

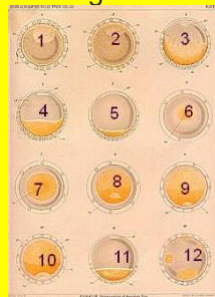
Conklin's Art and Science

The Organization and Cell-Lineage of the Ascidian Egg (*Journal of the Academy of Natural Sciences of Philadelphia* 13: 1–119)

Edwin G. Conklin

In 1905, E. G. Conklin published a remarkable fate map of the ascidian embryo. He showed that "all the principle organs of the larva in their definitive positions and proportions are here marked out in the 2-cell stage by distinct kinds of protoplasm." This study of cell lineage has been the basis for all subsequent research on the autonomous specification of tunicates. The color plates of this study are considered to be some of the best examples of embryological illustration and descriptive anatomy. To present them here, we have scanned in the original five plates of this paper. *To see an enlargement of each embryo along with Conklin's original caption, please click on an individual image below.*

<Each individual image in each plate below should be clickable, opening to that image with caption. For each plate, the numbering of the images and their associated files reads from left to right, top to



bottom in this pattern: Captions should be included beneath each image when clicked. Caption can be the same text as the alt text provided in this file. No caption needed for the 6th and final figure. If you have questions about how to set this up, please see the 12e page https://learninglink.oup.com/access/content/barresi-12e-student-resources/barresi-12e-further-development-1-4?previousFilter=tag_chapter-01>

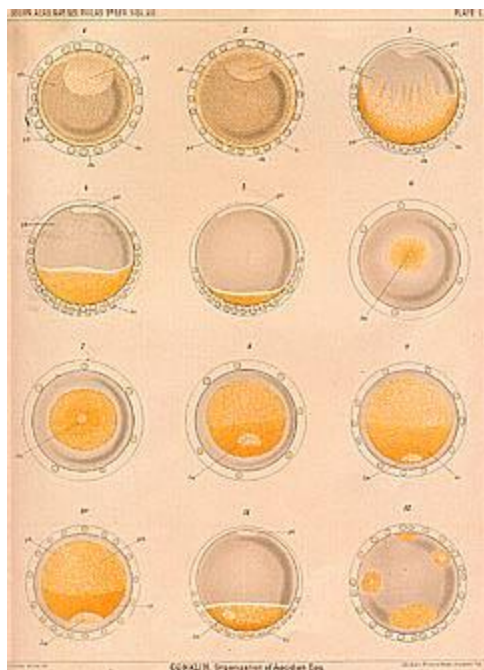


Plate 1

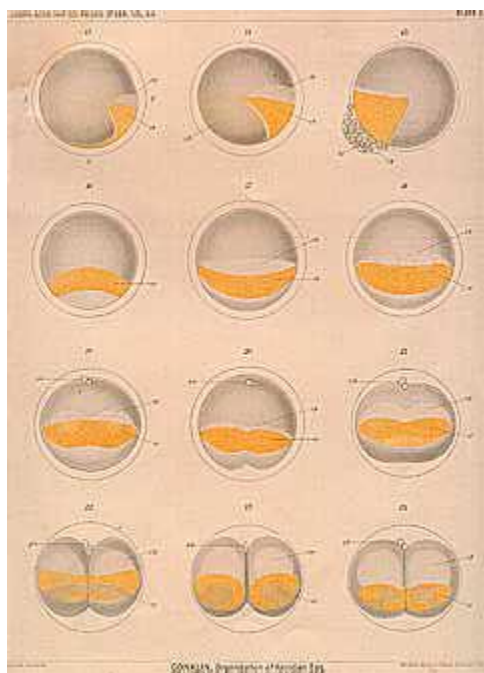


Plate 2

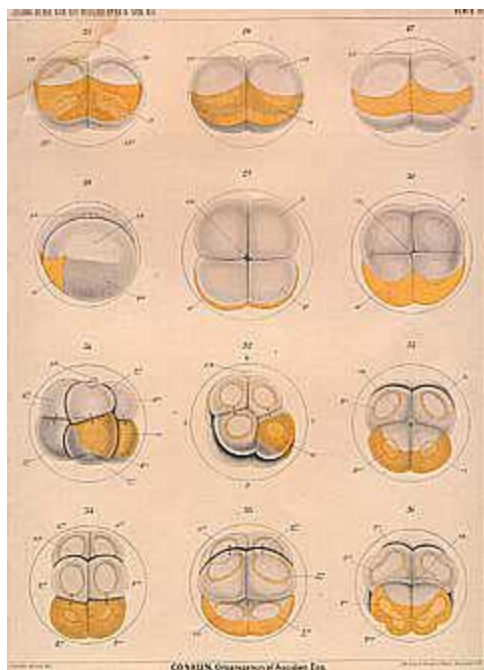


Plate 3

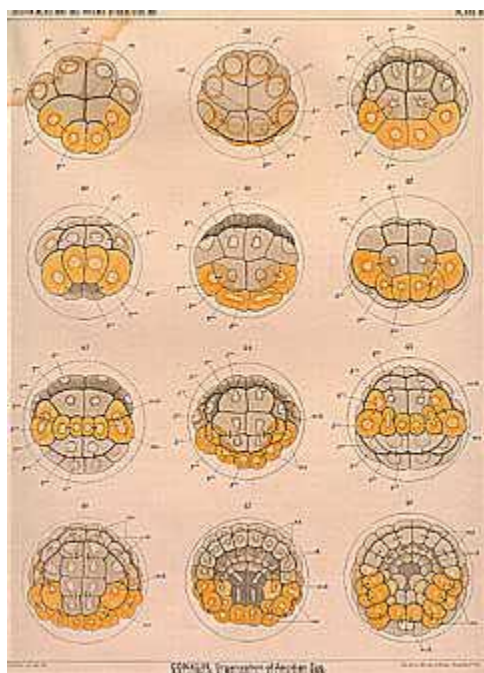


Plate 4

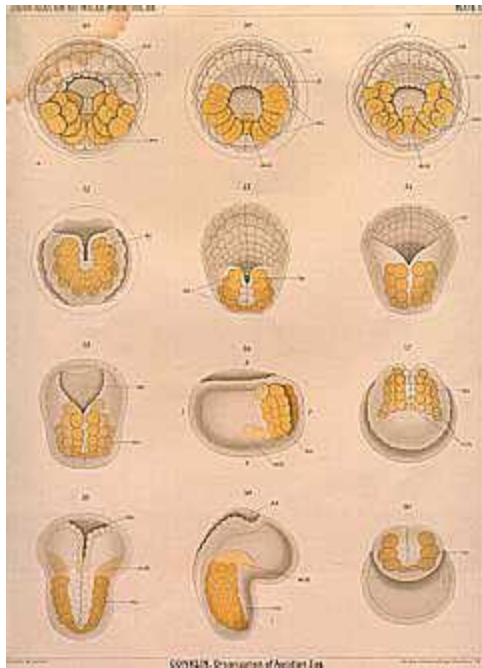


Plate 5

REFERENCE LETTERS.

A.—Anterior.	nl.—Nucleolus.
a.p.—Animal pole.	n. t.—Neural tube.
bp.—Blastopore.	P.—Posterior.
ch.—Chorda.	p. b.—Polar body.
cn.—Chorion.	1 p. b.—First polar body.
c. p.—Clear protoplasm.	2 p. b.—Second polar body.
Cr.—Crescent of mesodermal substance (yellow in <i>Cynthia</i>).	p. l.—Peripheral layer of protoplasm.
Cr. s.—Substance of crescent.	1 P. S.—First polar spindle.
D.—Dorsal.	2 P. S.—Second polar spindle.
end.—Endoderm.	Sn.—Spermatozoon.
f. c.—Follicle cells (outside of chorion).	t. c.—Test cells.
g. v.—Germinal vesicle.	V.—Ventral.
kp.—Karyoplasm (achromatic substance from nucleus).	v. end.—Ventral (caudal) endoderm.
mb.—Thick membrane which becomes chorion.	v. p.—Vegetal pole.
m'ch.—Mesenchyme.	y. h.—Yellow hemisphere of egg.
ms.—Muscle cells.	yk.—Yolk.
n.—Nucleus.	z.—Zwischenkörper (mid-body).
n. p.—Neural plate.	♂ n.—Sperm nucleus.
	♀ n.—Egg nucleus.

NOMENCLATURE OF CELLS.

A—Anterior half of egg; B—Posterior half; AB—Right half; AB—Left half; A and A—Right and left anterior quadrants; B and B—Right and left posterior quadrants. From the 8-cell stage onward the cells of the endodermal hemisphere are designated by capital letters, those of the ectodermal hemisphere by lower case. The first exponent indicates the cell generation, counting the unsegmented egg as the first; the second exponent the position of the cell relative to the animal and vegetal poles, cells which lie nearest the vegetal pole having the lowest exponent, those farthest away (nearest the animal pole) having the highest.

