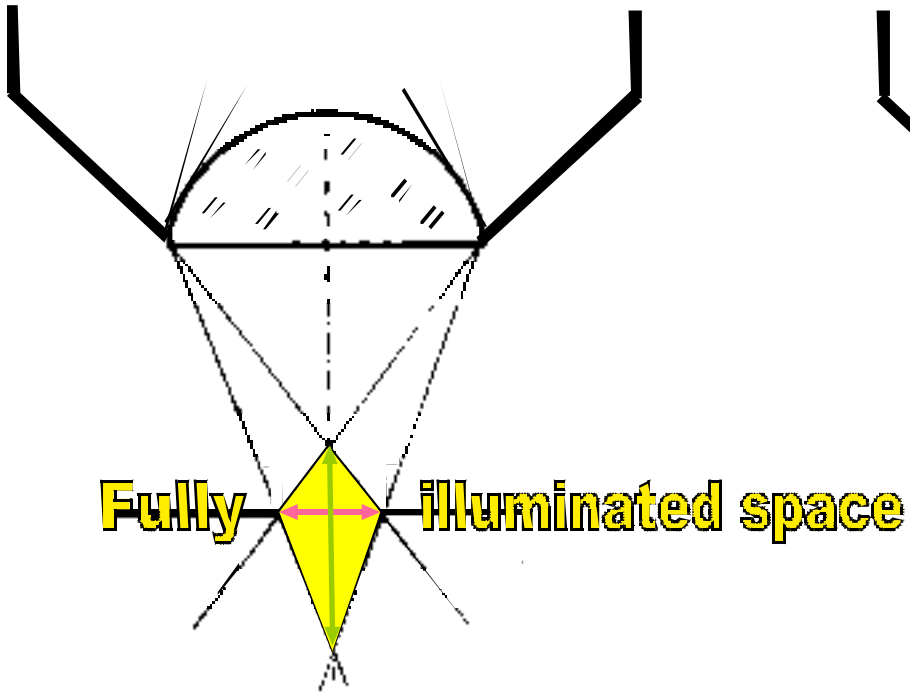


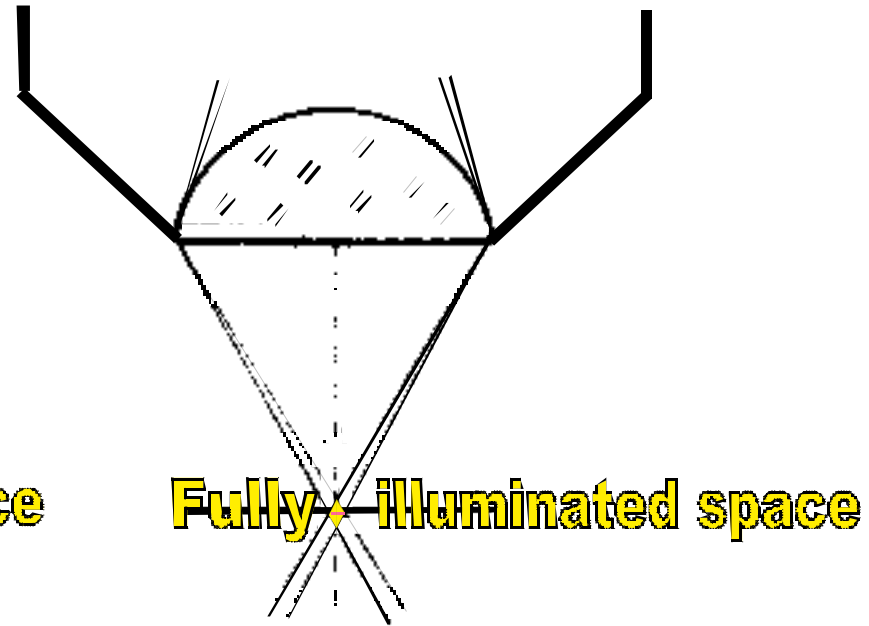
**Petráň M., Hadravský M.**

# How was the Tandem Scanning Microscope Born

# Dependence of field depth on field size

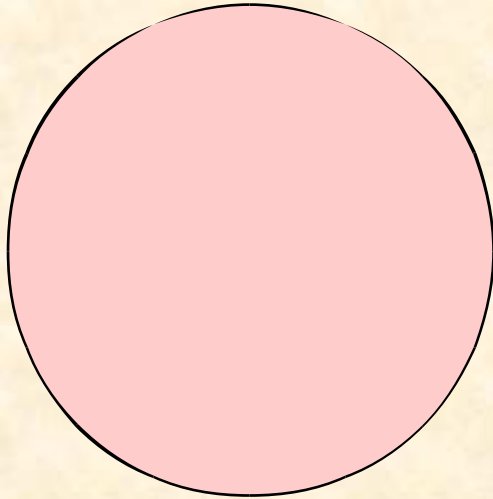


Field **width** and **depth** as allowed by the eyepiece field stop size



Field **width** and **depth** as determined by the very narrowed illuminated field

# Interdependence of the size of the field illuminated and the quality of its image



Broad field

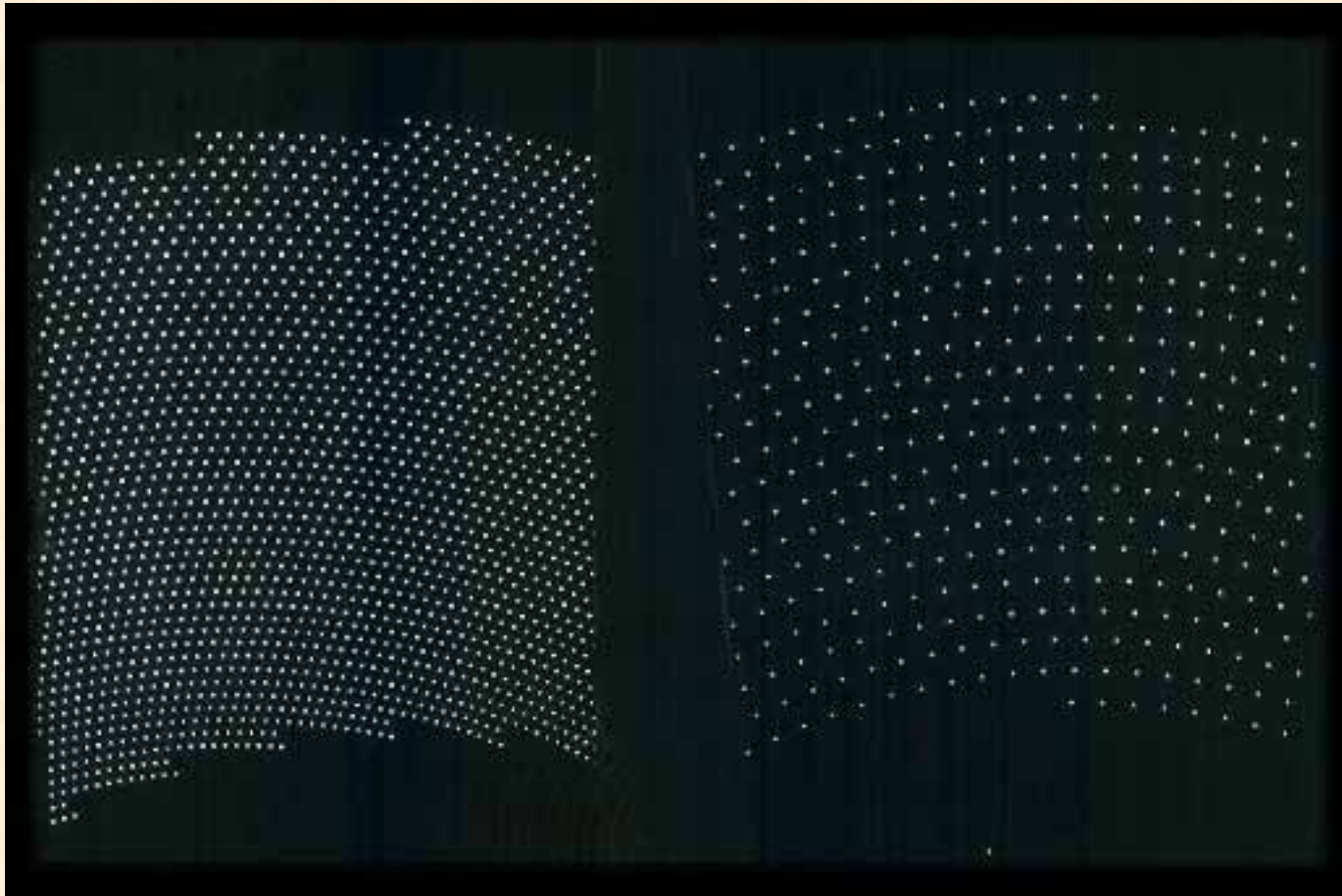


Narrow field

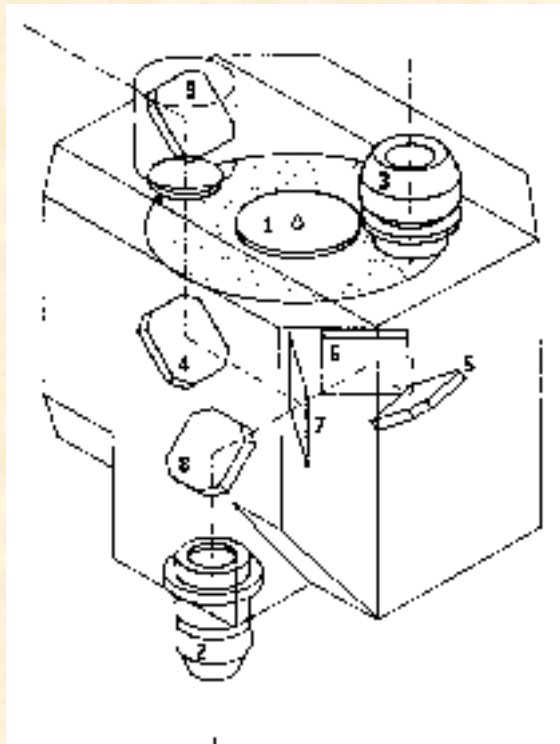
# Two of several examples of tested hole patterns

Nipkow disc holes  
set by means of  
polar coordinates

Nipkow disc holes  
set by means of  
spiral coordinates



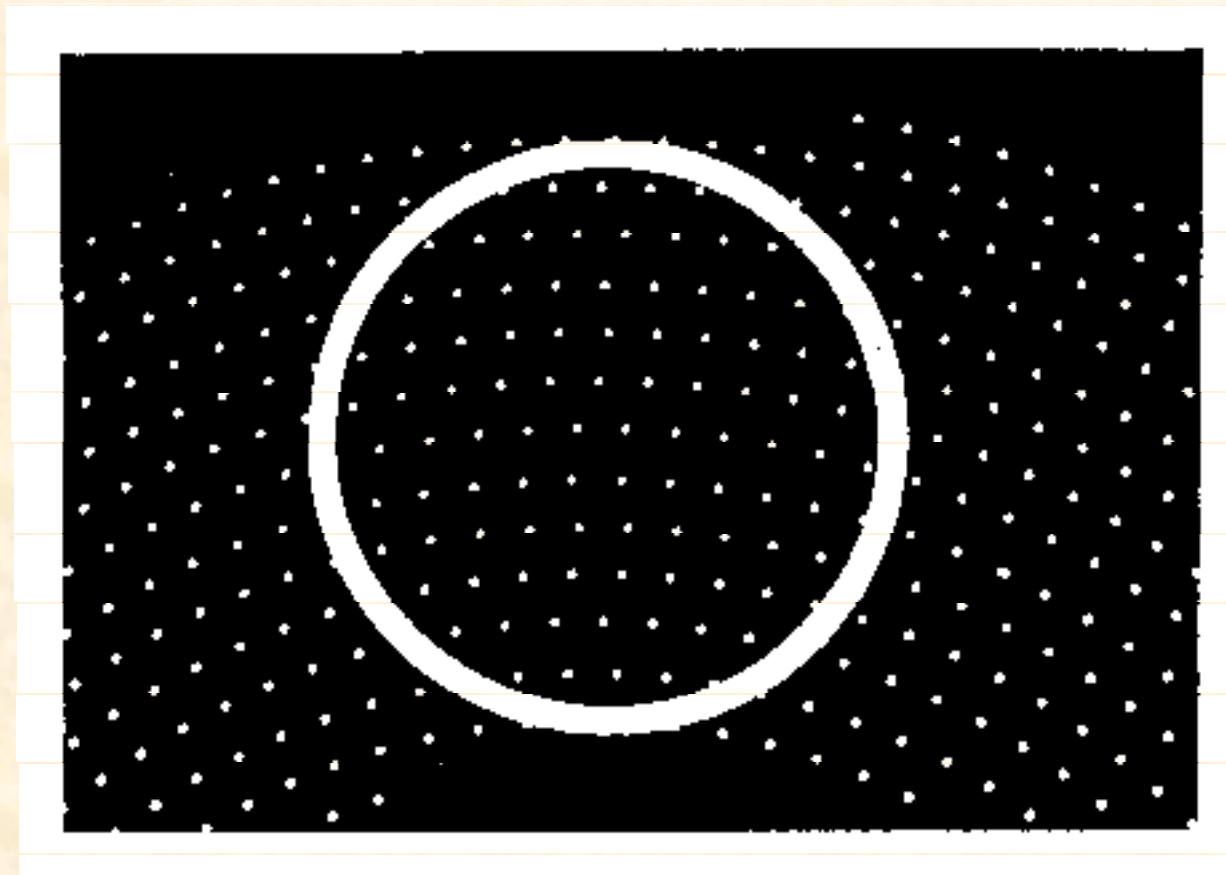
# TSM with mirrors



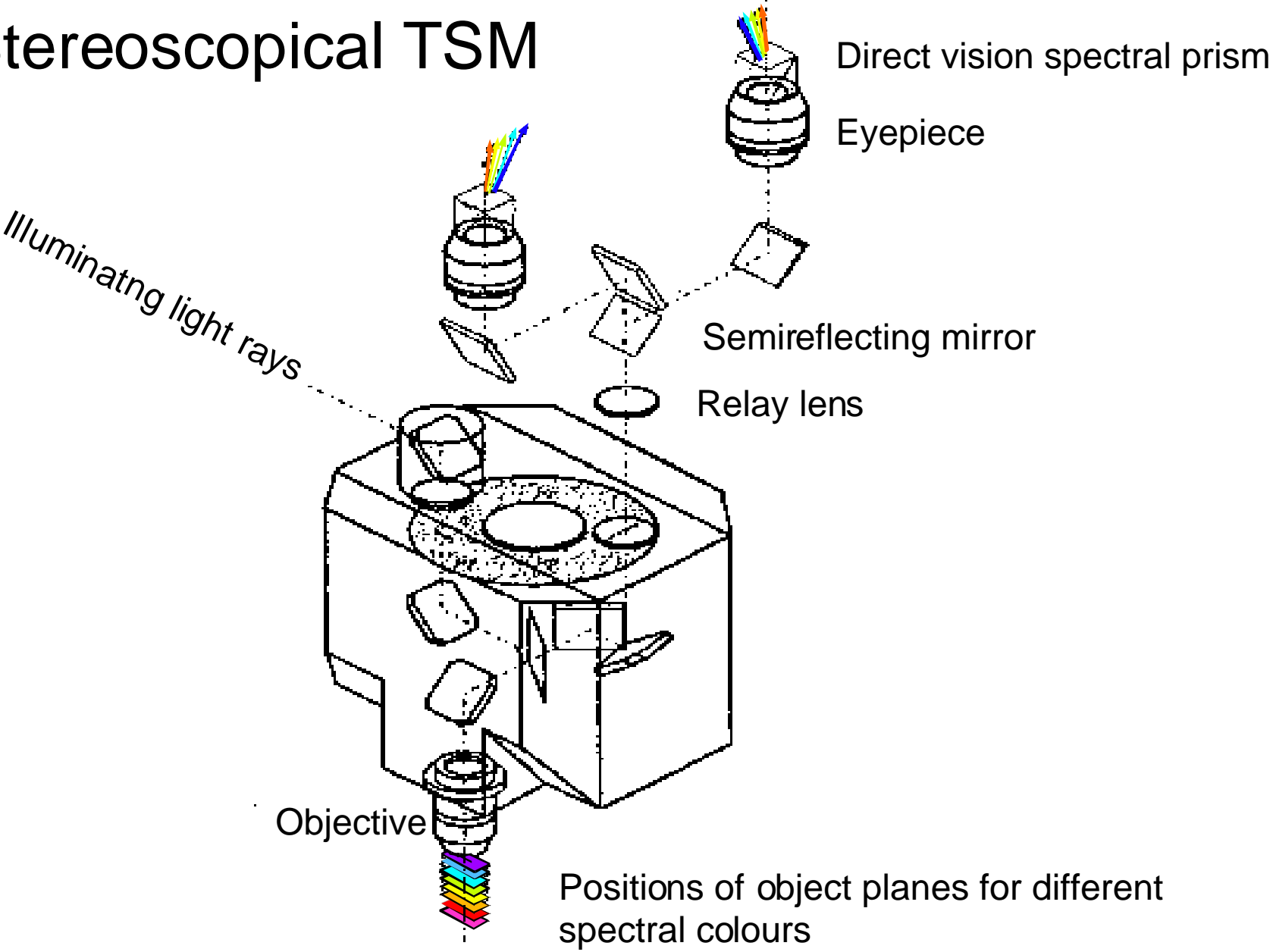
- 1 Nipkow disc
- 2 Microscope objective
- 3 Eyepiece
- 4, 5, 6, 7 Mirrors amalgamating virtually the elemental illumination and image „points“ in the object space
- 7 The „limitlessly“ thin semireflecting-semitransparent mirror (coated mica foil)
- 8, 9 Input and output mirrors (determining position of the light source and of the objective)

Interrupted line – optical axis

One of our Nipkow disc modifications containing greater and rather thinner equidistant holes of equal size.  
The ring illustrates size of the image field observed;  
here it contains 95 holes on average



# Stereoscopic TSM



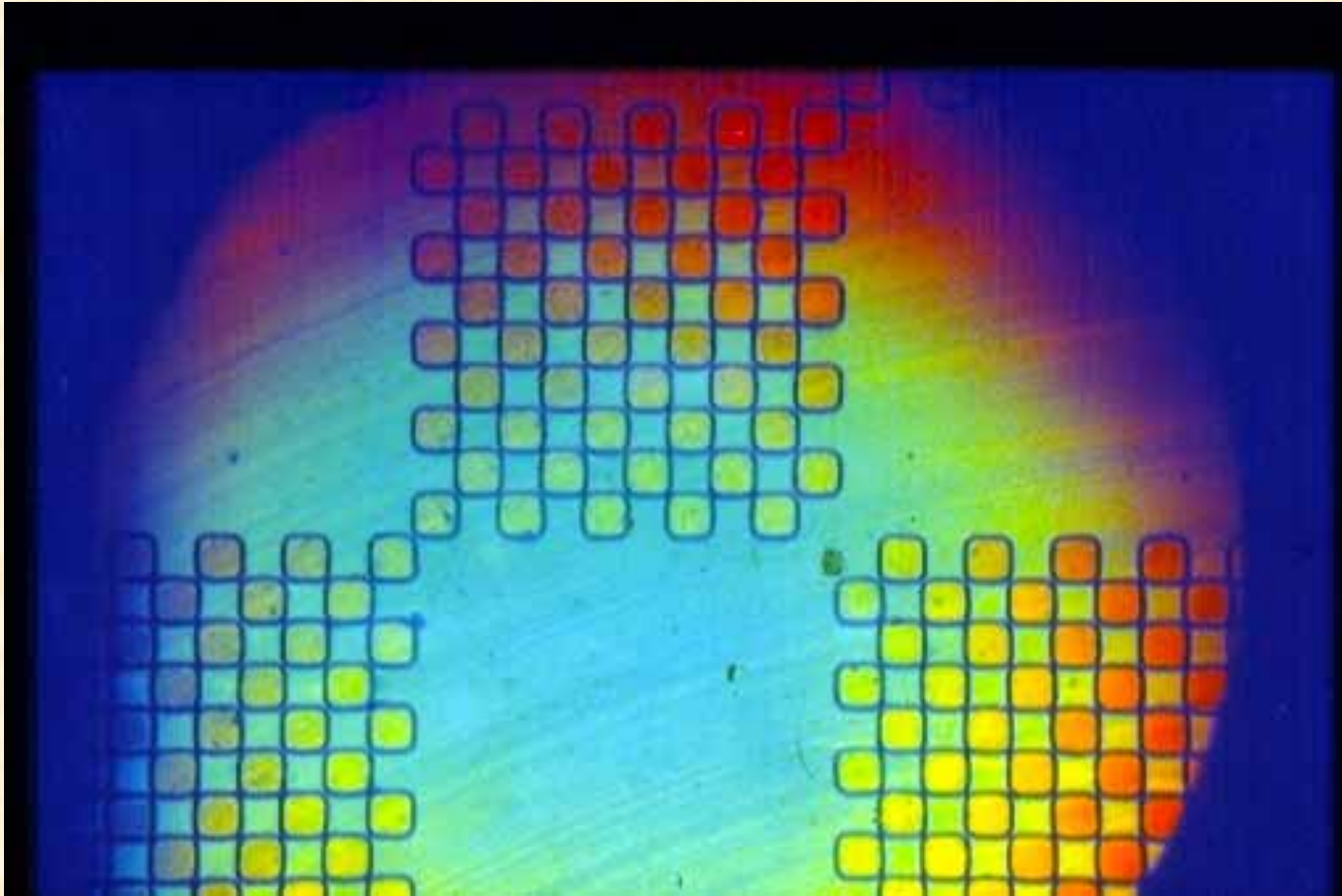


Several species of Diatomae: one slide of the stereoscopical pair

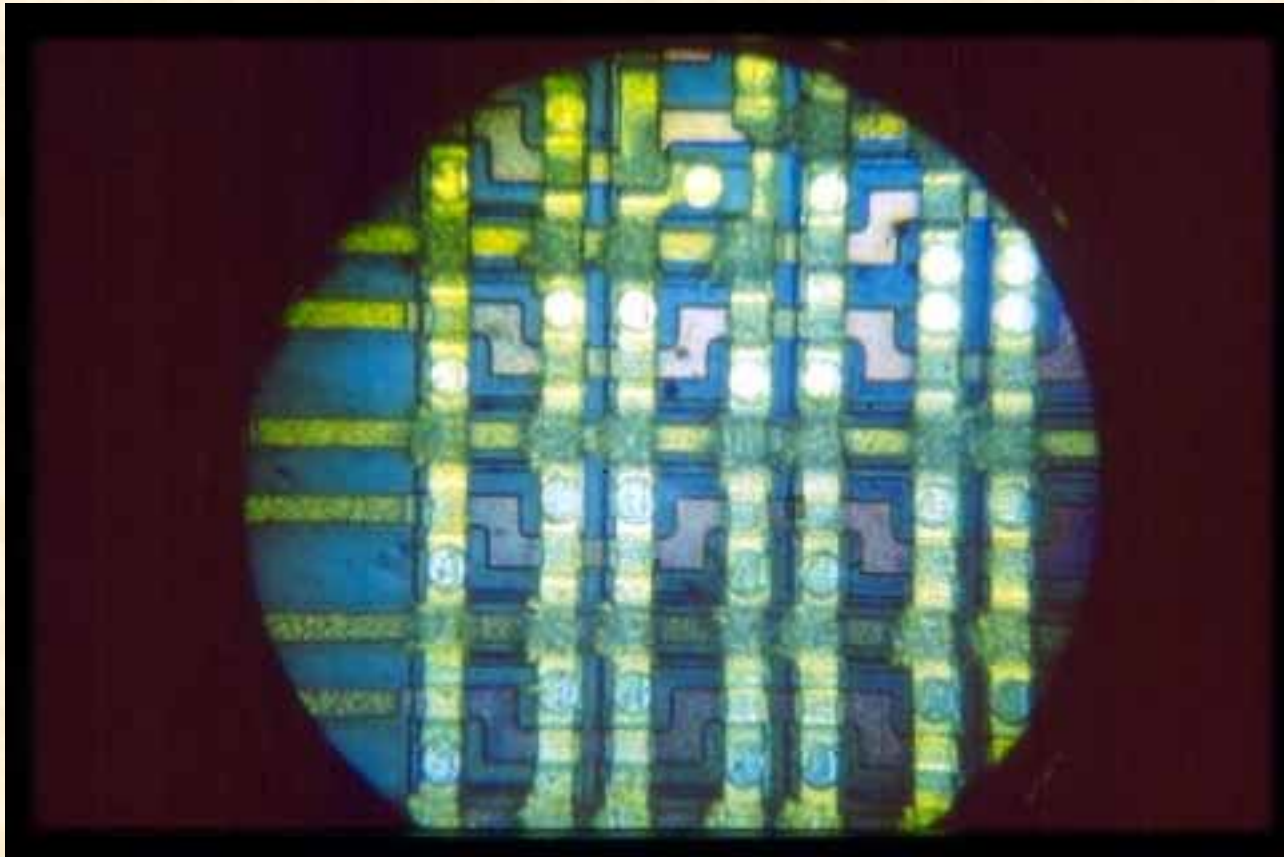




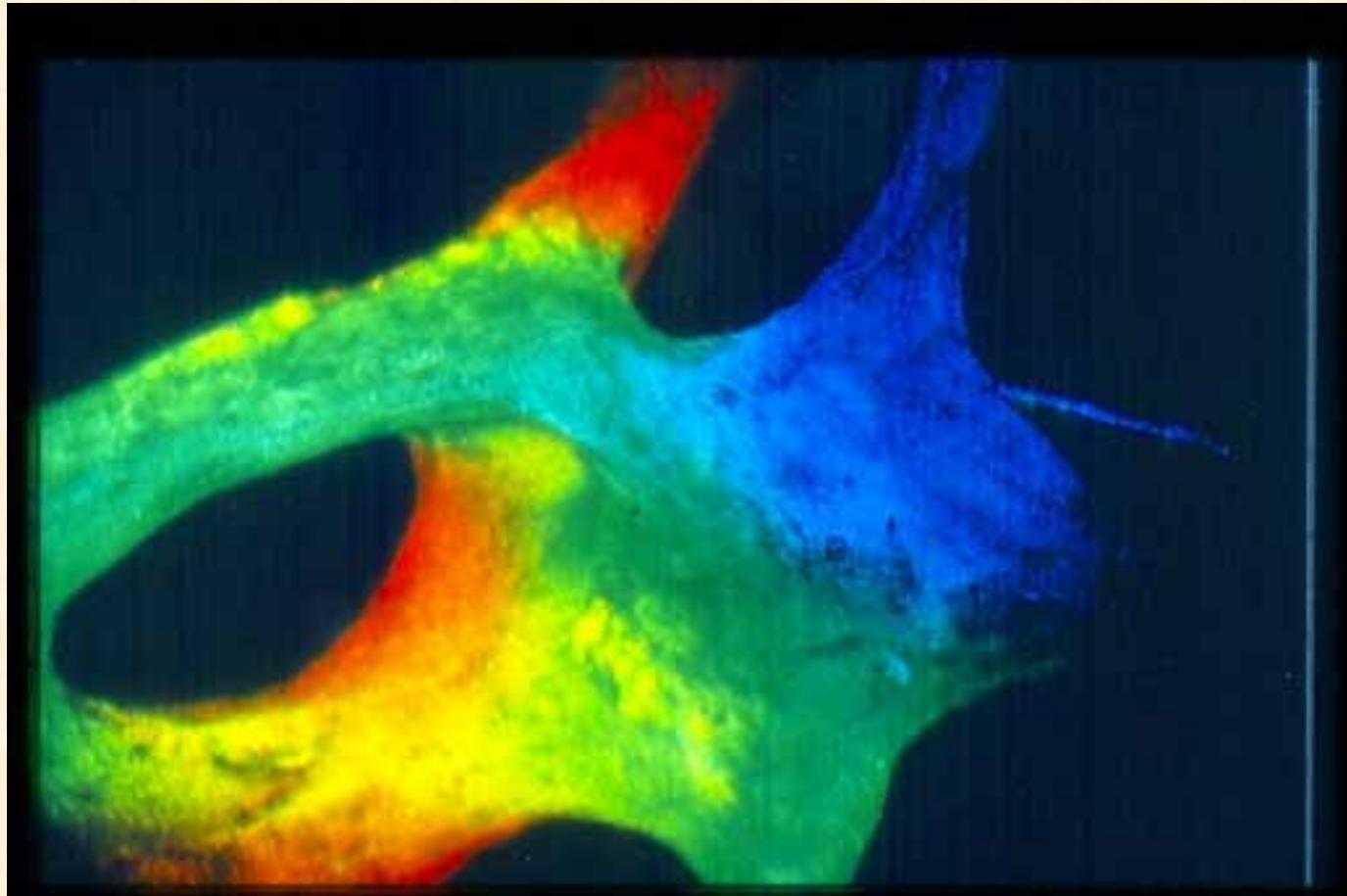
**Testing slide:** About 1  $\mu\text{m}$  thick „tiles“ on a plane glass surface  
color changes are due to the tile thickness and also due to the lens object  
plane curvature. Note the different eye sensitivity for wavelength change; it  
is maximum on the border between red and orange



Integrated circuit: different planes are imaged in different colours due to the chromatic aberration of the objective

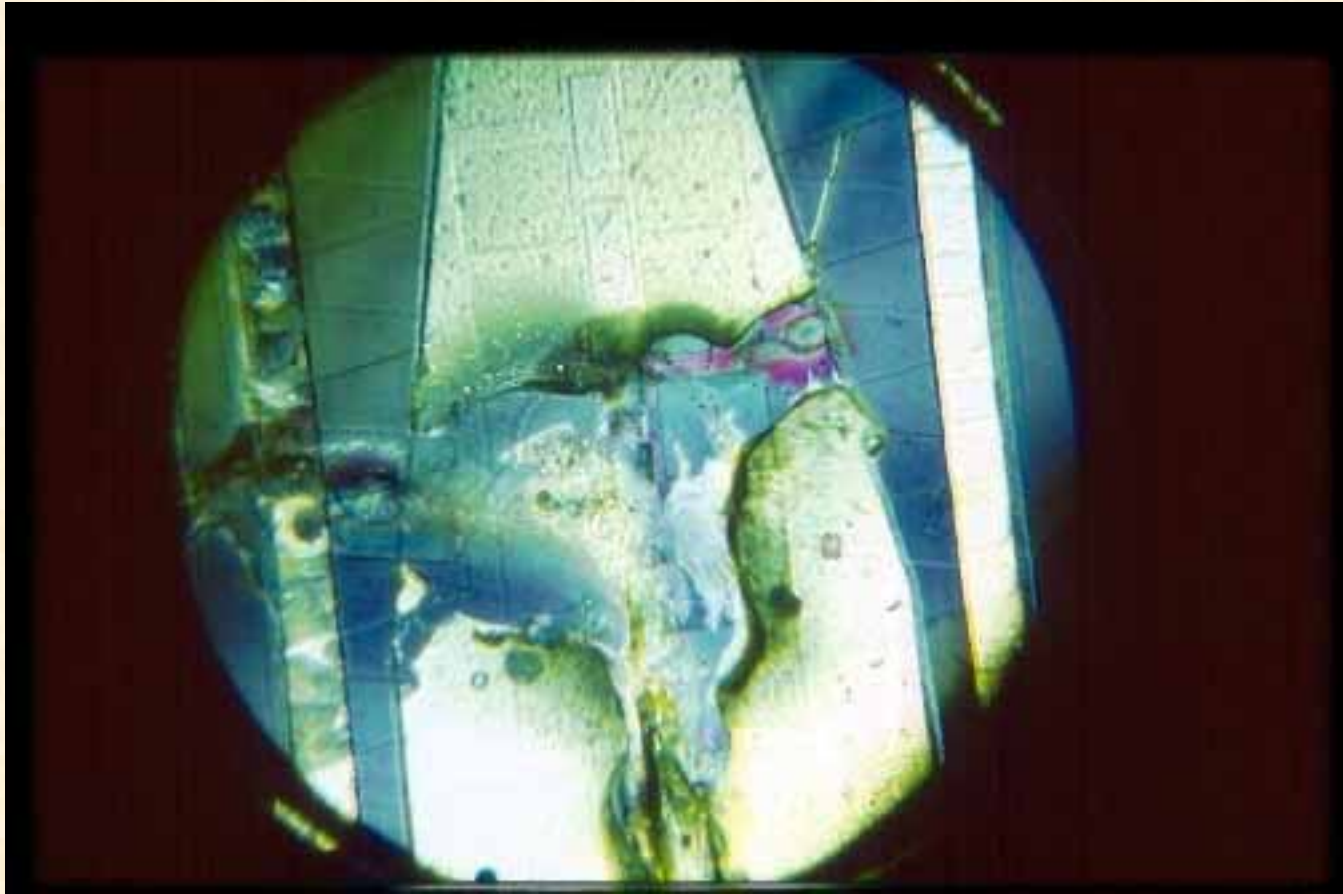


# Spongiuous bone (Alan Boyde)

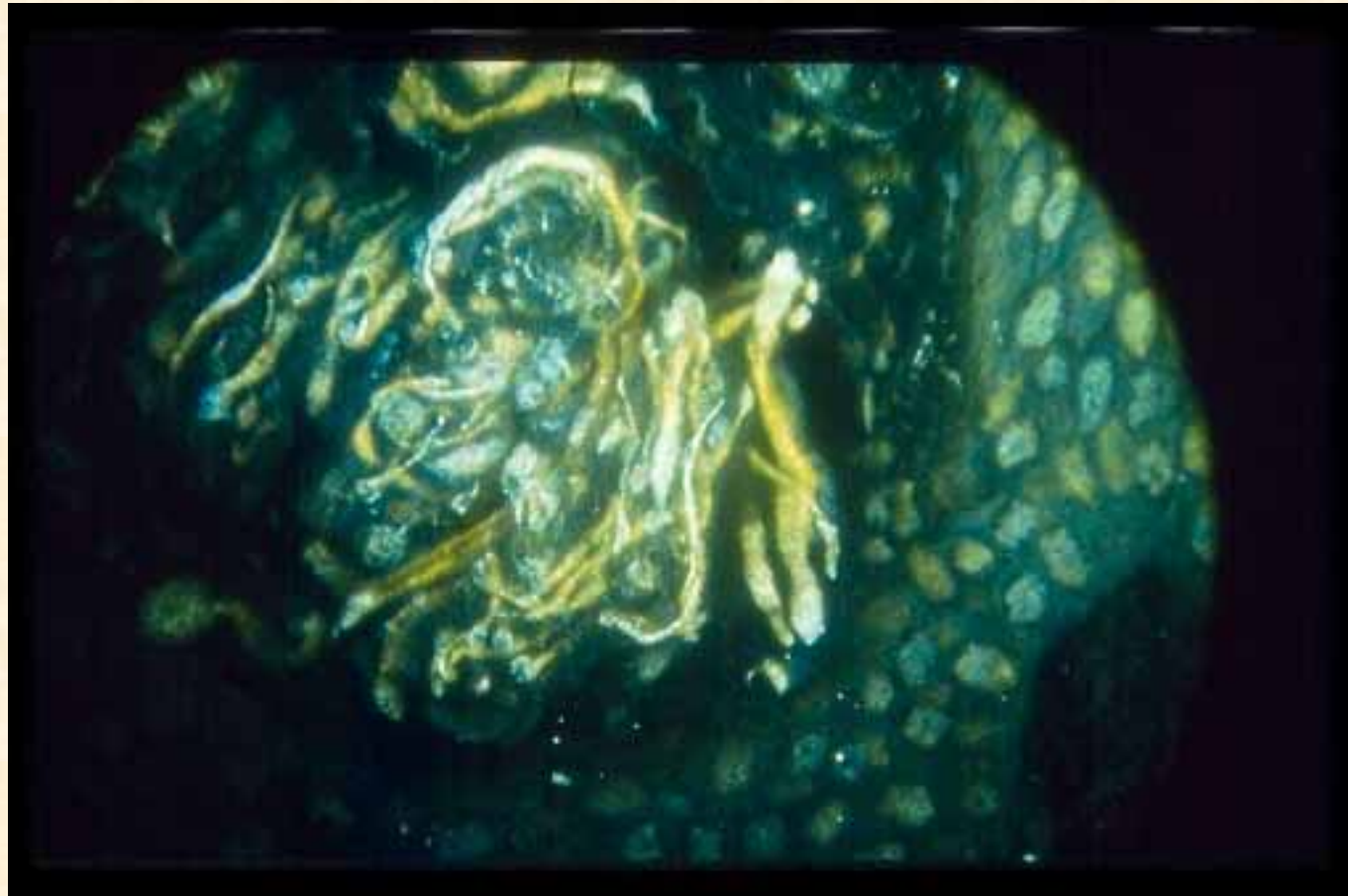




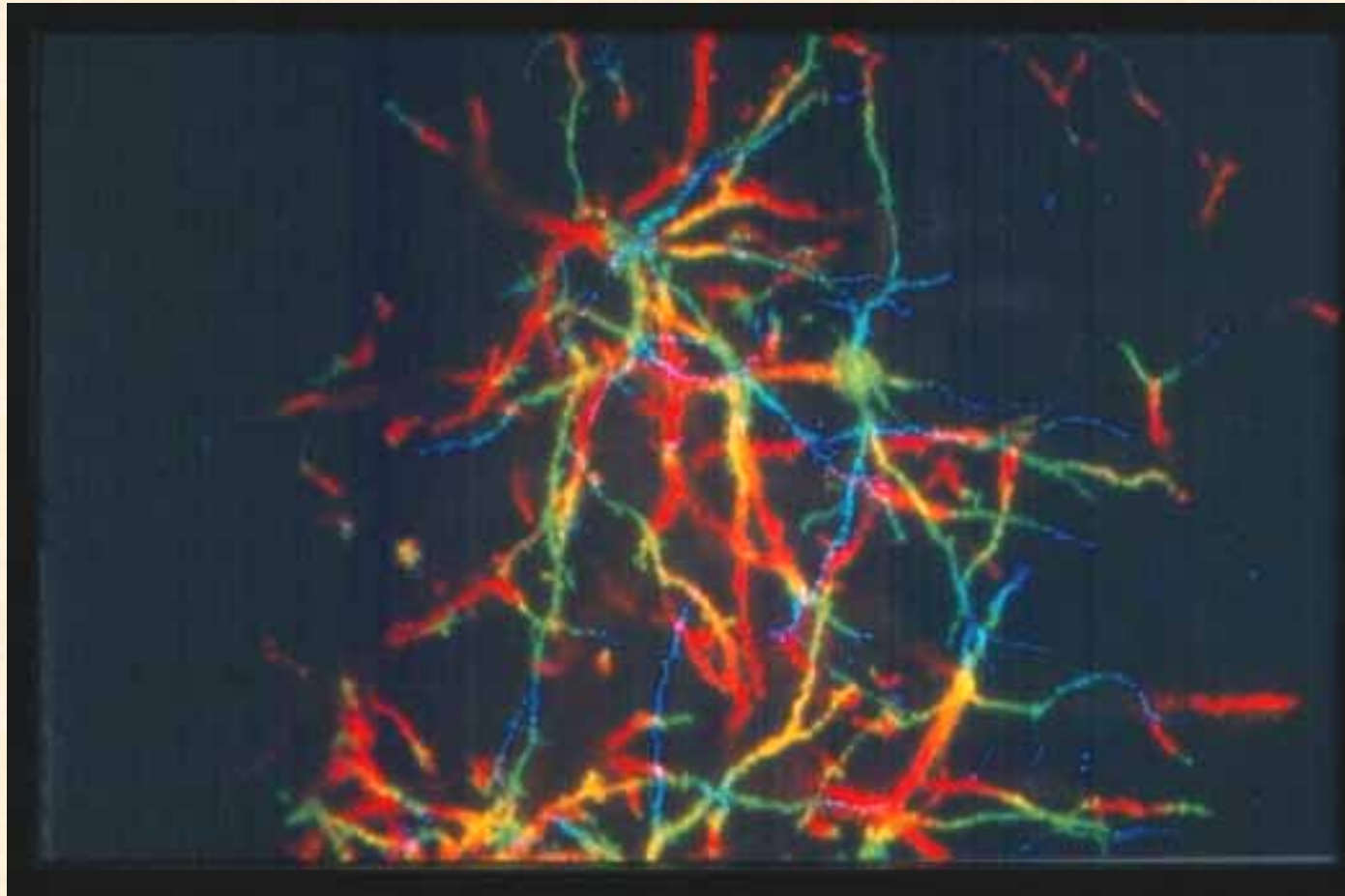
# Power transistor (burned out)



# Tactile corpuscle



Neuronal network (one slide of the stereoscopic image)

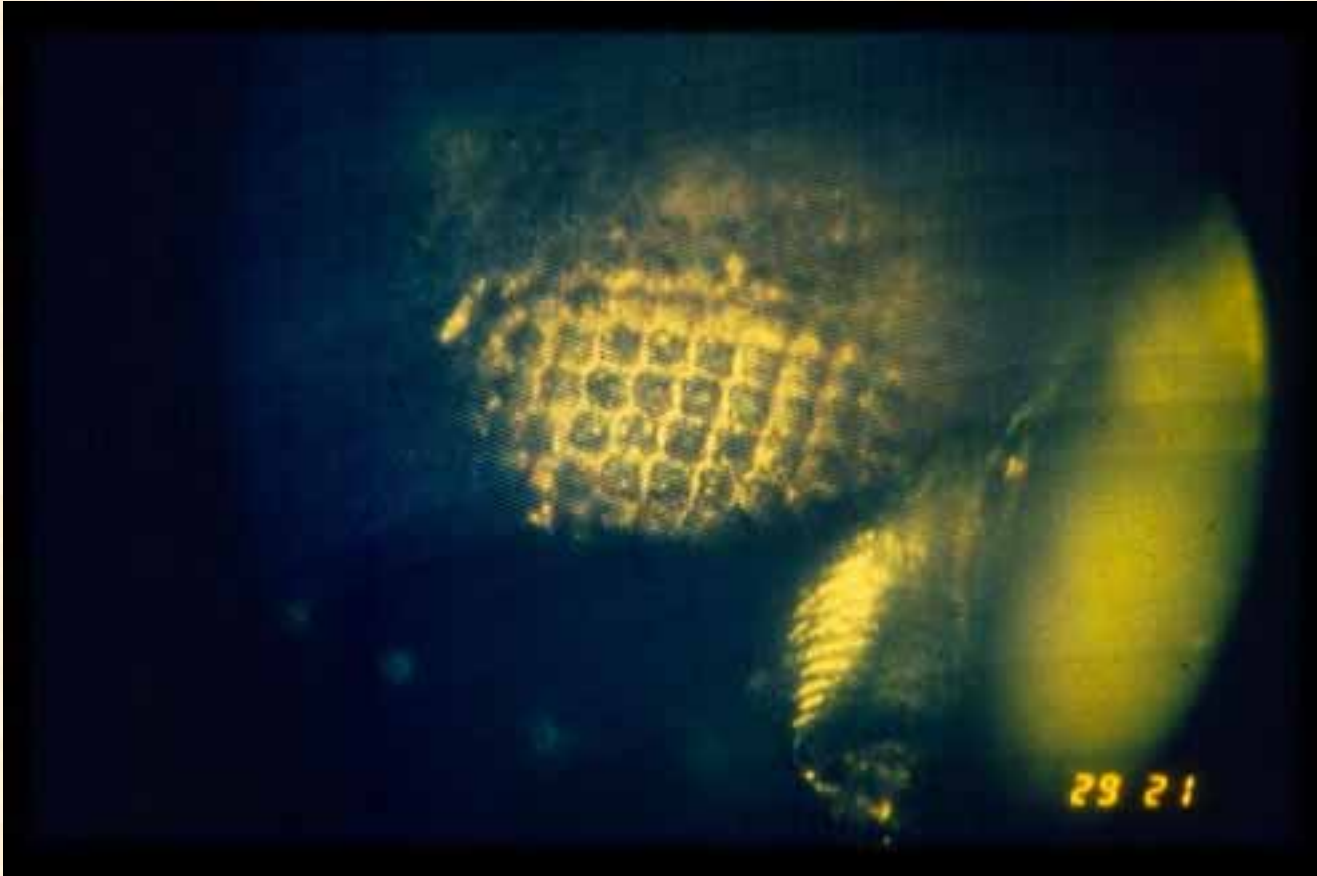




Striated muscle fiber from a fly (1968)



# Fly eye

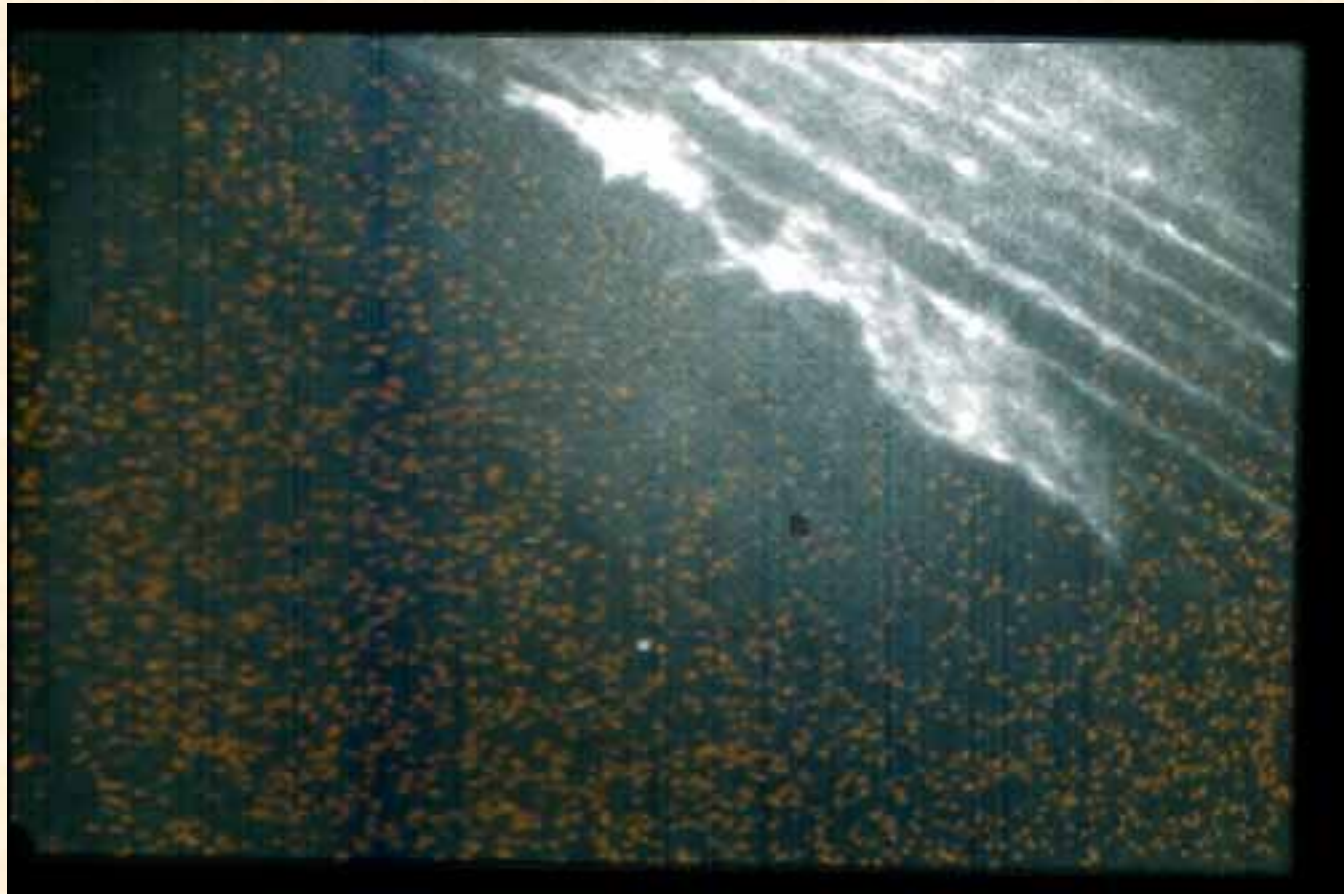


# Compact bone excavated by osteoclasts (Alan Boyde)





# Sciatic nerve with an intercalated nerve cell (1966)



# TSRLM

