

Essay: Review of *Icons of Life: A Cultural History of Human Embryos*

***Icons of Life: A Cultural History of Human Embryos* by Lynn M. Morgan. Berkeley: University of California Press, 2009, 328 pages, \$21.95 (paperback).**

To Lynn M. Morgan, the Mary E. Woolley Professor of Anthropology at Mt. Holyoke College, nothing says “life” more than a dead embryo. In her easily readable book, *Icons of Life: A Cultural History of Human Embryos*, Morgan brings together cultural phenomena, ethics, and embryology to show that even dead embryos and fetuses have their own stories to tell. As an anthropologist, Morgan is interested in many things, including the science of embryology and its history. But she also wants to know how culture influences our views on embryos and the material practices that accompany their study. Her intent is to establish a relationship between “specimens collected in the remote past and the contemporary cultural politics of abortion” (p. xiii). The eight chapters in *Icons of Life* do not provide an exhaustive historical look at early American embryology, but they do weave together the Carnegie Institute of Washington Embryology Department (CIWED), its major human embryo collector Franklin Paine Mall, and how early twentieth-century science worked. Morgan ably describes the CIWED’s early foray into embryo collecting, but she wants to do more than just describe how embryos made their way to the laboratory. She wants us to ask why it was even possible for such a thing to happen without so much as a fuss being made from the public. This involves looking at culture.

Cultural norms, including scientific practices that are deemed appropriate, have a tendency to change: what once was acceptable, (like storing several small fetuses together in a large mayonnaise jar) is often considered odd today. One might argue that this is because people value embryos more now, but Morgan believes that this so-called “modern” embryo-centric value is really not so recent. Her goal is to take us back to the early twentieth century to trace how the collecting of embryos has shaped our present-day perceptions of embryos and fetuses. These perceptions have become part of the manner in which embryos are presented in the media, medical booklets, and public conversations: miraculous, progressive, and devoid of any mothers' participation. Whether collecting embryos and ignoring where the embryos came from, or in trying to save only embryos and ignoring the lives of their mothers, Morgan’s main thesis is that embryo-centrism is the basis for both of these actions.

It wasn't until Morgan encountered “fetuses in a basement” in the biology building on her campus that she began to conceive her story about human embryo collecting. It is in this musty and dark science storeroom that her story begins. Once graciously accepted as “gifts” to the college, the fetal specimens before her had mostly been forgotten about and left to rot away. Morgan's reaction to finding the old specimens is captivating. Her descriptions of floating bodies, shriveled faces, and “curly wisps of red hair” reveal many of the paradoxes that run through her book. On the one hand, the dead-before-birth-existence in formalin induced intense visceral reaction, almost making her want to flee, and yet, on the other hand, Morgan finds the specimens curiously fascinating—eerie but enticing. Morgan uses this discovery to set in motion her historical investigation of embryo collecting.

The evolving traditions in biology and a new emphasis on medicine during the early twentieth century shaped the intellectual environment in which Franklin P. Mall, the first director of the CIWED, initiated his human embryo research. Biology during the late nineteenth century had witnessed a gradual increase in the use of experimental organisms to study and manipulate biological mechanisms (Pauly, 1987; Maienschein, 1991). It made sense that the anatomy of human embryos would

soon follow suit and that Mall, who had trained with Wilhelm His in Germany, and was already adept at organizing a cadaver collection for medical students, would take the lead in embryo collecting. It also helped that Mall worked in the cradle of American biological experimentalism, Johns Hopkins University.

Unlike the ease of collecting frog or sea urchin embryos, collecting human embryos was much more difficult. First, one had to rely on women not carrying their unborn to term. Second, the doctor attending to the pregnant women had to be connected to the embryo collector in such a way that the embryo would be recovered and arrive safely to its new glass womb. This in itself was problematic given that many poor women in the early twentieth century had little access to medical care. The doctor who helped deliver the embryo to the CIWED was quite important to Mall; the women who were the physical sources of the embryos, much less so. Women's invisibility and silence contributed to the socially-contrived embryo-centric view that we still hold. That is, the elevation of the importance of the embryo and the social production of anonymity of the women who bear them.

One of the points that Morgan tries to make throughout her chapters is that the overall success of early embryo collecting was made possible because society, as a whole, afforded little moral importance to fetal remains. During the late 1800s and early 1900s stillborn and aborted fetuses were often thrown in the garbage or buried in the backyard. No one really knew what to do with them other than to get rid of them as quickly as possible. This course of action made it easy for doctors to whisk the "specimens" away, and in keeping with early Progressive attitudes, put them to work for science and society. As the embryos and fetuses became part of the material culture of embryology, they were actively studied (science as progress) rather than buried or made to sit in a doctor's personal collection cabinet (embryo as natural history). This scientific view enabled Mall to collect human embryos and fetuses with little objection because it was done for the good of science. This defense does not work today; we have developed other views of embryos. So where do the rest of our views of embryos come from? This is what Morgan aims to tell us.

Morgan uses the stories of Gertrude Stein and Carnegie Embryo No. 836 to show how the visualization of a now dead "life form" was necessary to legitimize embryology as a true scientific field. Morgan argues that the lack of human embryo specimens in the early 1900s meant that if they were going to be studied, it had to be done with the strictest attention to detail, accuracy, and care. This was the environment in which Stein found herself as a struggling medical student at Johns Hopkins. By 1901 she had failed her medical exams and was unable to graduate with her class. She was offered the chance to graduate if she completed an embryo modeling project. It just so happened that Mall was her professor and agreed to oversee her work. Mall liked Stein, but he was a lax supervisor and he certainly did not like her models, declaring them to be more appropriate for the waste basket than as tools for teaching. In her project, Stein had somehow drawn and modeled an embryo with a bent spinal cord that had ended up protruding just under the embryo's frontal lobe. In not recognizing that the spinal cord had been moved out of place, Stein's work ended up being a failure and as such, would never help move human embryology from its formative stage to that of a bonafide field of science.

Carnegie Embryo No. 836, on the other hand, represents the best of the CIWED's attention to detail and embryo visualization. A pregnant woman, simply referred to as Mrs. R, underwent a hysterectomy in Baltimore in 1914. Upon opening up her uterus, an early stage embryo was found to be "exquisite condition" and rushed from operating room to the CIWED, a mere one mile away. It isn't until the dead embryo lands on the doorstep of the CIWED that the biography of Mrs. R's embryo really begins.

The embryo was cleaned, placed in alcohol, and given a name—No. 836. It became one of the CIWED's top models for noted embryo modeler Osborne O. Heard; served as the source for many of James F. Didusch's medical illustrations; and more recently has been repackaged as a digital embryo for several NIH-funded virtual human embryo projects. Anyone can now log on to the internet and maneuver this famous specimens up or down, rotate it around, or select a speed for an animated fly through.

Morgan raises questions about how embryologists were able to make the study of dead embryos

seem normal and rational. She explains this using a feminist perspective: by disregarding that embryos had come from other living human beings, it allowed the embryologists to ignore the fact that an embryo is a part of a woman's complex world; a world that often includes being poor, having little or no access to medical care, miscarriages, violence, and loss. By working under the assumption that their embryos were simply objects of nature, it did not matter to embryo collectors how or why embryos arrived at the CIWED.

Further evidence of this attitude is provided by Morgan's examination of John Rock and Arthur Hertig's 1938 to 1954 embryo hunt in Boston. During the early 1900s, collecting human embryos younger than fourteen days old was proving nearly impossible. Embryologists desperately wanted to study younger and younger embryos but the problem with young embryos is that they are so small, they end up being quite difficult to find. Gynecologist Rock, assistant Miriam Menkin, and pathologist Hertig formed a Boston-Baltimore connection with Mall to help deliver young embryos to the CIWED. Women were recruited to undergo elective hysterectomies to aid in fertility research. But not any woman would do; there were several prerequisites for inclusion into the study. The women who gave consent had to be married and living with their husbands, they had to have already given birth to at least three living children, and they had to be willing to keep records of their menstrual cycles and unprotected sexual activity right up to the day of their operation. While the 211 women in the study correctly believed that their records and their uteruses were being collected to help other women, they did not know that an additional part of the study involved looking for embryos.

Today there would be ethical issues with Rock's study—the women were not told about a search for embryos and if an embryo was found, they were not told in the recovery room that they had been pregnant. By deliberately setting out to procure embryos, had Rock and the others actually committed some type of quasi-abortion? The researchers argued that they had done no such thing. They were simply scientists providing good care to women and that they had just happened to collect embryos from those who had already agreed to give their wombs up in the name of science. In effect, they were only taking "what nature had provided," and nature had provided thirty-four embryos with the youngest embryo only thirty-six hours old. To Morgan though, this story shows us again how women are manipulated, left out of the picture, and simply viewed as incubators.

In *Icons of Life*, Morgan repeatedly brings up the notion of the "natural embryo," but she asks what is so natural about an embryo coming into the hands of embryologists by way of a highly technical surgical operation and the manipulation of women's trust. To her, there is no such thing as natural embryo—all embryos develop within a social context. Without recognizing this context, our embryo-centric view is reinforced and we end up dismissing any consideration for the real welfare of embryos-soon-to-be-children such as affordable child care, a living wage for parents, national health insurance, good public schools, and so forth. Morgan argues that this narrow socially-constructed view of the unborn has its origins in science: "the embryologists looked through their microscopes at the embryos, rather than through wide-angle lenses at their society" (p. 137).

Morgan provides another example of how culture affected the CIWED's ability to collect embryos by examining fetal-remains management in the city of Baltimore. With Mall's connections to other hospitals on the east coast, the CIWED's location continued to offer great potential for embryo collecting. Not only was Baltimore a big city, but it had so many things to contribute to fetal death: disease, lack of medical care for poor women, poor working conditions, toxic exposure, and stigmatization of unwed pregnancies. Until these things were addressed, Mall could rest assured that embryos would keep coming to the CIWED. It is here that Morgan begins to tell us fascinating stories about foundling homes where newborns were taken from poor mothers and shipped to adoption farms. The chance of an infant being adopted from such a place was low; the chance of dying there was high. Eventually the notoriety of the foundling homes drove investigative journalists to write about the horrid conditions of the homes. These newspaper stories forced government officials to act, resulting in a 1914 Maryland Vice Commission report titled *The Traffic in Babies*.

With public health officials starting to take notice, a change was underway about the status of infants and so was the notion of what it was to be stillborn. For many years there had been no clear definition of what it meant for a fetus to die in the uterus. The vagueness about fetal death and the malleability of prenatal definitions had long aided both city officials and embryologists. The

city had neither the time nor the funds to document all its deaths and bury all of its dead, and Mall needed the help of the Maryland Department of Public Health to keep classifying dead embryos and fetuses as medical waste. He knew that if public health officials started putting regulations on birth certificates, death certificates, and burials, it would make the collecting of embryos all the more difficult for him. State policy in the early twentieth century had been "tailored to meet the embryologists' needs," but progressive thinking was looming and new regulations seemed imminent. Mall had successfully conquered all of the logistical problems with collecting human embryos—would the possibility of new legal problems be the undoing of his work? It is here that Morgan makes the case that changing definitions and early political involvement with the unborn have also influenced our modern-day perceptions of embryos.

Morgan asks what has driven us, and continues to drive us, to look into the lives of embryos. She starts by explaining how fetuses were put on "scientific display" at rather strange places. Visitors to the 1933-34 Century of Progress Exposition in Chicago could head off to the exposition itself and see a scientific exhibit of prenatal development, or, they could pay a small fee and enter the Midway where one could buy food, ride the Ferris wheel, and see a two-headed fetus in a jar. While a single individual might have found the dead fetuses morbid, when viewed in the presence of other lookalikes, the fetus took on a different representation: it was simply a cheap form of shock entertainment. Morgan implies that either of the exhibits, the tidy science exhibit with its detailed descriptions of processed dead fetuses or the more casual carnival fetus, were both important in developing a socially-constructed notion of "free-floating fetuses." It is both of these environments, the laboratory and the circus, that have molded perceptions and imaginations of embryos.

From here, Morgan temporarily leaves the laboratory and asks what has happened to embryos since the early days of embryo collecting and the Century of Progress Exposition. She argues that embryos have been manipulated in such a way that they now talk to us. Whether telling us to buy a Volvo in a television commercial, urging us to stand in awe of them at pro-life marches, or by playing a supporting role for politicians, fetuses have indeed gone public and stand in stark contrast to those private embryos which remain quietly inside of a woman's body or in a locked laboratory. Such fetal publicness, however, is not as recent a phenomenon as one might think. Morgan points out that human embryos were sought out during the 1920s, with the claim that they could scientifically illuminate some aspects of human evolution. This was followed by using embryos to try and establish whether certain races were superior to others, and finally, using embryos to show the relationship of humans to other species. She argues that the growing public awareness about embryos could not have happened without the embryo collectors. It was their studies and methods of embryo procurement that helped make possible, the public embryo.

Morgan continues with more stories as she brings embryos into the pop culture age. It is here that embryos became increasingly associated with life, beauty, and personhood. By the early 1960s, human embryo collecting for scientific purposes was becoming a thing of the past. Inside the CIWED, genetics was taking over the focus of embryology, while outside, the abortion debate was starting up and fetal imagery helped drive anti-abortionist arguments. Some of the images used to promote pro-life had bizarre beginnings. For example, one important question is whether fetuses can experience pain. From 1932 to 1958, neuroanatomist Davenport Hooker at Pittsburgh University researched if human prenatals exhibited reflexes. To find out, he used single horsehairs to tickle fetal "specimens" and captured the events on film. He documented this 149 times with 149 nonviable fetuses, all of which died within twenty minutes after being surgically removed from their mothers (who no doubt were not informed what was to become of their fetuses) by a therapeutic abortion technique known as hysterotomy. This procedure involves surgically opening a pregnant woman's abdomen and womb to remove the fetus. Once the fetus was removed, Hooker worked quickly to stroke the horsehair on various parts of the fetal body and recorded each specimen's movements. This work was later used to argue that since human fetuses responded to stimuli there was no doubt that they also experienced pain during late-term abortion. While anti-abortionists are convinced of this, scientists are still debating this today.

Morgan treats Hooker and his strangely disturbing research rather tamely. She points out that Hooker was ever the discrete professional but she does not readily call him to task for his dismissal of the women who went through tremendous pain and probable grief in losing their children. And

yet, this is a reoccurring theme in *Icons of Life*—how women have been marginalized while their embryos and fetuses have been placed in the scientific and cultural spotlight.

Morgan discusses that even as embryos and fetuses entered the era of pop culture in the 1960s, they were still presented as having to go it alone. Pictures in *Look and Life* magazines showed embryos and fetuses by themselves; just like those that had been affixed to the thousands of slides in the Carnegie collection. Fetuses were now depicted as floating in air, with the Petri dish that they had been placed in to be photographed, airbrushed out of the picture. Like a solitary astronaut on a space walk, the photographed fetus floats (always heads-up) against a dark background, sometimes with tiny spots of light behind it to resemble distant stars. One difference between an embryo and an astronaut though is that the latter were photographed with their tether cords leading back to their spacecraft, whereas fetuses usually showed no or little umbilical cord and no placenta. Once again, they were totally disconnected from women.

It is after describing how dead embryos and fetuses have been manipulated to appear radiant and full of life that Morgan gives the reason for her book's title: "It seemed ironic that thousands of dead embryos and fetuses needed to be gathered, sectioned, and made visible before they could start to represent life. But without the dead specimens, this narrative of life would have been inconceivable. Dead specimens made it possible eventually to transform 'embryo'—either consciously or unwittingly—into an animated, lifelike creature" (p. 213). She argues that when people are informed that the embryos and fetuses in magazines and posters are actually dead, they immediately believe that the dead fetuses must have come from abortions. This thinking comes from the perception that all fetuses are potential people that can and will live, unless of course, an abortion intervenes. With the embryo and fetus so revered as an icon of life, and medical advances like fetal surgery and gene therapy becoming more routine, it is now unthinkable to consider that a fetus could simply die on its own.

A lack of historical knowledge about the history of embryo collecting, coupled with an ignorance about how women continue to suffer from miscarriages takes on a personal tone when Morgan is asked to comment on the excavation of several fetuses from a personal residence in Mt. Holyoke. Naturally, her friends and colleagues think that it is the work of an illegal abortionist, as do journalists who do their best to drum up sensationalist stories. As Morgan dug deeper into the story she found that the fetuses had once been part of a local doctor's collection. His son had inherited the house and did not know what to do with the specimens so he buried them in the backyard. The son's acquisition of the collection had occurred at a time quite different to that when doctors collected for Mall and biology departments. As the collective history of embryo and fetus collecting becomes forgotten, any doctor who once collected embryos and fetuses for scientific study is now labeled a monster or murderer. Morgan uses this story to make the point that to understand historical science, in this case embryo collecting, it is important to understand the prevailing culture and attitudes when science is done.

Overall, Morgan's blending of the old and the new is engaging and sometimes humorous. Morgan's feminist tone is quite evident in *Icons of Life*. She repeatedly shows with her stories how women have been written out of the embryo picture which has led to the rise of the fetus as its own self-interest group. At the same time she tries to be exquisitely fair to all of the many people introduced in her book by understanding the cultural context during the time when embryologists, health officials, and doctors operated. What is most engaging is her use of social, cultural, and scientific norms to show how people arrive at their own views about the unborn—from the scientists who saw embryos as objects of nature, to our current view of embryos as objects of culture.

Sources

1. Maienschein, Jane, Marie Glitz, and Garland E. Allen, eds. *Centennial History of the Carnegie Institution of Washington: Volume V The Department of Embryology*. Cambridge, MA: Cambridge University Press, 2004.
2. Pauly, Philip J. *Controlling Life: Jacques Loeb and the Engineering Ideal in Biology*. New York: Oxford University Press, 1987.