

Thesis: From Monsters to Medicine: A Historical Analysis of Changes in the Field of Teratology Over the Twentieth Century

Editor's note:

Chanapa Tantibanchachai defended her thesis titled "From Monsters to Medicine: A Historical Analysis of Changes in the Field of Teratology Over the Twentieth Century" in April 2014 in front of committee members Jane Maienschein, Manfred Laubichler, and Erica O'Neil, earning her a Bachelor's degree from Barrett, the Honors College. <https://repository.asu.edu/items/23093>

Abstract:

This project focuses on the history of how teratogens, or agents which have the potential to cause birth defects, have been understood and tested for teratogenic potential in the US over the twentieth century. Prior to this time, teratogen studies were primarily concerned with cataloguing defects rather than exploring possible causes. At the turn of the twentieth century, experimental teratogen studies with the aim of elucidating mechanisms commenced. However, these early studies did not aim to discover human pregnancy outcomes and ways to prevent them, but simply focused on the results of exposing pregnant mammals to various physical and chemical insults.

My project documents the change in understanding of teratogens over the twentieth century, the advancement of testing methods, and the causes of these advancements. Through the Embryo Project, a digital encyclopedia for topics related to embryology, development, and reproductive medicine, I wrote ten encyclopedic articles that focused on chemical mechanisms of various teratogens, testing limitations in animal models, and legal and regulatory responses to well-known teratogens. As an extension of my previous work, this project bridges the current gap in research and focuses on contextualizing major events in the field of teratology to determine how these events led to various shifts in the understanding of birth defects and their causes, and how those conceptual shifts led to the creation of teratological testing guidelines. Results show that throughout the twentieth century, there are four distinct shifts in the understanding of teratogens: the first being 1900-1945, the second being 1946-1960, the third being 1961-1980, and the fourth being 1981-2000.