

ANATOMY: *lessons from history*

Brian Freeman

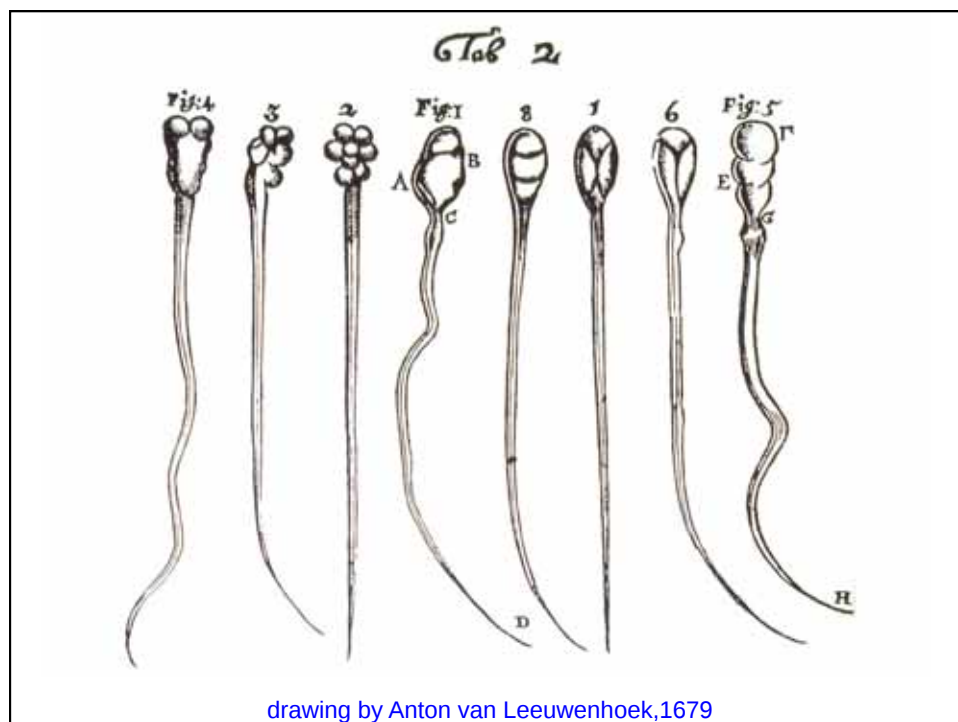
May 2015

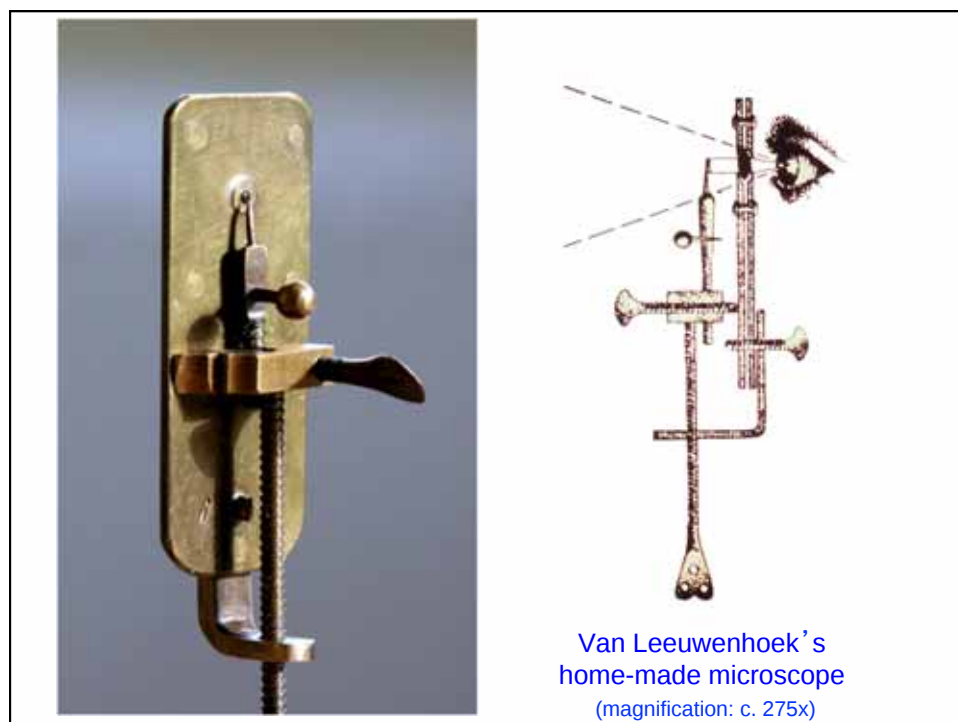
www.drawingonanatomy.com.au

gross anatomy (macroscopic anatomy)

histology (microscopic anatomy)

embryology (developmental anatomy)





bacillus

fig: A fig: B 

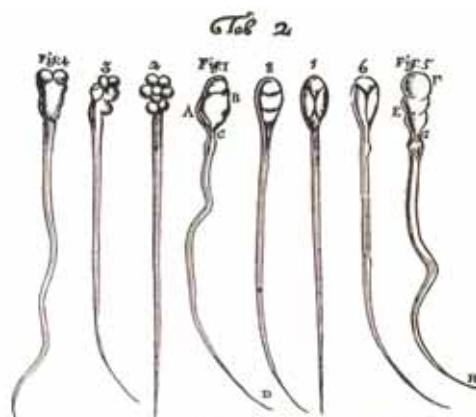
coccus

fig: E fig: G. 

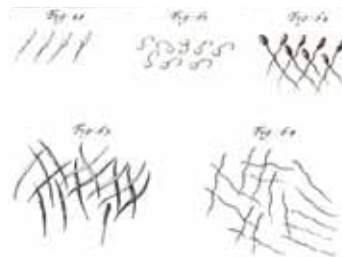
spirillum

fig: F 

drawing by van Leeuwenhoek in letter to Royal Society (1683)
animalcules from tartar on his teeth; oldest known illustration of bacteria



Van Leeuwenhoek (1679)

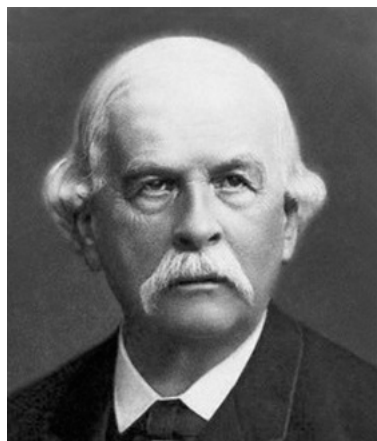


Ledermüller (1758)



X. BICHAT

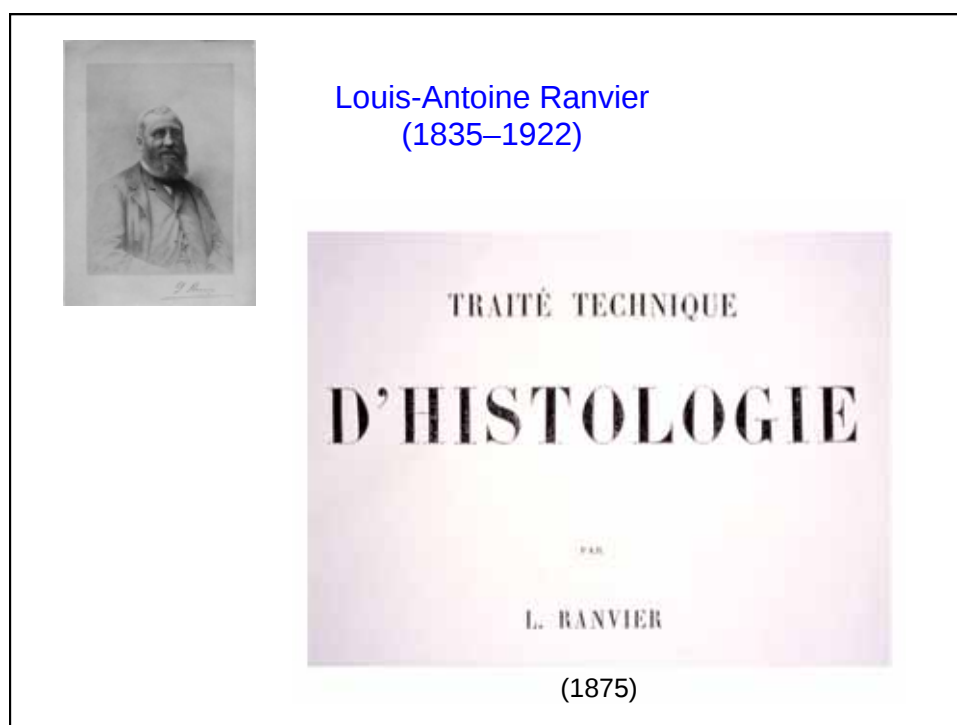
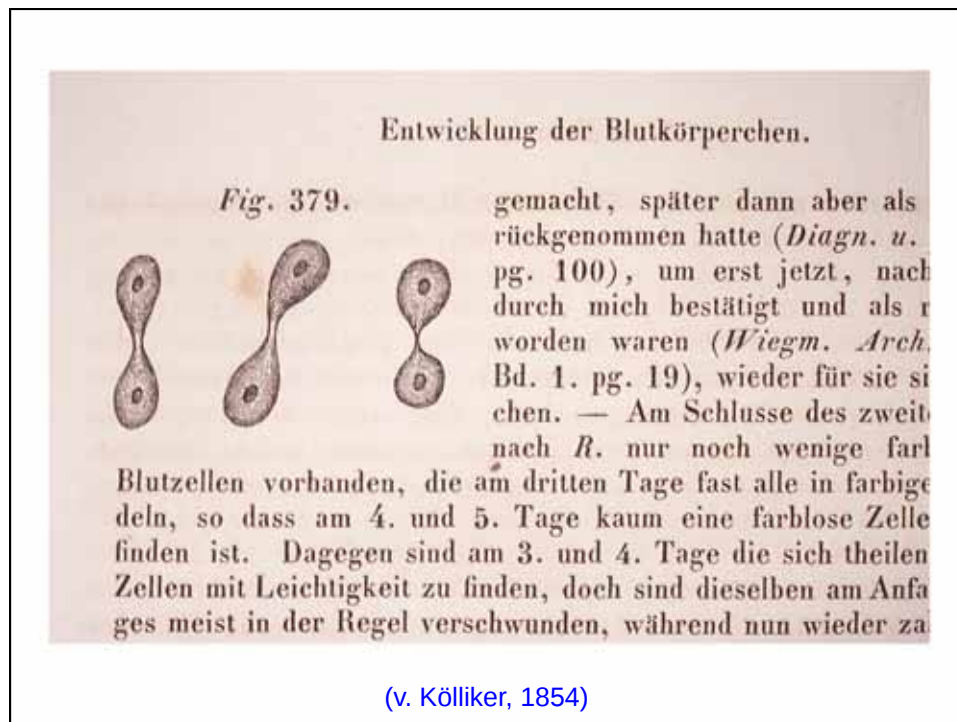
1771–1802



Albert von Kölliker
(1817–1905)

cell division





living moving leucocytes

Ranvier: *Traité technique d'histologie*
Paris, Savy, 1875

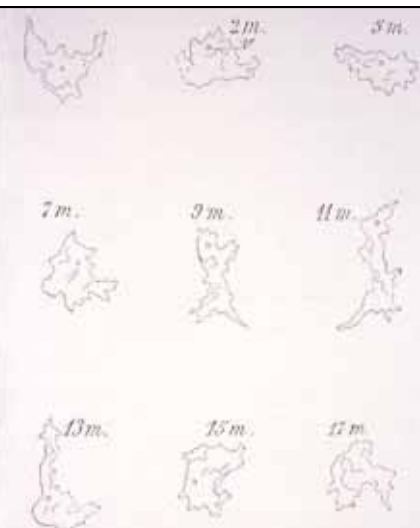
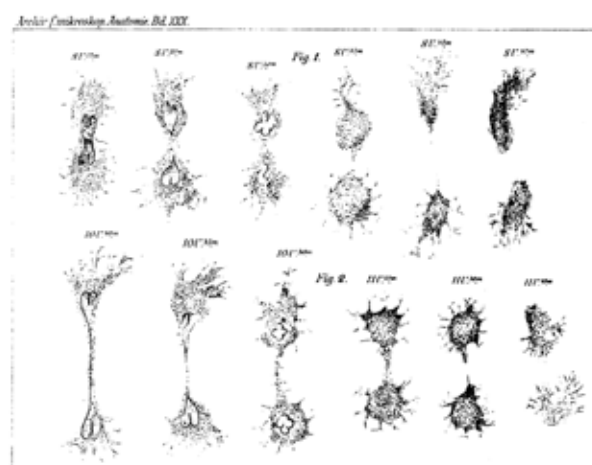
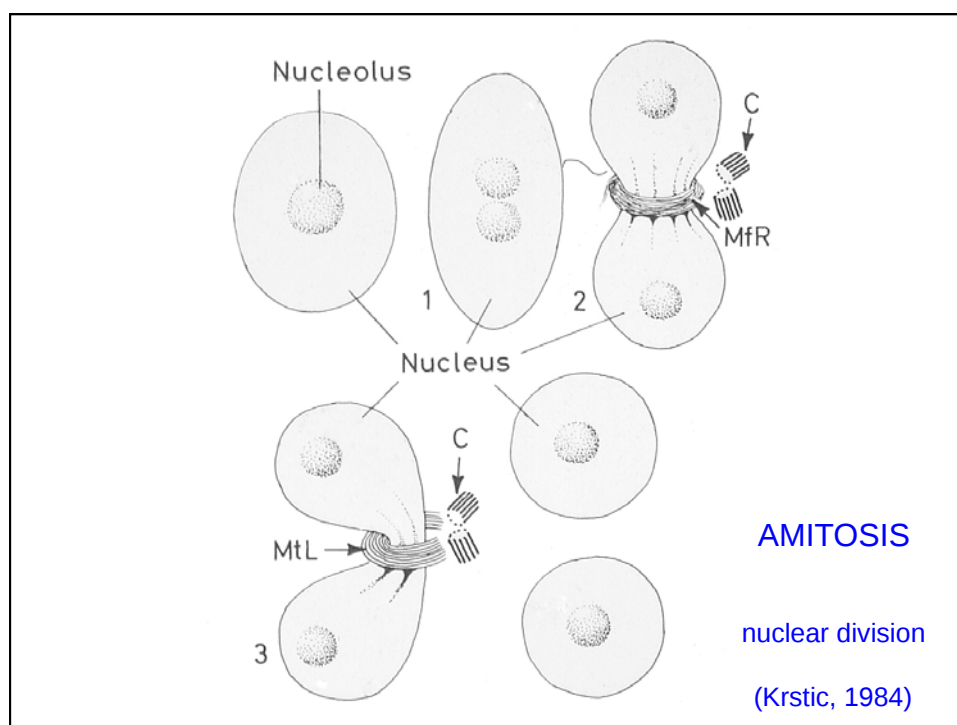
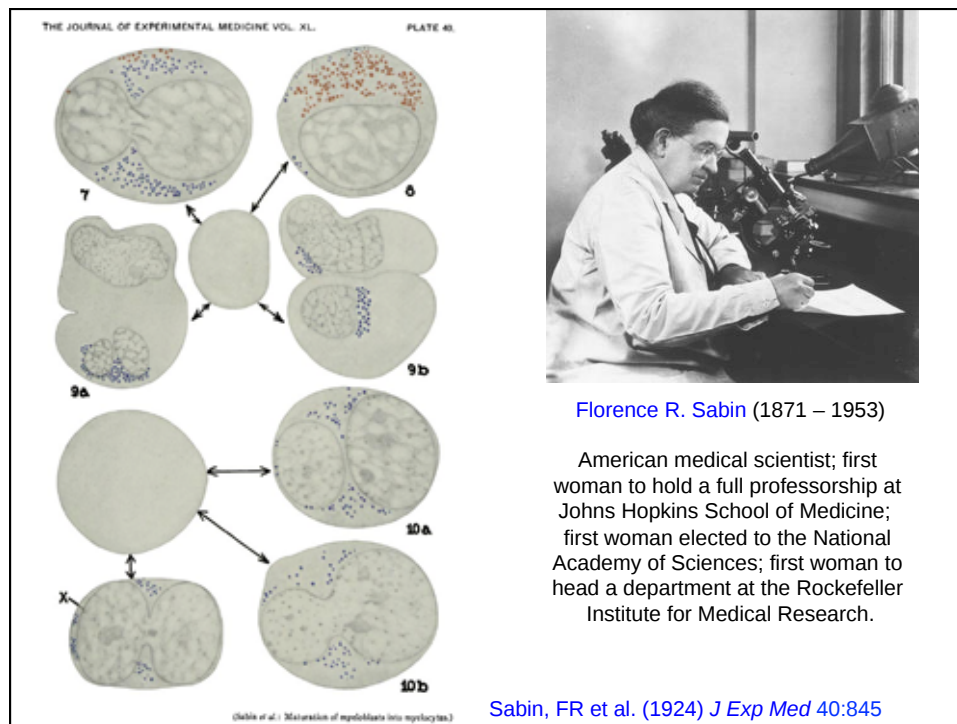


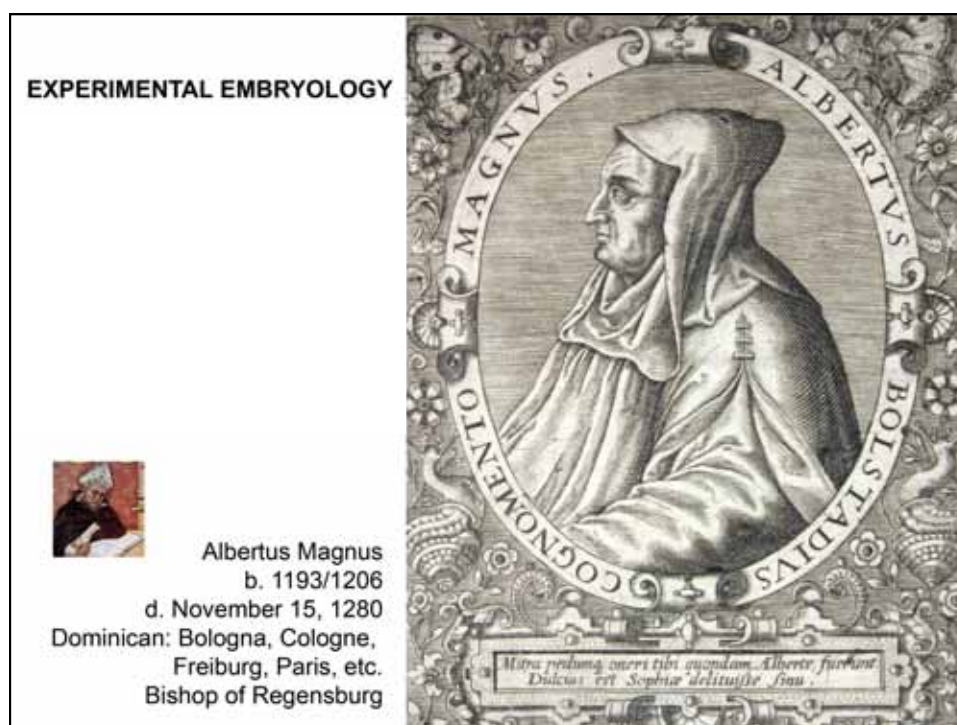
FIG. A2. — La même cellule de la lymphe de la grenouille, observée à la température ambiante et dessinée à la chambre claire, au bout de deux minutes, au bout de cinq minutes, et de deux en deux minutes jusqu'à la dix-septième. Une vacuole *v* change de situation par rapport au centre de figure de l'élément et sert à apprécier les déplacements de sa masse.

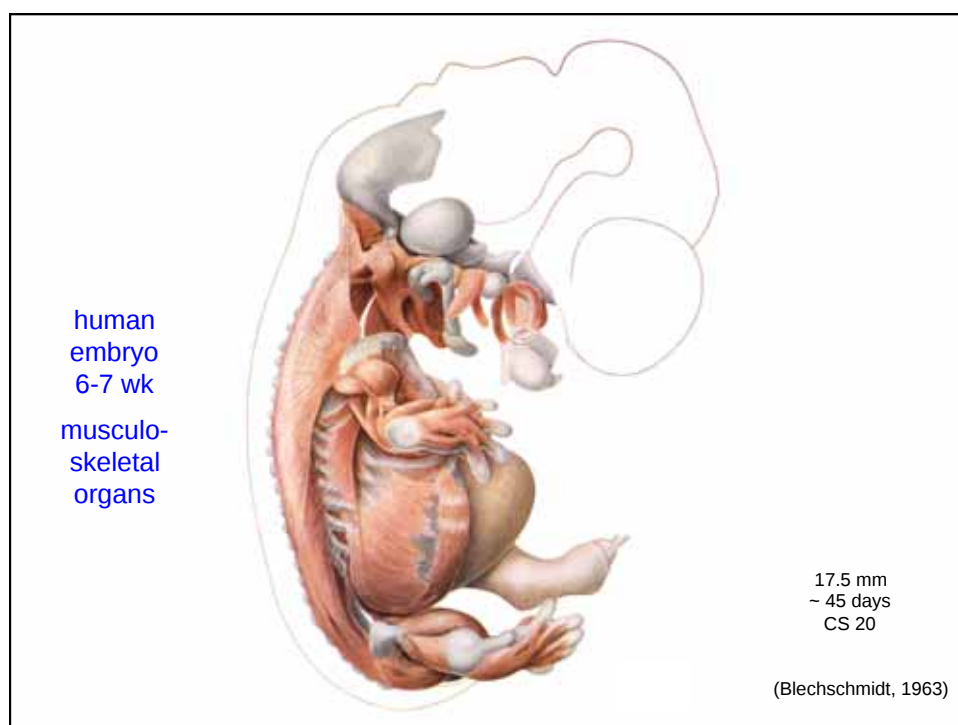
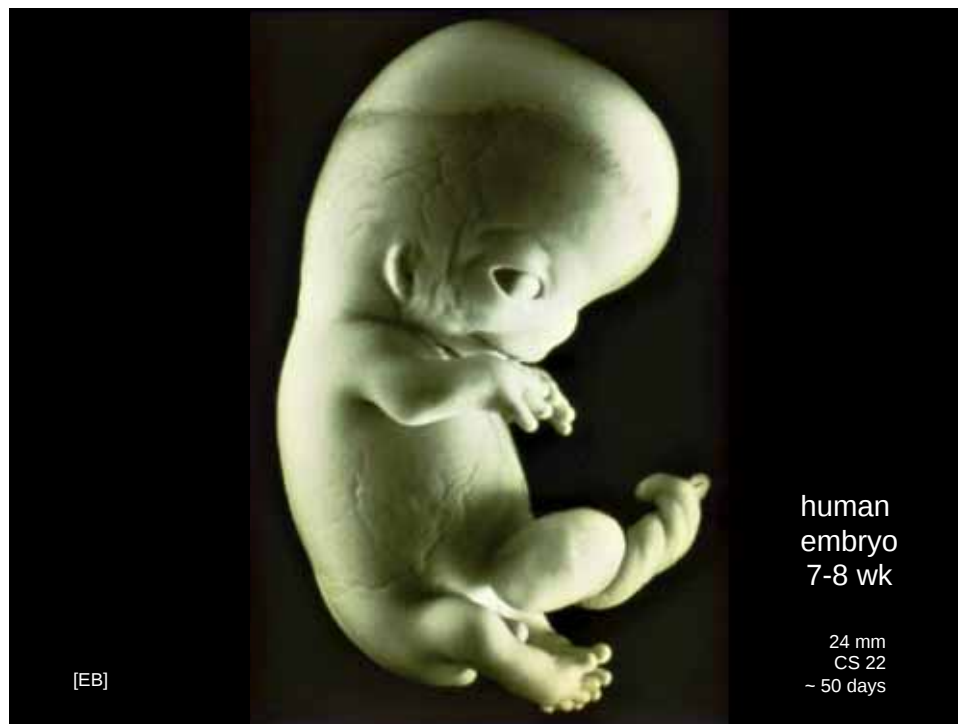


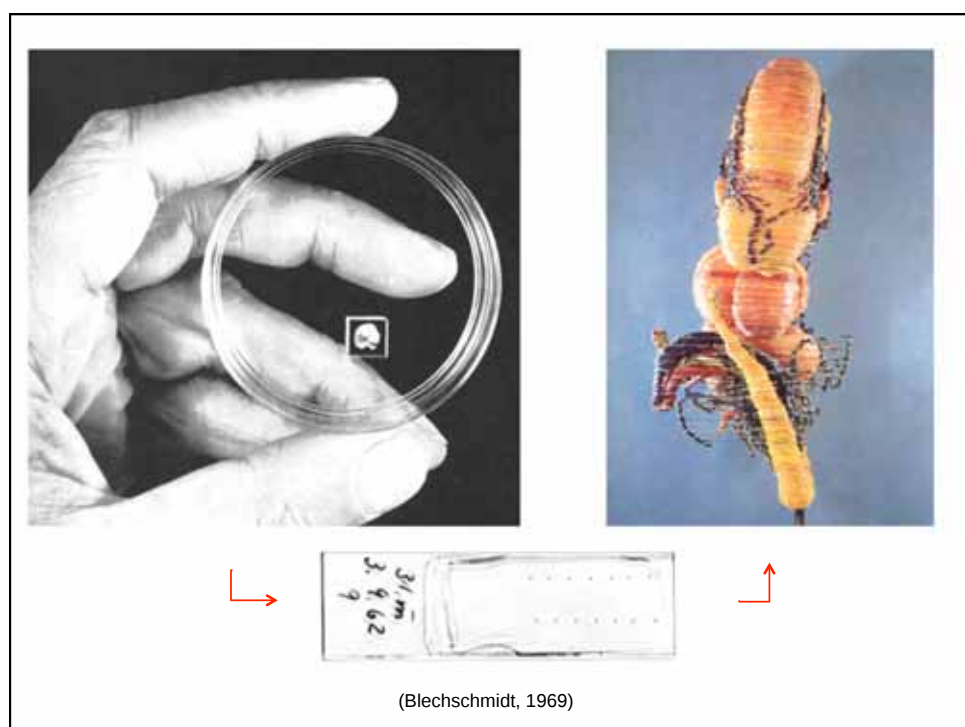
division of living cells in amphibian lymph sac

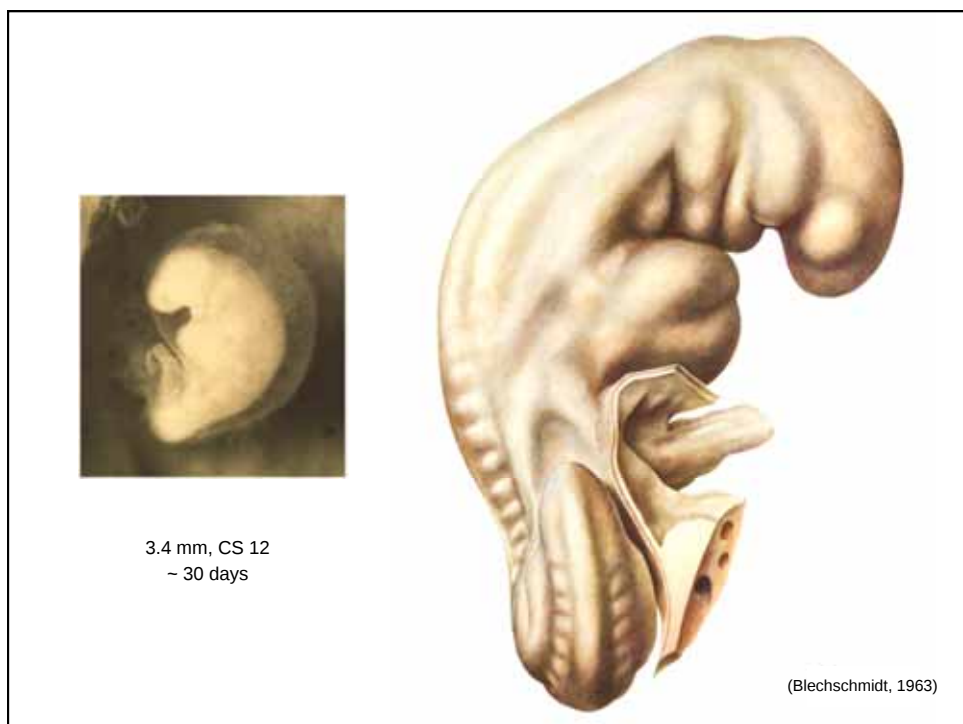
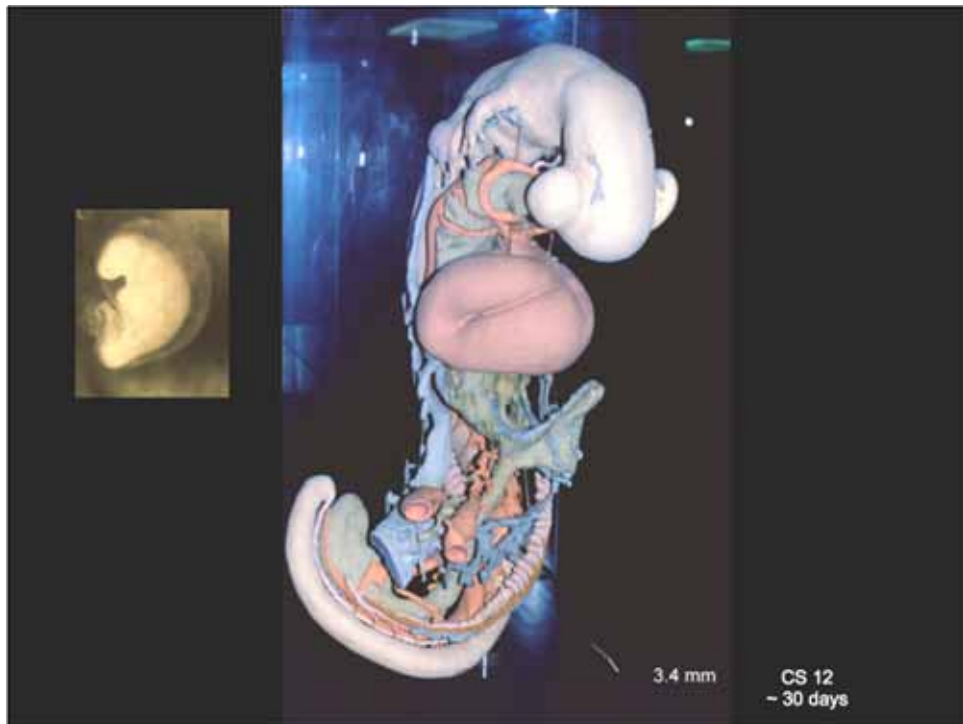
Arnold, J. (1887) *Archiv für mikroskopische Anatomie* 30: 205-310

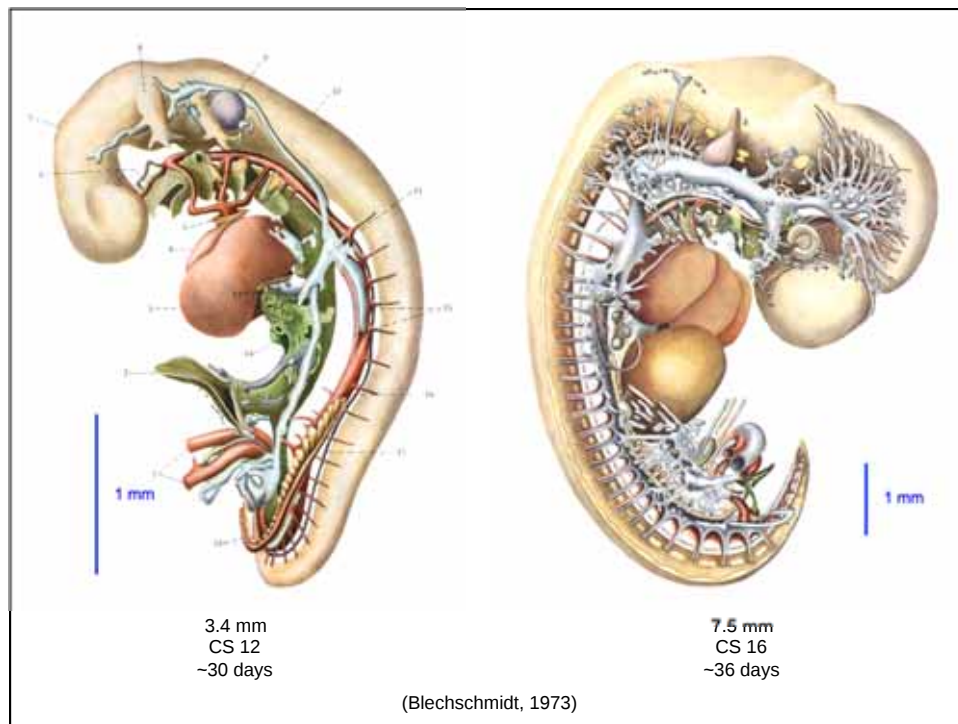


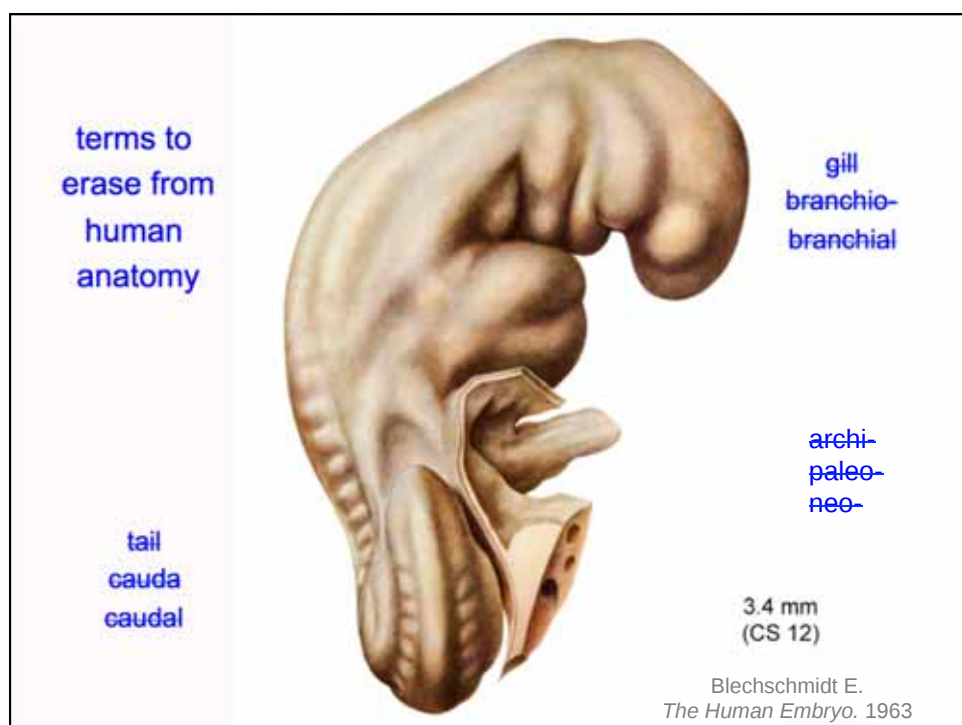
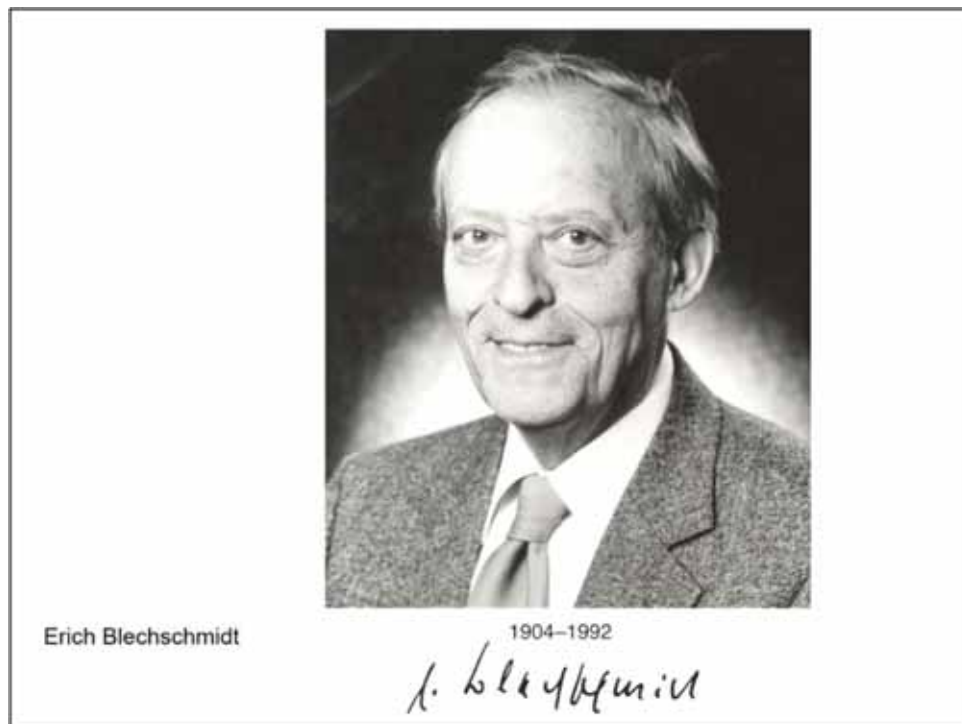












Ernst Haeckel
(1834–1919)

"father of evo–devo"

The Biogenetic Law
= Haeckel's Law
(1868–1874)

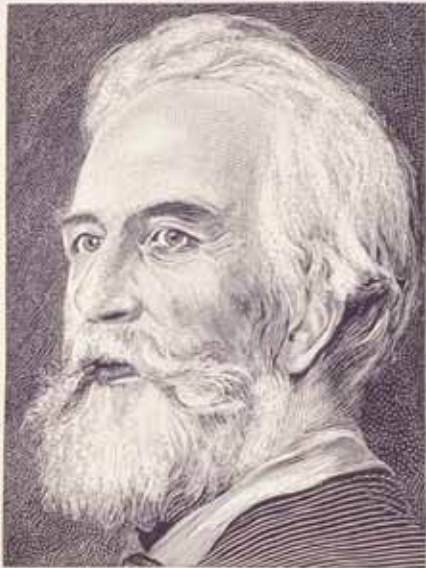
"...the history of the fetus is a recapitulation of the history of the race.."

"... ontogeny is a recapitulation of phylogeny..."

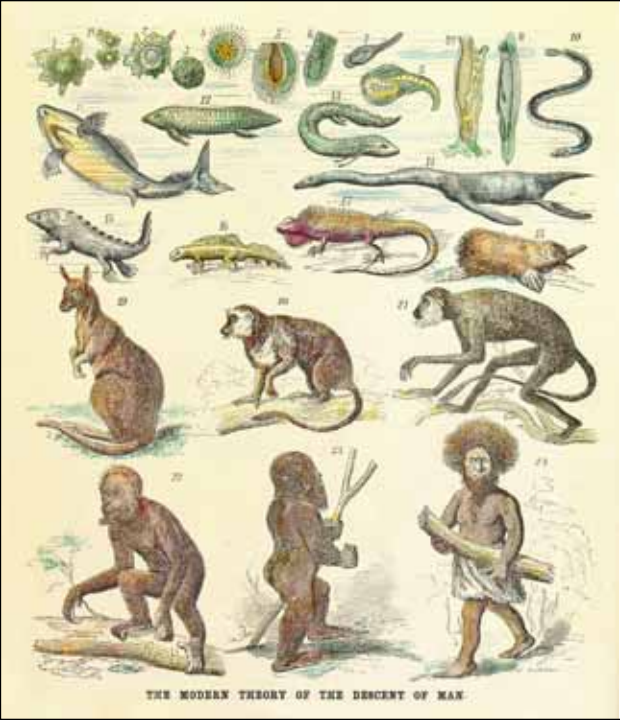
"The Fundamental Law of Organic Evolution"

"... phylogenesis is the mechanical cause of ontogenesis..."

ERNST HAECKEL

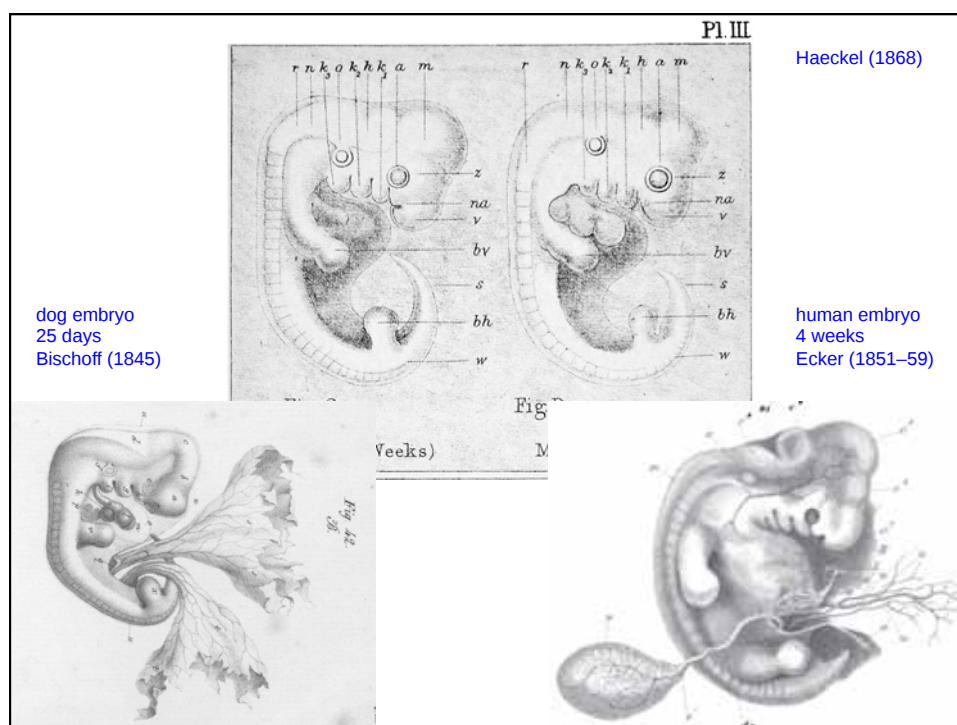
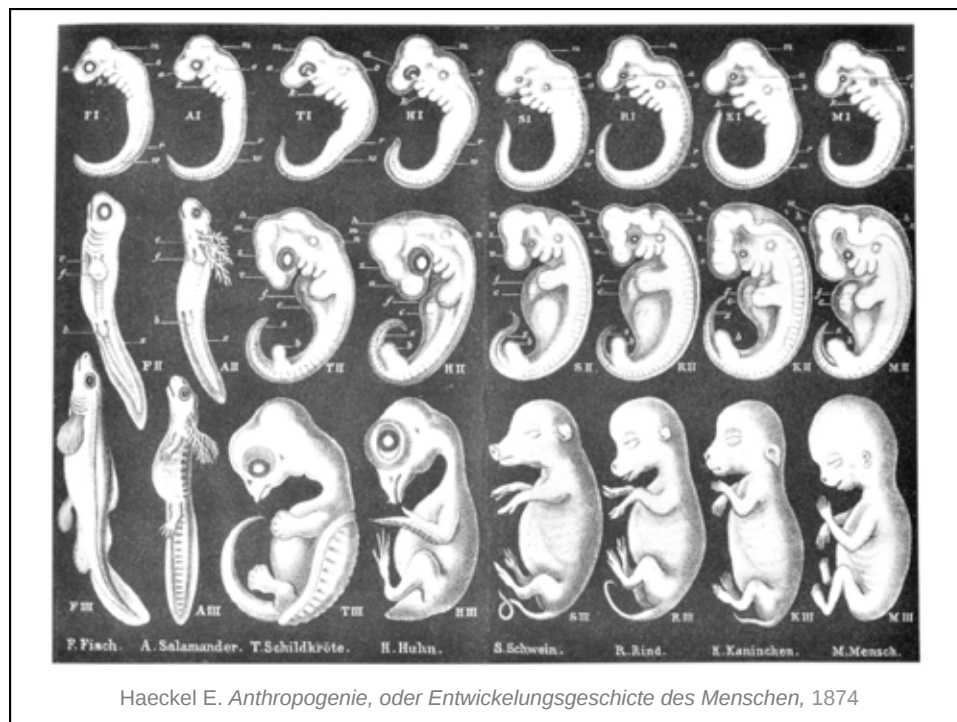


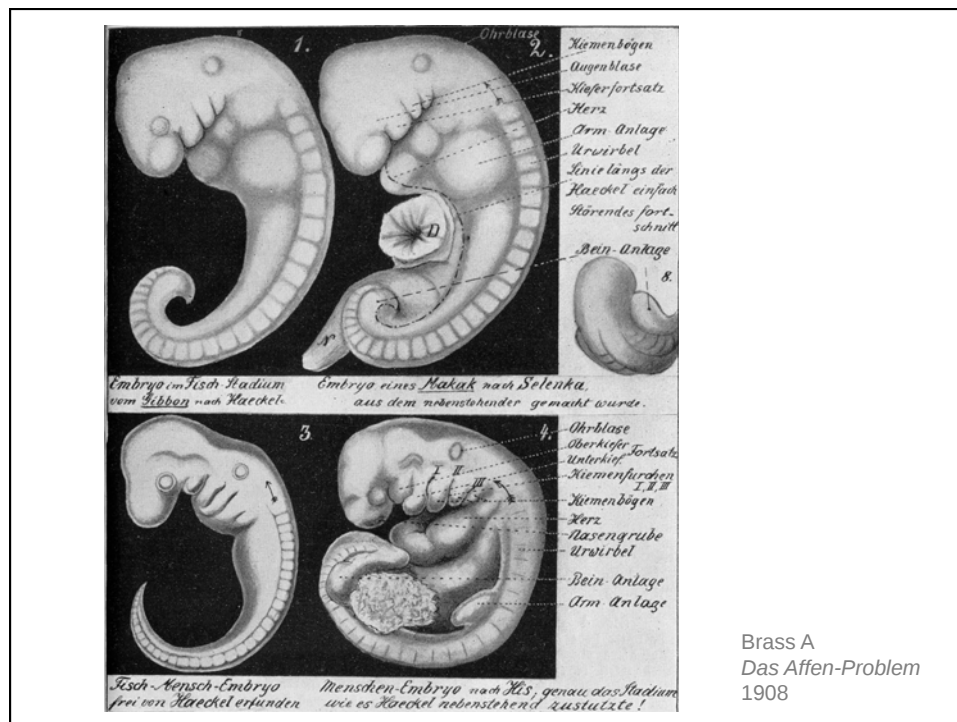
From the Painting by Franz von Leubach, 1899 (reproduced in "Jugend")



THE MODERN THEORY OF THE DESCENT OF MAN

E. Haeckel, 1874





Haeckel's 'confession'

"...to cut short this unsavoury dispute, I begin at once with the remorseful confession that a small fraction of my numerous drawings of embryos (perhaps 6 or 8 per cent.) are really, in Dr. Brass's sense, 'falsified'..."

E. Haeckel, *Berliner Volkszeitung*, Dec 29, 1908

"...um dem ganzen wüsten Streite kurzerhand ein Ende zu machen, will ich nur gleich mit dem reumütigen Geständnis beginnen, daß ein kleiner Theil meiner zahlreichen Embryonenbilder (vielleicht 6 oder 8 von Hundert) wirklich (im Sinne von Dr. Braß) 'gefälscht' sind..."

