

Picture the common ancestor to ALL metazoans...

Draw the organism and its full life cycle

What were the adaptations needed for animals to transition from the sea to land?

What might the morphology of the first land animals looked like?





(c) Nantucket Conservation Foundation



Source : iflscience.com

The Horseshoe Crab's blood is harvested for bacterial contamination tests, without which many people could die from infections and is valued at \$15,000/litre





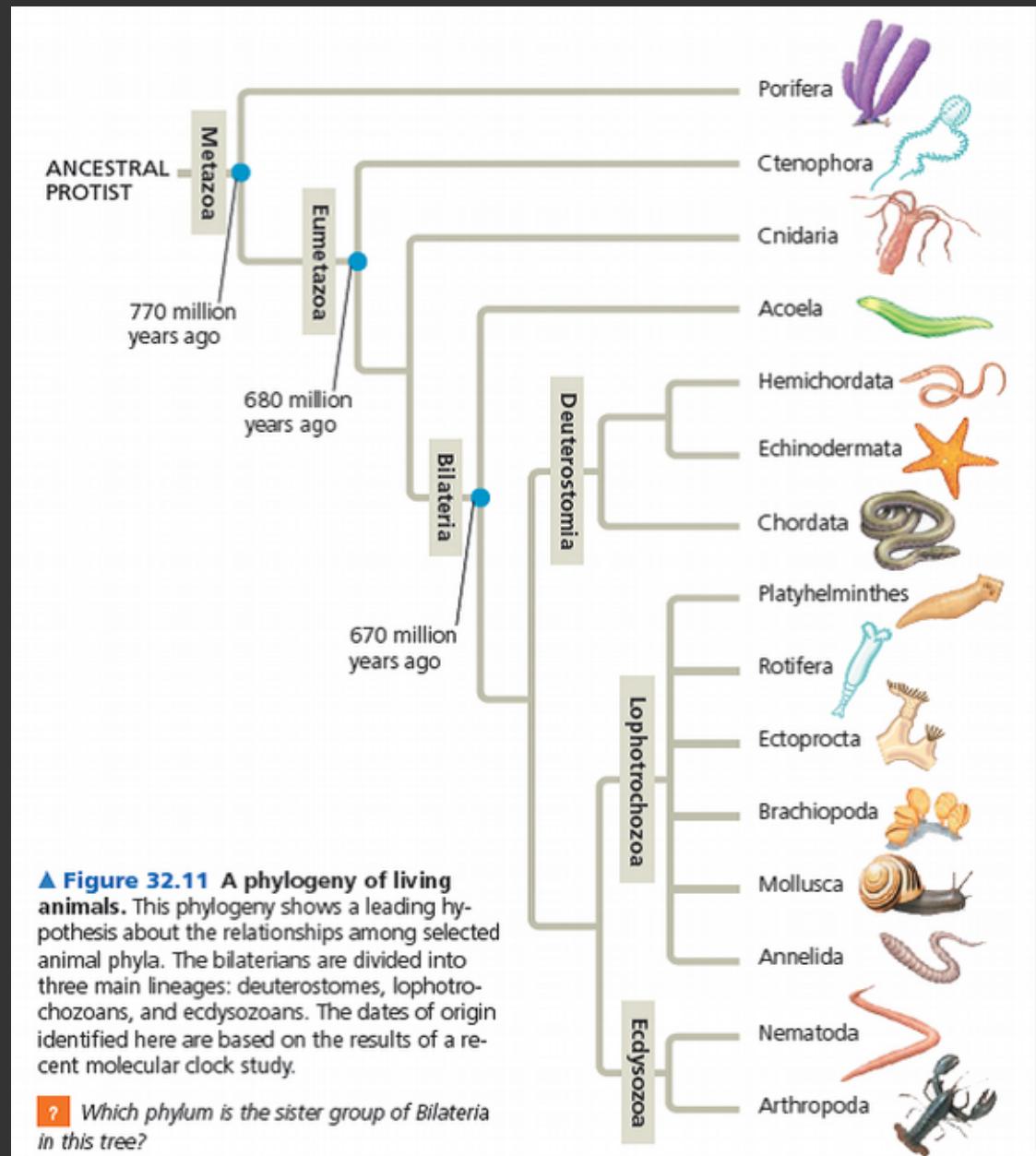


How might the origin of *Hox* genes have contributed to animal diversification in the Cambrian era?

What other circumstances may have led to the observed rapid diversification we see in fossils?

Re-draw the bilaterian clade from the phylogeny below. Label each node based on the fate of the blastopore (from the table). What is the ancestral blastopore fate? How many times has blastopore fate changed over the course of animal evolution?

Blastopore fate	Phyla
Protostomy	Platyhelminthes, Syndermata, Nematoda, most Mollusca, most Annelida, few Arthropoda
Deuterostomy	Echinodermata, Chordata, most Arthropoda, few Mollusca, few Annelida
Neither	Acoela



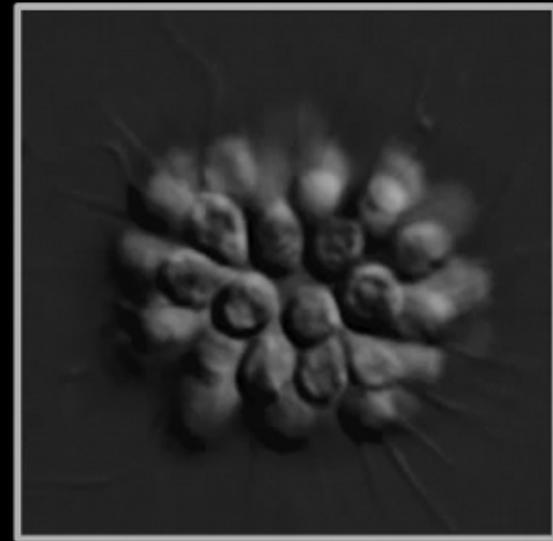
Which one of the choanoflagellate species below probably most resembles the ancestor to metazoa? Explain.

Monosiga



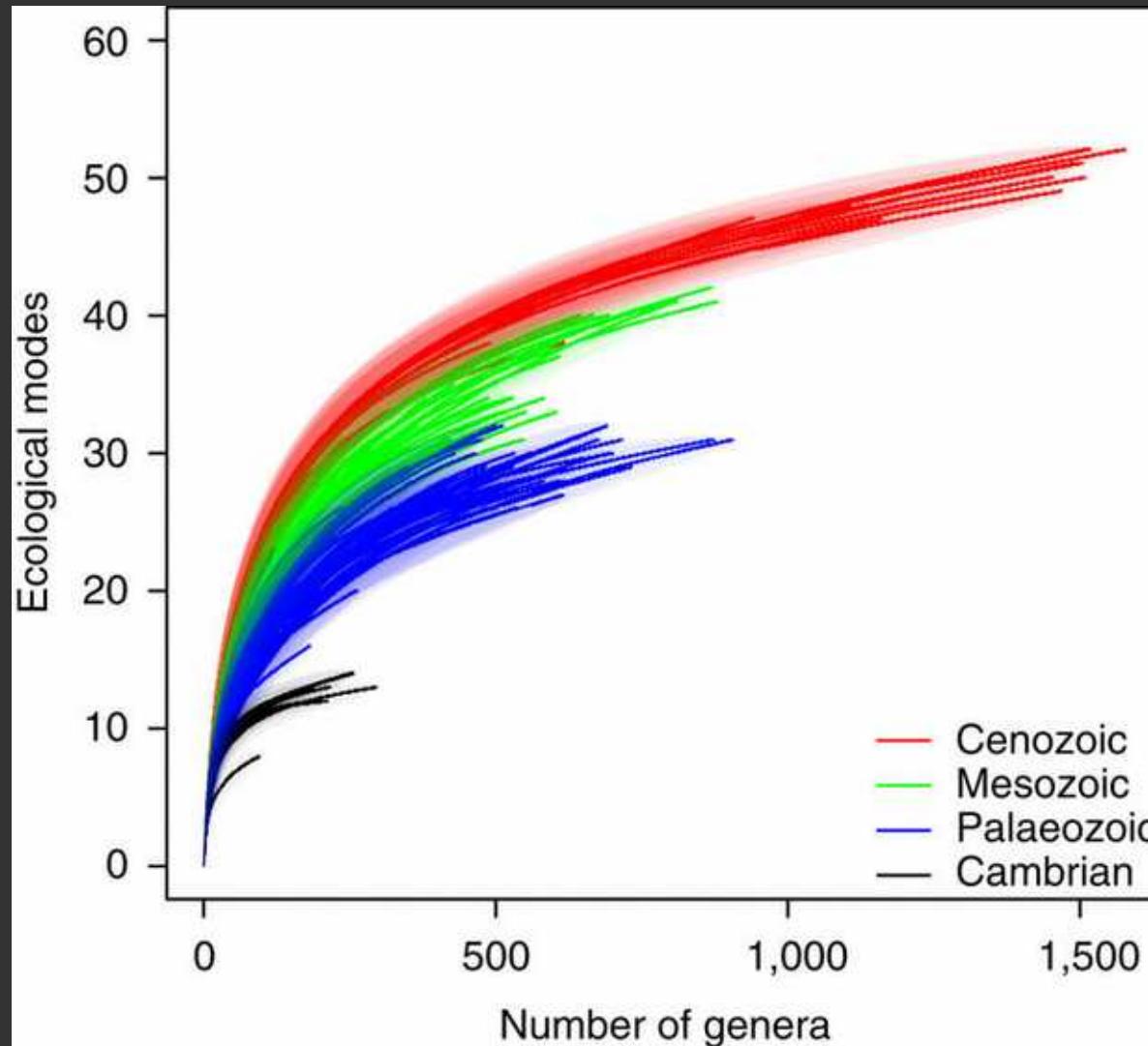
~9,000 genes

S. rosetta



~12,000 genes

Did “explosion” of morphological diversity during Cambrian equate to functional (ecological) differences?



How does the fact that humans are deuterostomes relate to the existence of identical twins?



Draw the life cycle of a bdelloid rotifer

