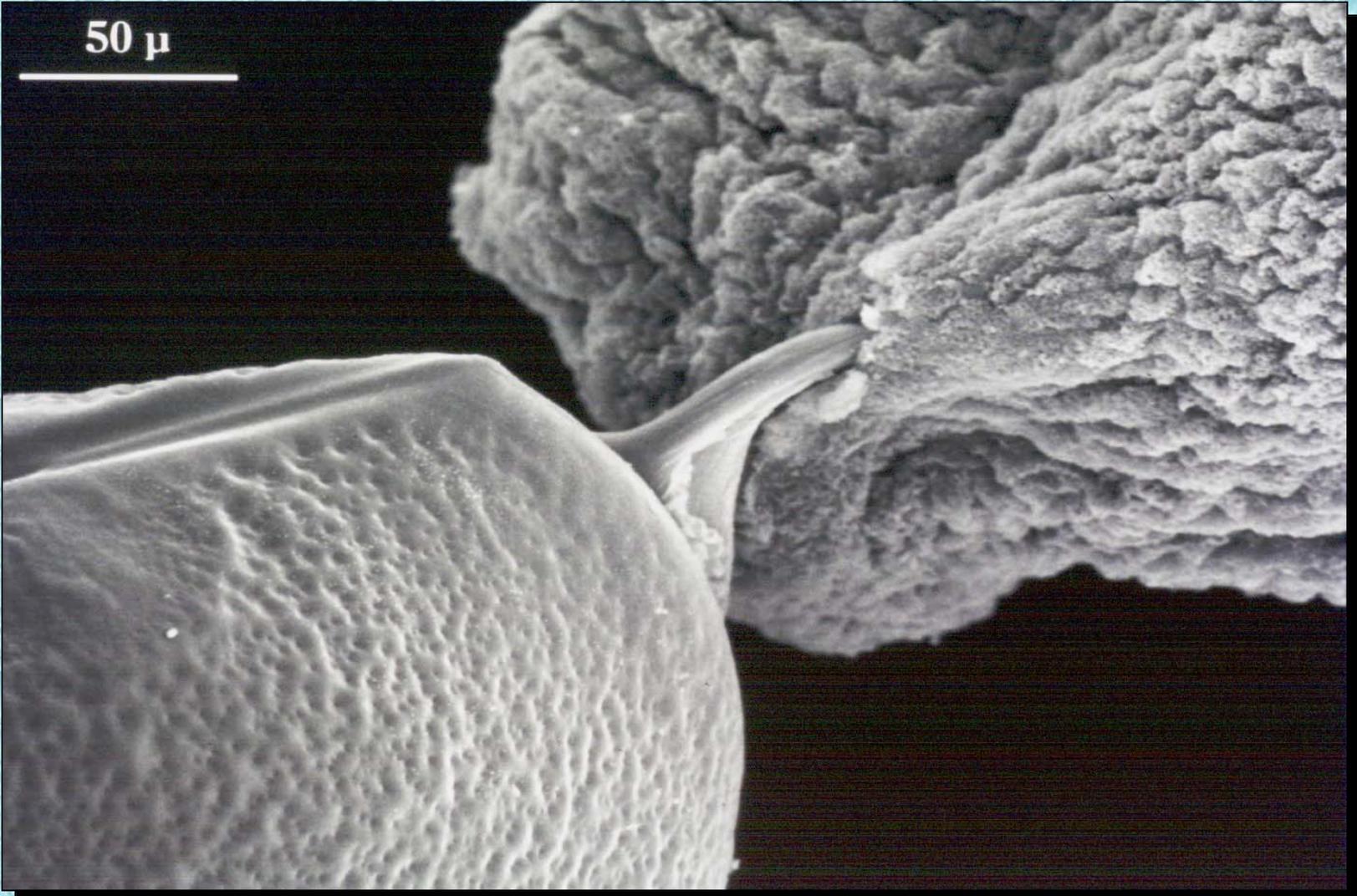








50  $\mu$



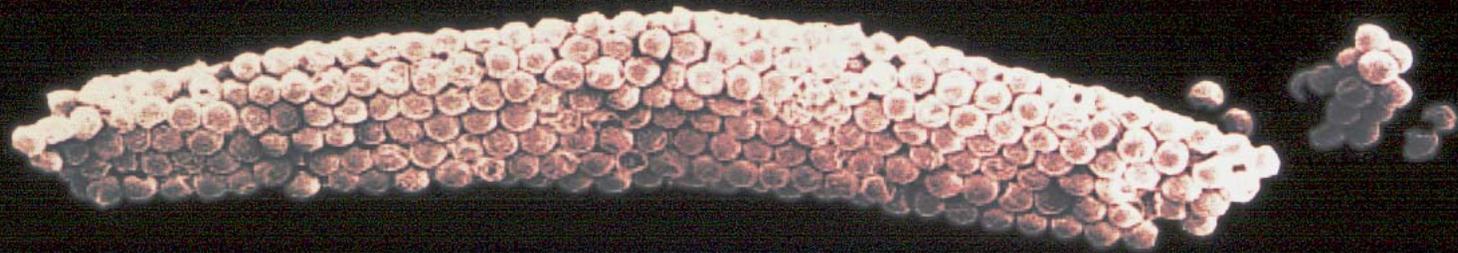




M. C. Barnhart 1998



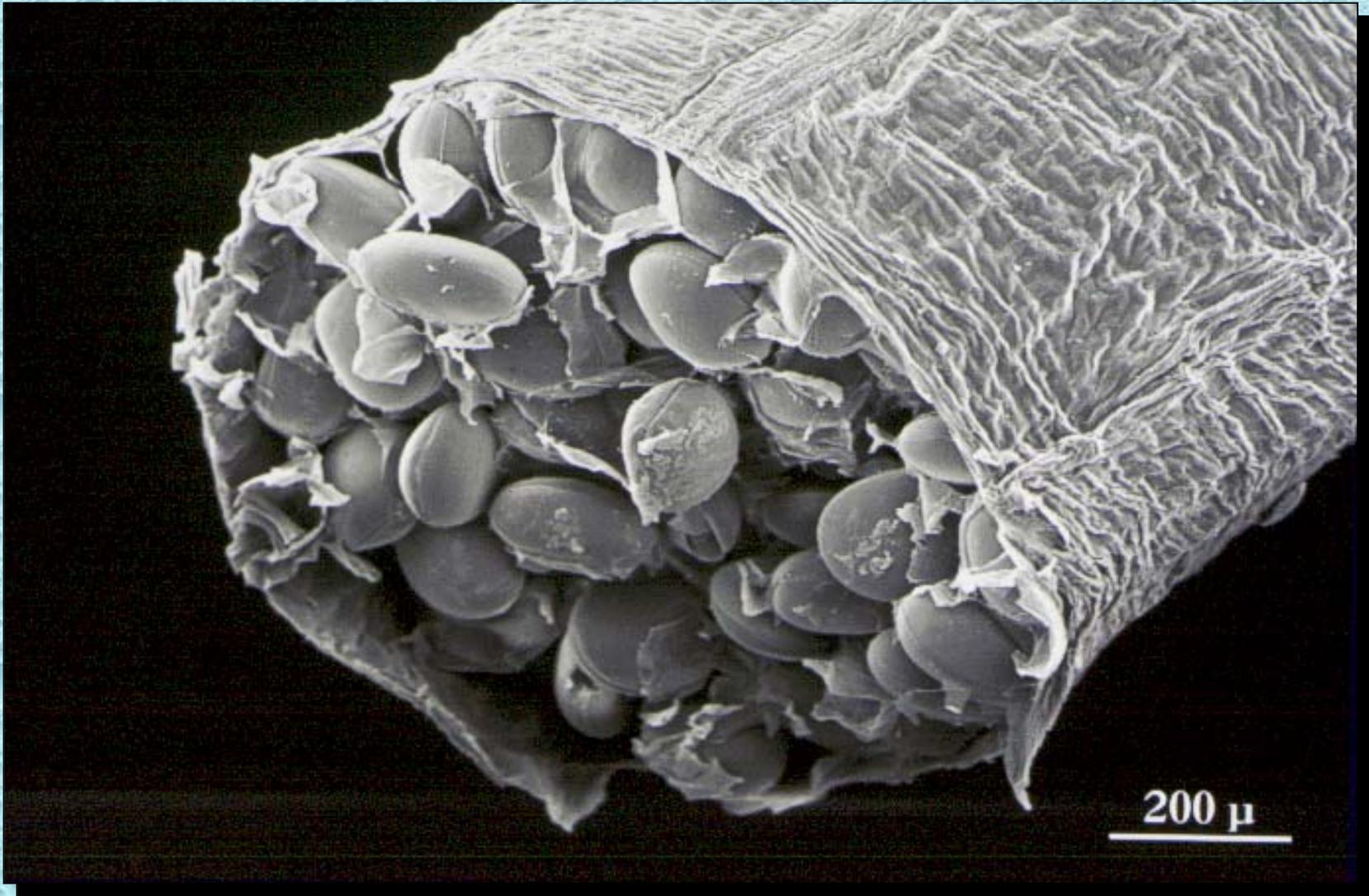
*Fusconaia flava*



1 mm

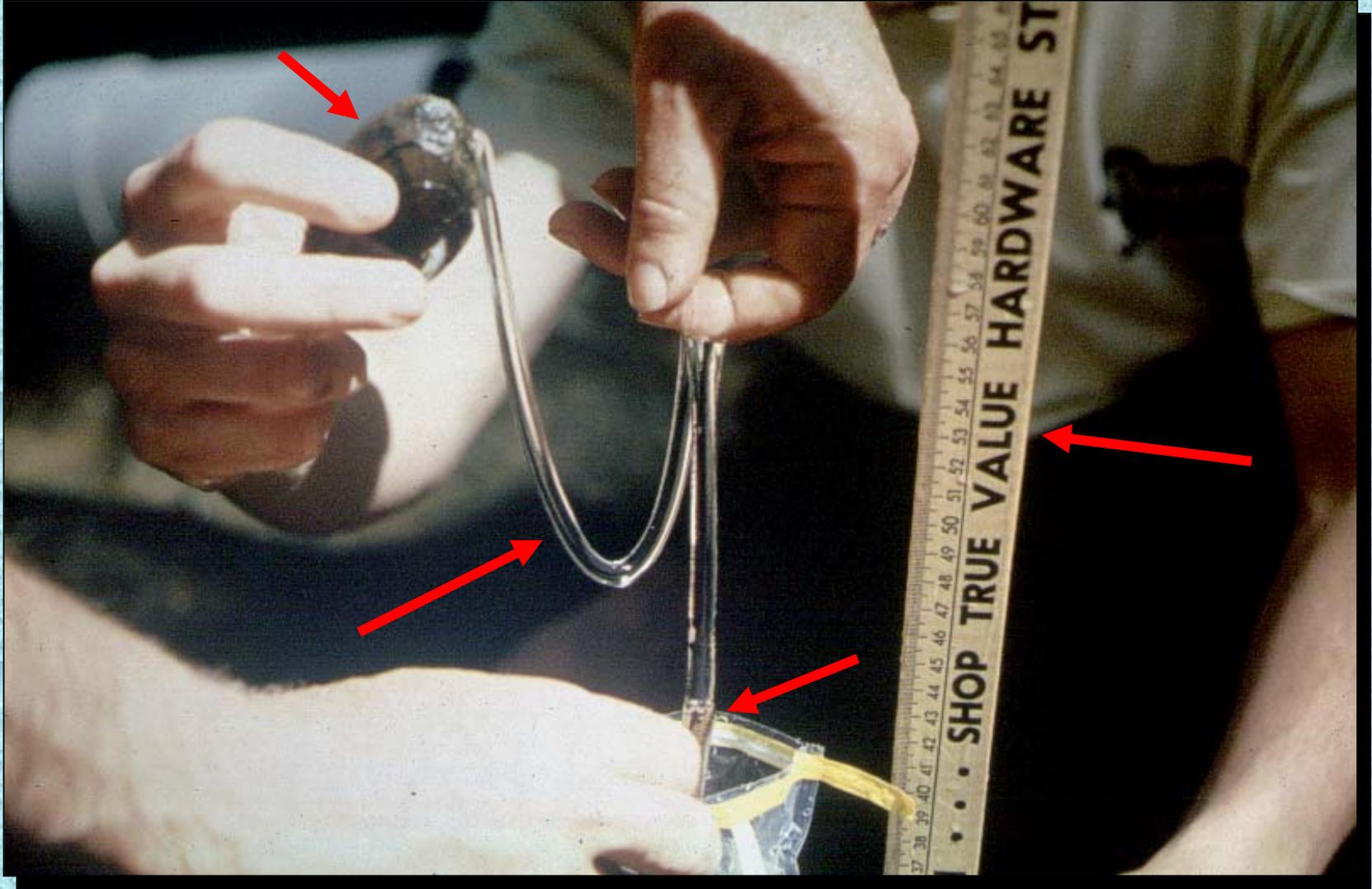


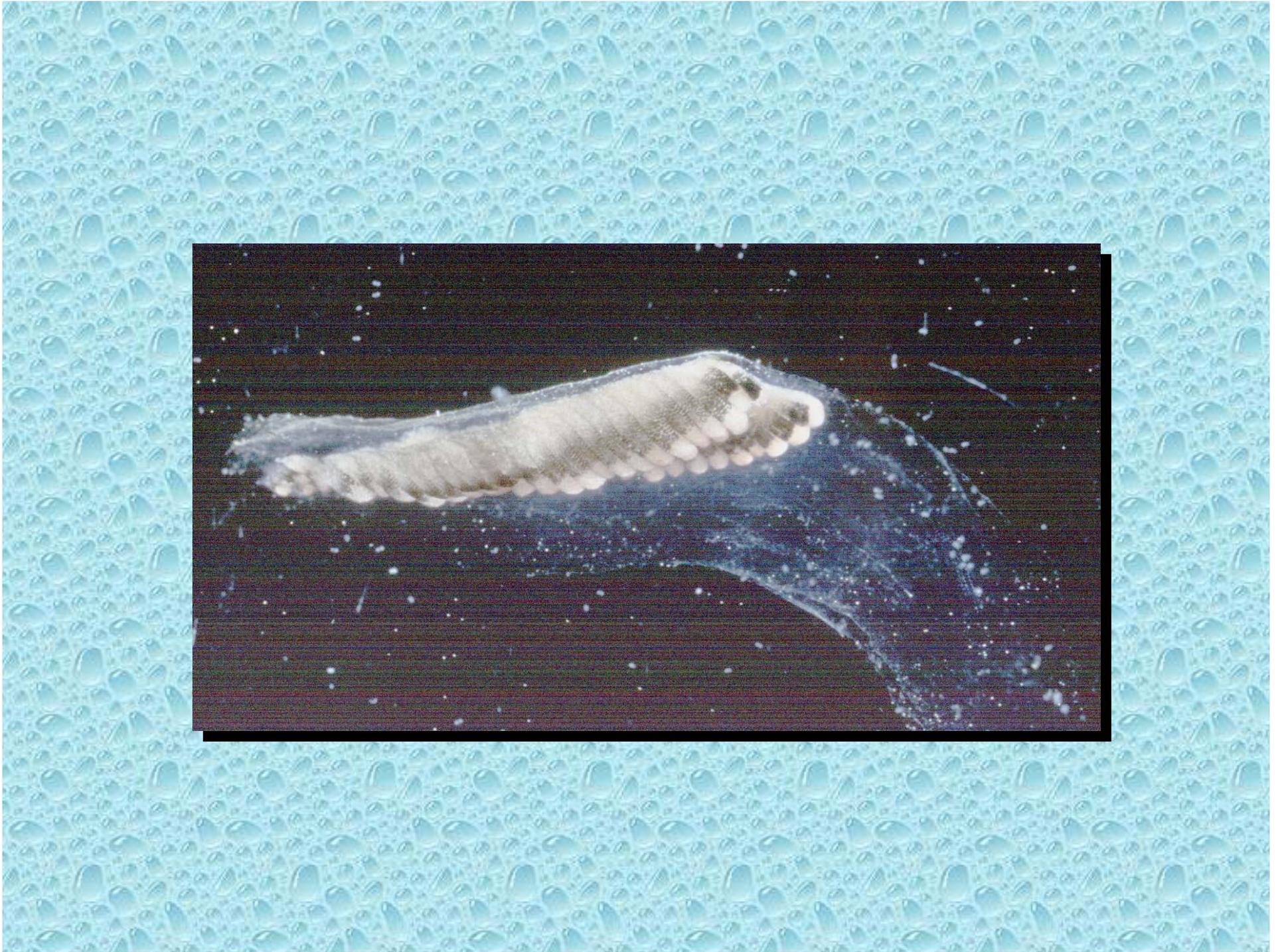


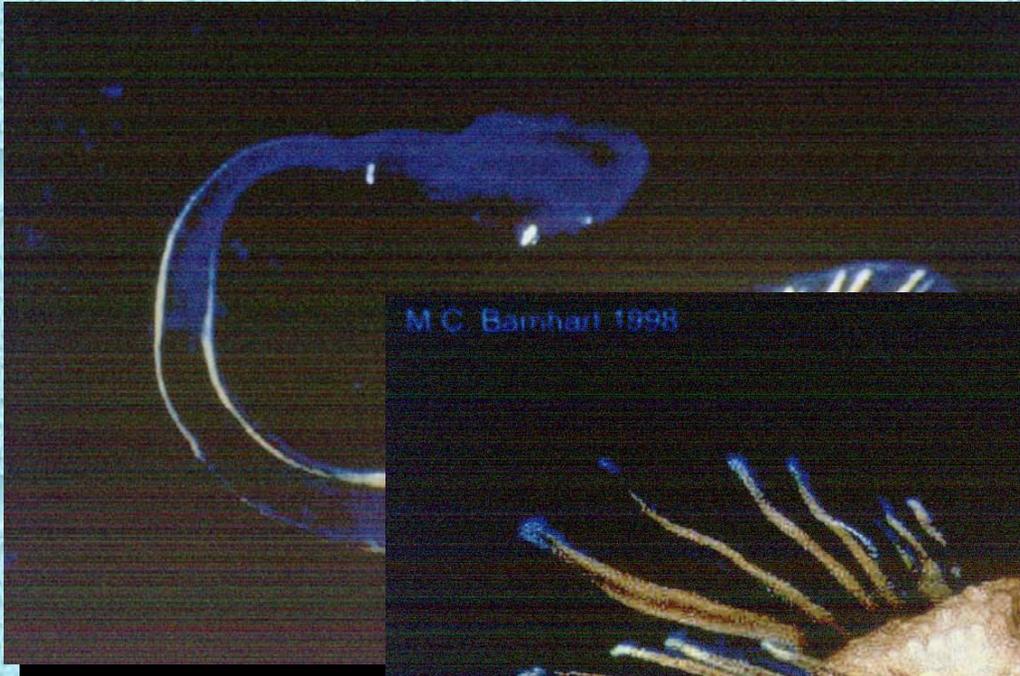




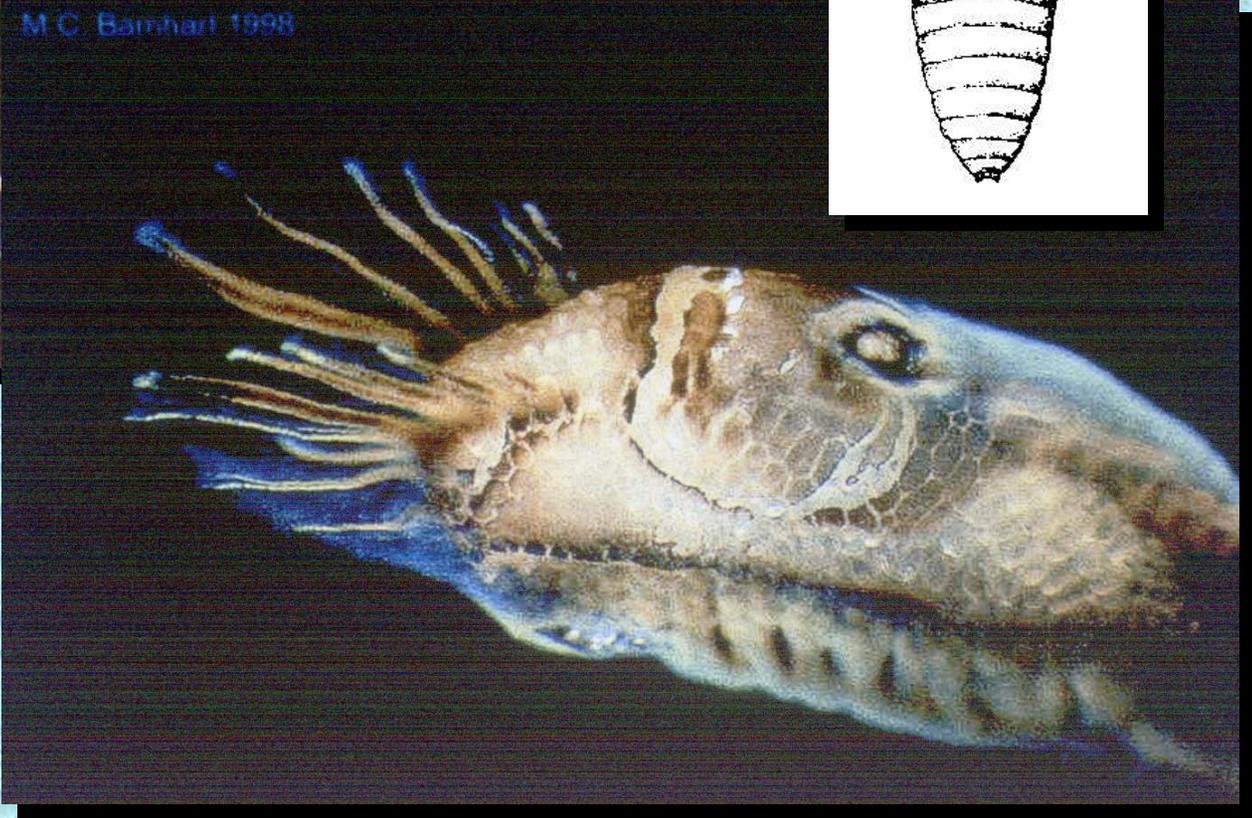
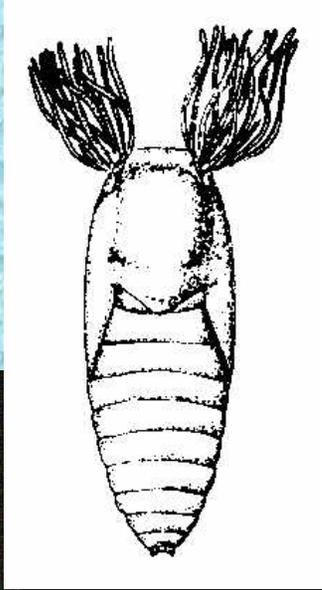








M.C. Bamhart 1998

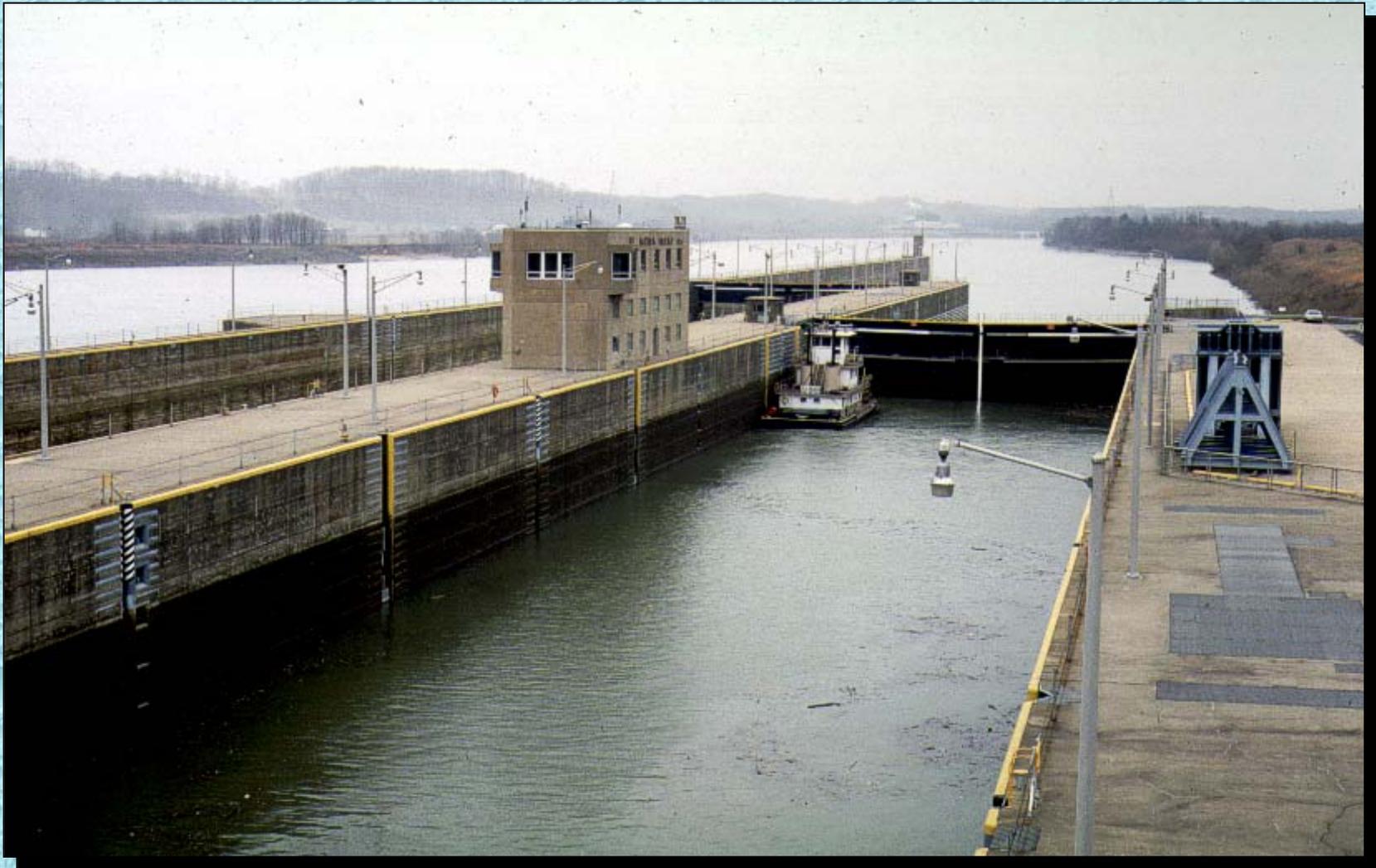


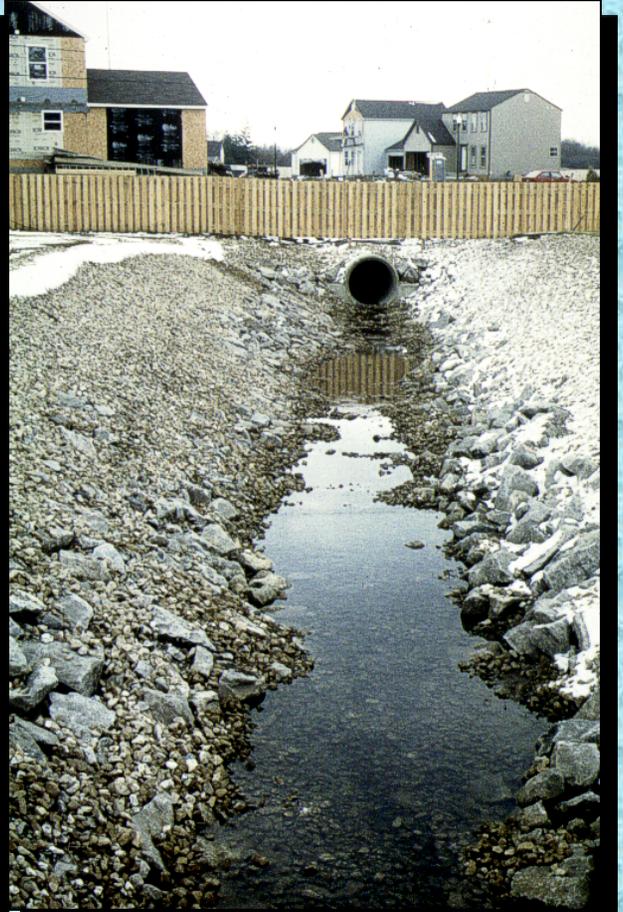
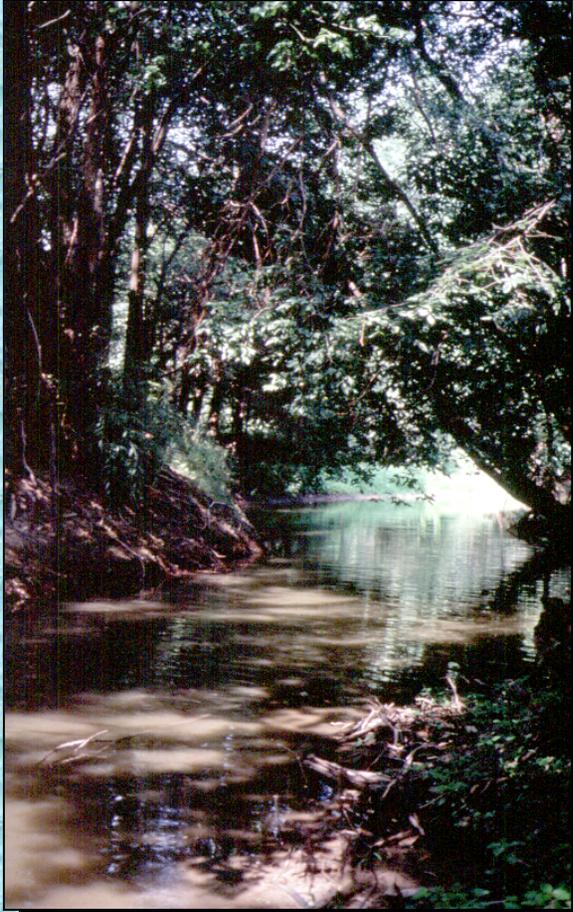
What's the  
problem ?



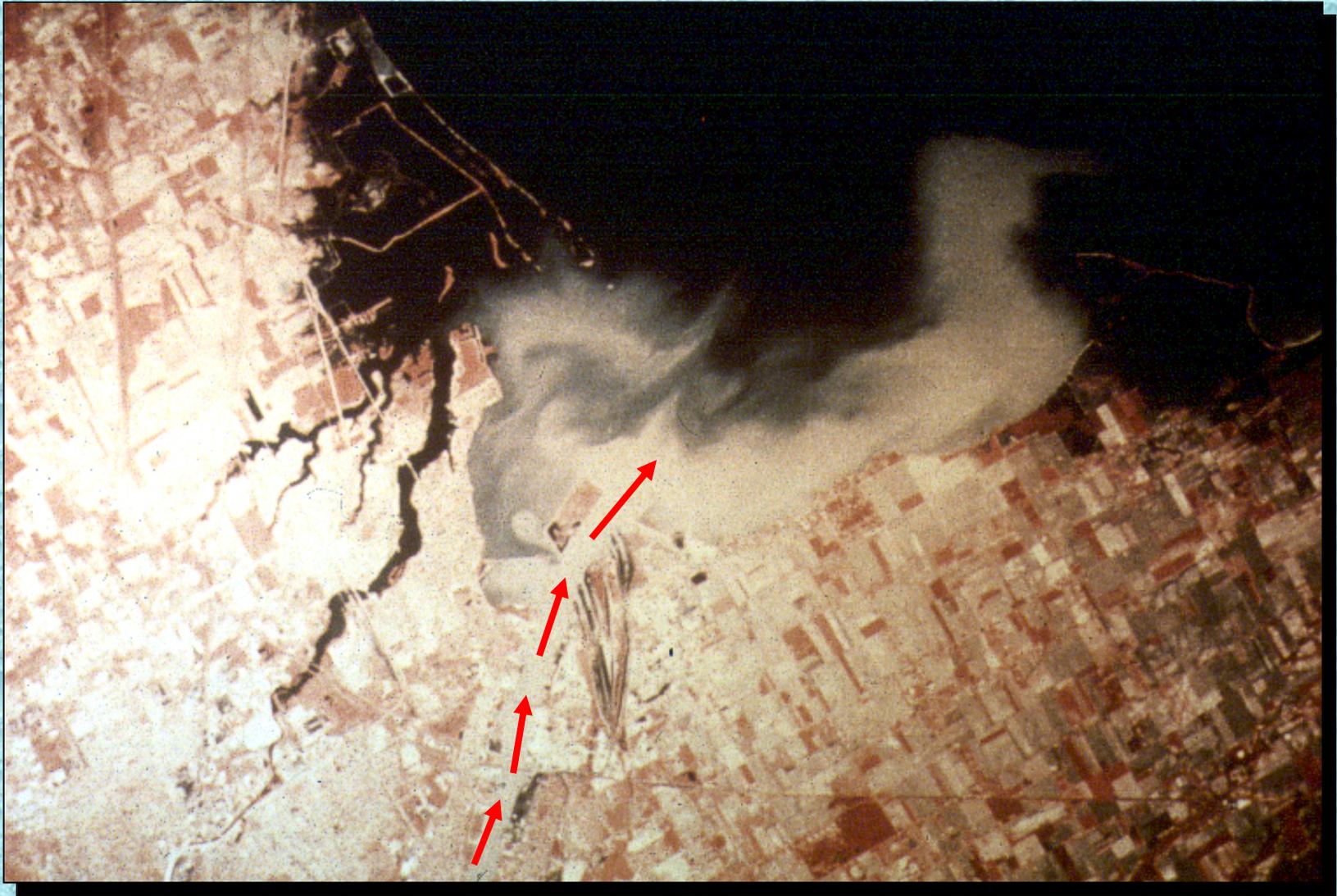
Potamilus inflatus  
(Lea, 1831)





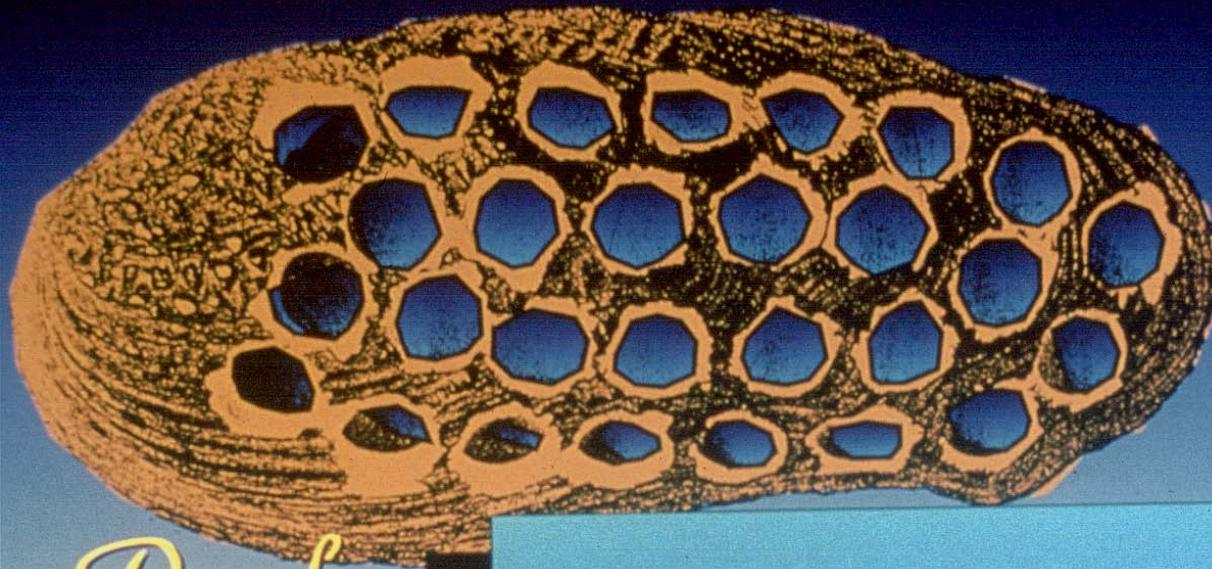












*Pearl  
Button  
Industry*

TONS

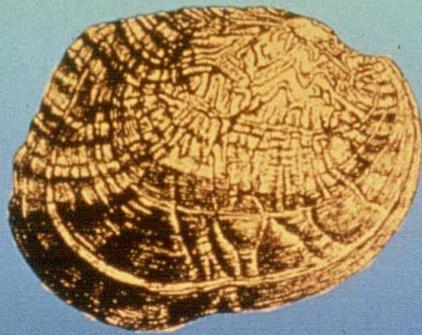
Neosho River (1912)

- 17,063

Mississippi River (1890-1905) - 750,000

North America

Fresh-  
Water  
Mussel

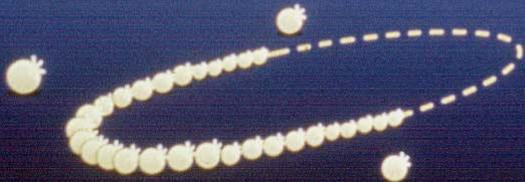


Japan, Australia, Pacific Rim

Nuclei



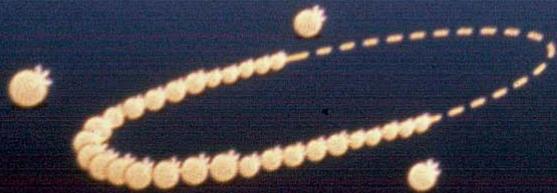
Cultured Pearls



Marine  
Pearl  
Oyster



*Cultured  
Pearl  
Industry*



**TONS**

Arkansas (1987-88) - 500-1000

Illinois &  
Mississippi Rivers (1990) - 3850

Indiana (1991) - 171

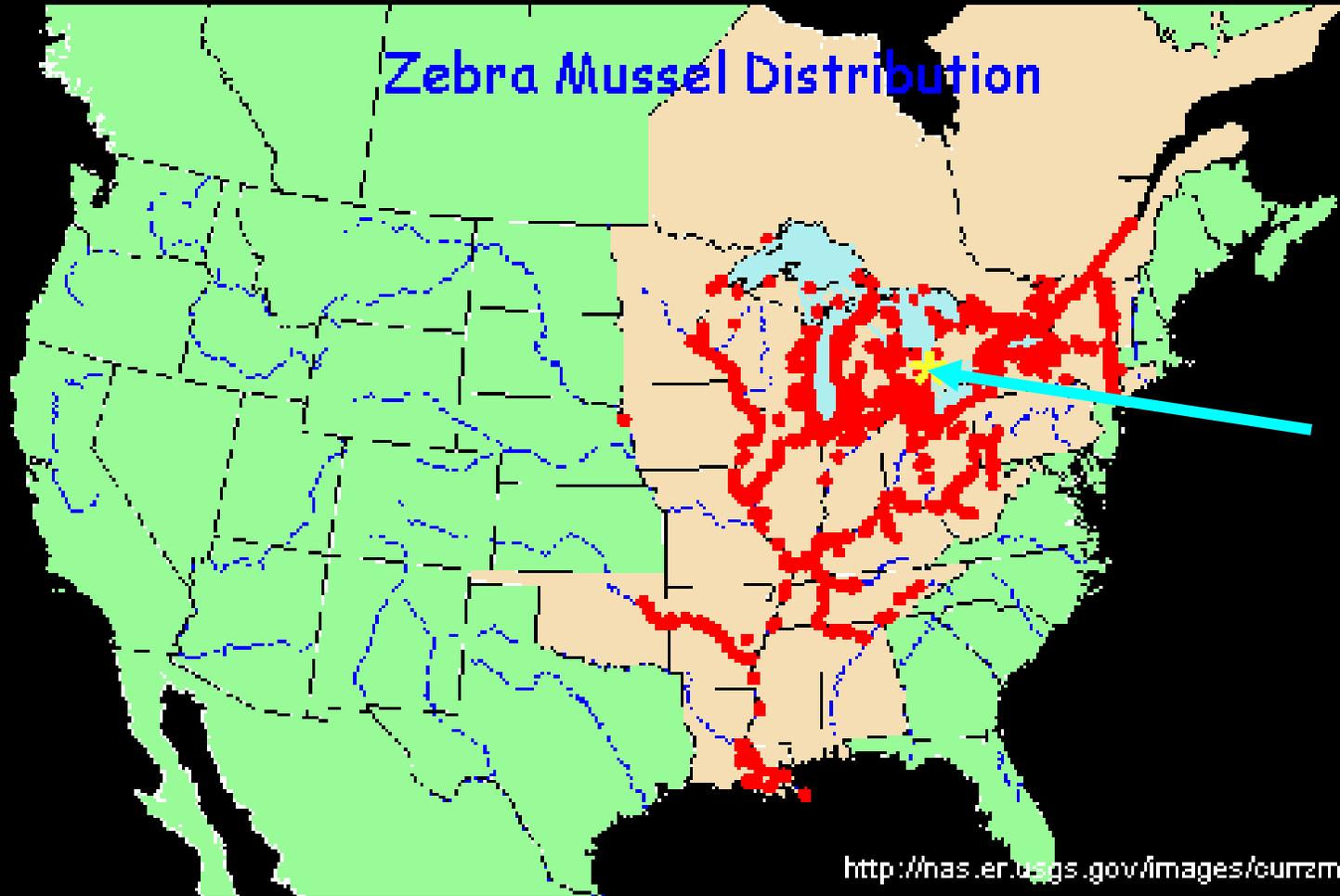
Kansas (1990) - 115

Tennessee River (1990) - 4760



January 2000

Zebra Mussel Distribution



<http://nas.er.usgs.gov/images/cunzm00.gif>



