

# [Thesis: From Fertilization to Birth: Representing Development in High School Biology Textbooks](#) <sup>[1]</sup>

By: Wellner, Karen Linette Keywords: [High school biology textbooks](#) <sup>[2]</sup> [Haeckel's embryo drawings](#) <sup>[3]</sup>

Editor's note:

Karen Linette Wellner defended her thesis titled "From Fertilization to Birth: Representing Development in High School Biology Textbooks" in November 2010 in front of committee members Jane Maienschein, Karin Ellison, and Jason Robert, earning her a Master of Science degree. <https://repository.asu.edu/items/8627> <sup>[4]</sup>

Abstract:

Biology textbooks are everybody's business. In accepting the view that texts are created with specific social goals in mind, I examined 127 twentieth-century high school biology textbooks for representations of animal development. Paragraphs and visual representations were coded and placed in one of four scientific literacy categories, including descriptive, investigative, nature of science, and HETS, or human embryos, technology, and society. I then interpreted how embryos and fetuses have been socially constructed for students. I also examined the use of Haeckel's embryo drawings to support recapitulation and evolutionary theory. Textbooks revealed that publications of Haeckel's drawings were influenced by evolutionists and anti-evolutionists in the 1930s, 1960s, and the 1990s. Haeckel's embryos continue to persist in textbooks because they 'safely' illustrate similarities between embryos and are rarely discussed in enough detail to understand the role of comparative [embryology](#) <sup>[5]</sup> in the support of [evolution](#) <sup>[6]</sup>.

Certain events coincided with changes in how embryos were presented: (a) the growth of the [American Medical Association](#) <sup>[7]</sup>, or AMA, and an increase in birth rates during the 1950s; (b) the [Biological Sciences Curriculum Study](#) <sup>[8]</sup>, or BSCS, and public acceptance of [birth control](#) <sup>[9]</sup> methods during the 1960s; (c) *Roe vs. Wade* in 1973; (d) *in vitro* <sup>[10]</sup> fertilization <sup>[11]</sup> and [Lennart Nilsson](#) <sup>[12]</sup>'s photographs in the 1970s; (e) prenatal technology and fetocentrism in the 1980s; and (f) genetic engineering and Science-Technology-Society, or STS, curriculum throughout the 1980s and 1990s. By the end of the twentieth century, changing conceptions, research practices, and technologies all combined to transform the nature of biological development. Human embryos went from highly descriptive, static, and private objects to that of sometimes contentious public figures. I contend that an ignored source for helping move embryos into the public realm is schoolbooks. Throughout the 1900s, authors and publishers accomplished this by placing biology textbook embryos and fetuses in several different contexts, such as biological, technological, experimental, moral, social, and legal contexts.

Biology textbooks are everybody's business. In accepting the view that texts are created with specific social goals in mind, I examined 127 twentieth-century high school biology textbooks for representations of animal development. Paragraphs and visual representations were coded and placed in one of four scientific literacy categories, including descriptive, investigative, nature of science, and HETS, or human embryos, technology, and society. I then interpreted how embryos and fetuses have been socially constructed for students. I also examined the use of Haeckel's embryo drawings to support recapitulation and evolutionary theory. Textbooks revealed that publications of Haeckel's drawings were influenced by evolutionists and anti-evolutionists in the 1930s, 1960s, and the 1990s. Haeckel's embryos continue to persist in textbooks because they 'safely' illustrate similarities between embryos and are rarely discussed in enough detail to understand the role of comparative embryology in the support of evolution.

## Subject

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## Topic

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## Publisher

Arizona State University. School of Life Sciences. Center for Biology and Society. Embryo Project Encyclopedia.

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## Last Modified

Sunday, February 14, 2021 - 08:32

## DC Date Accessioned

Sunday, February 14, 2021 - 08:27

## DC Date Available

Sunday, February 14, 2021 - 08:27

## DC Date Created

2021-02-14

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