



**MSCOPE Meeting
November 18, 2005**

**Discussion of the social context for science exhibits
Shenandoah Weiss**

For our Nov. 18 meeting I thought it would be interesting to have a brief discussion of the social context for science exhibits, mainly focusing on how broader cultural attitudes can be represented, transmitted, and reproduced through the medium of the science exhibit. In other words, what else is being communicated beyond the strict realm of “science” when we look at a science exhibit? I chose this article mainly because it is grounded in a MSI exhibit and has themes that relate to their recent blockbuster, “Body Worlds.” Although the author’s attitude toward MSI is highly critical, she raises some interesting points regarding the display of science in the museum setting.

The wall of fetuses is still there, so please take a look at them if you get a chance (I think they are on the far east wall on the Rotunda level).

I also think it would be helpful for discussion if when you are at MSI these next few weeks you take a moment to look at some of the other exhibits and think about questions such as:

1. Who is funding the exhibit, and how might this play into the messages that are being transmitted through the exhibit? (We touched on this last week in Chaz’s discussion via the Boeing example)
2. What concepts are included or emphasized/not included in the exhibit? (Either in terms of text, graphics, or the special structure of the exhibit)
 - How does this reflect the goals and attitudes of the curator, the museum?
 - How might this impact what the visitor will take away from the exhibit or the museum as a whole?
 - How does it serve to shape and/or reinforce attitudes about topics as broad as “health,” “population,” or “war,” for example.
3. How is the scientific community represented in the exhibits? How is society(s) represented?

**Sex and Death on Display: Women, Reproduction, and Fetuses at Chicago's
Museum of Science and Industry**



Catherine Cole

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Sex and Death on Display

Women, Reproduction, and Fetuses at Chicago's Museum of Science and Industry

Catherine Cole

One of Chicago's great visionaries, Waldemar B. Kaempffert, enthused to the Commercial Club in 1928 that the new industrial museum would not be a "collection of mechanized fossils," but a place of action: "We are going to have activity! Buttons to push! Levers and handles to turn! And nowhere any signs reading 'hands off'!" (in Kogan 1973:27). Since the museum's creators did not want to make a "mausoleum of dead exhibits," it is ironic that in the midst of the building's sensual onslaught rests a display of 40 preserved human fetuses and embryos. Ashen skin illuminated by boutique lighting, the specimens in "Prenatal Development" have neither amplified narration nor buttons to make things light up or move. Situated in the midst of a technological funhouse, this mesmerizing spectacle of the human body quietly dramatizes gestating life.¹

Chicago's Museum of Science and Industry (MSI) attracts annually over four-and-a-half-million people and is the second most visited museum in America. Since opening in 1933, the MSI has admitted countless visitors to its visual chaos and deafening cacophony of bangs, booms, whirs, and hums. "Squatting like a great white frog on the edge of a greasy lagoon in Jackson Park," one visitor recalled of childhood visits in the 1930s, "the Museum was to my impressionable young mind a magic amalgam of haunted house, toy store, world's fair, farm, railroad depot, amusement park and even, I admitted reluctantly, school. It had everything a boy with all his marbles could want: things to see, to do, to buy, to try, to see again" (Calisch 1975). Unlike typical art and history museums filled with silent glass cases, the MSI is an unabashedly entertaining place designed more in the spirit of P.T. Barnum's Museum or Mr. Peale's Repository of Natural Curiosities than Chicago's Field Museum of Natural History or Art Institute. Like the Renaissance trade fairs analyzed by Peter Stallybrass and Allon White (1986:31), the industrial museum straddles the boundary between museum and trade fair, high and low culture, vividly illustrating the

Student Essay Contest Winner

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Northwestern University's interdisciplinary PhD in Theatre and Drama investigates theatre as text, history, theory, and performance. A small, select program that brings together perspectives too often divided among scholars of dramatic literature, theatre history, performance theory, cultural studies, and critical theory, it combines the resources of the School of Speech and of the College of Arts and Sciences at Northwestern. The program draws on a distinguished faculty ranging across the fields of theatre arts, African and African American Studies, art history, classics, comparative literature, dance, English, history, modern languages and literatures, performance studies, philosophy, radio/tv/film, and women's studies. Training for academic careers in theatre arts, literature, and the humanities, doctoral students develop individual programs of study that place theater and drama at the center of a wider interdisciplinary inquiry, drawing on the practices of historiography, literary theory, semiotics, cultural studies, feminist theory, and performance theory.

artificiality of such binary oppositions. As critics try to categorize the museum as either an amusement park or a respected scientific institution, the uncertainty and impossibility of classification itself becomes apparent.

The industrial museum similarly defies easy categorization in terms of performance. As a popular place of entertainment and learning, it is highly theatrical. From an animated diorama dramatizing the story of the automobile to hatching chicks to an oversized walk-through human heart, exhibits are designed and experienced in a theatrical manner. Most displays communicate through a narrative, feature a main character, and use theatrical techniques of *mise-en-scène*. Museum curators, like theatre practitioners, must create presentations which make complex ideas both engaging and accessible. Thus museums regularly commission theatre designers and scene shops to create new displays. Professional actors are often hired to record audio voice-overs, video displays, or even to perform live.

In terms of its performative elements—narrativity, inanimate characters, environmental *mise-en-scène*—museum exhibits such as those at MSI also have much in common with other genres of performance, such as happenings, fluxus works, and performance art pieces, as well as installations, environments, and kinetic sculpture. Employing such diverse media as voice, word, light, color, action, sound, music, and movement—museum exhibits additionally share a vocabulary with trade fairs, carnival side shows, theme parks, and other popular entertainments. Also at issue in examining these performance—and performative—art and entertainment genres is temporality: the transitory, ephemeral nature of performance, the construction of narrative, and the ways which “meanings” change over time. The idea that exhibits are not static, that their physical structure—like signification—is in flux, is a notion overlooked by Ivan Karp and Steven D. Levine in their

recent book on museums, *Exhibiting Cultures* (1991). The assumption behind much writing on museums is that exhibits themselves do not change. Yet the fact that a museum display can transform and migrate to new contexts with wholly different semiotic resonances is not only clear when examining the history of museums as they evolved from 16th- and 17th-century curiosity cabinets into more authoritative institutions (see Impey and MacGregor 1985; Sellers 1980), but also obvious to a theatre scholar accustomed to analyzing how performances of texts change over time.

The “Prenatal Development” exhibit at the Museum of Science and Industry underwent radical transformations over the course of six decades, evolving from a triumphant display of medical knowledge at the Chicago 1933 Century of Progress World’s Fair, to a reverent depiction called “The Miracle of Growth” in 1947. Today the display is curiously situated on an aisle that seems to have the overall theme of “Woman,” as it shares the northeast balcony with a transparent female manikin on a pedestal whose body parts—brain, breasts, uterus, colon, etc.—light up in coordination with a first person voice-over. Also on the balcony is an exhibit called “My Daughter, the Scientist” illustrating the role of women in science and the structures and attitudes which have historically discriminated against them.² By tracing the physical transformation of “Prenatal Development” from 1933 to 1992, I discerned the ways this exhibit both represented and participated in changing American values.

Over the years, incarnations of “Prenatal Development” have varied in construction, location, and juxtaposition with other displays. At the 1933 world’s fair, human fetuses were displayed in the Hall of Science in a booth sponsored by the Loyola University School of Medicine. Loyola’s exhibit celebrated “man’s progress” in understanding the human body. Also on display in the Hall of Science was a transparent anatomical manikin which became an icon of the fair. Although the manikin and the fetuses were located in separate areas of the Hall of Science, the two became associated when they were moved to the Museum of Science and Industry at the fair’s conclusion. At that time the manikin was rebuilt as a woman. A catalog circa 1940 shows the new female manikin near a mural called “The Miracle of Growth” which depicted an infant’s development and a mother’s nurturing role in childcare. This mural became the basis for an elaborate new installation created in the late 1940s called “Miracle of Growth.” The centerpiece of this exhibit was a pregnant female manikin in whose womb a child could be seen gestating. Surrounding the manikin were wax representations of fetuses in utero. The display currently at the museum features a *nonpregnant* manikin whose body conforms to contemporary ideals of female shapeliness. The fetuses surrounding her are real, rather than wax, and are in fact specimens from the 1933 world’s fair.

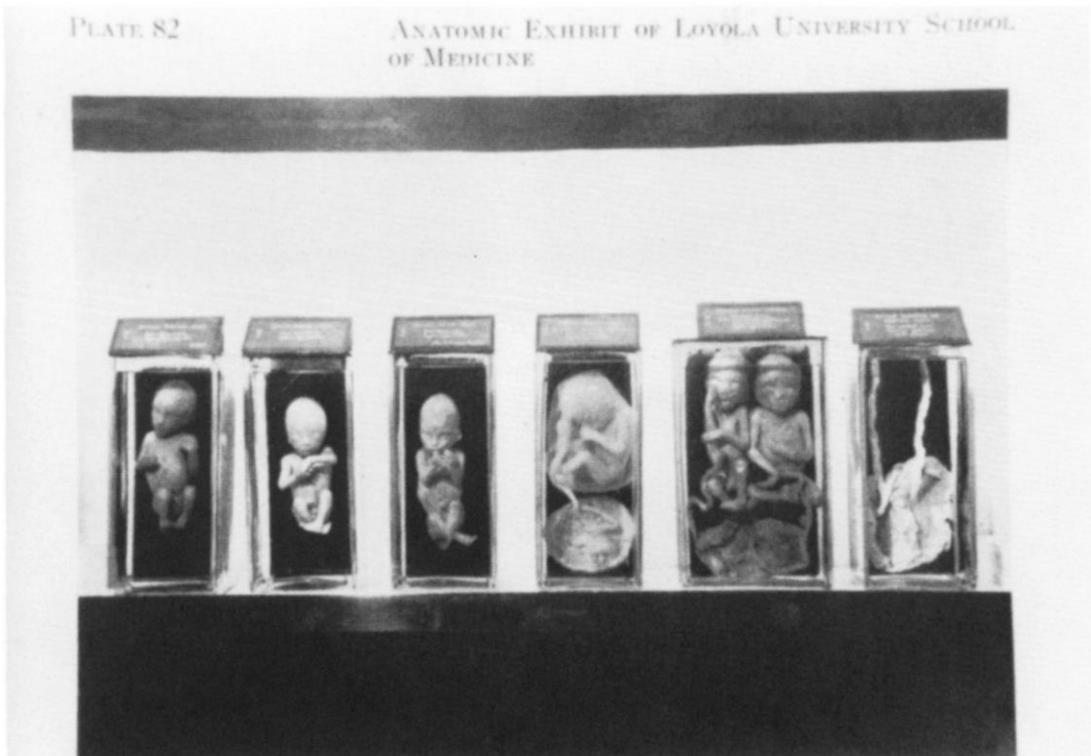
During a recent renovation a disclaimer was added: “The forty specimens in this exhibit show the stages of human development before birth. To the best of our knowledge their survival was prevented by natural causes or accidents. They offer a unique look at the journey we all made from a fertilized egg to a complete human being.” This carefully worded label reveals new tensions the exhibit assumes in the abortion-sensitive 1990s, ones probably unanticipated by its creators in the 1930s. Although abortion is never mentioned in the exhibit, it forms a powerful subtext, as viewers recently began asking how these “babies” died, and wondering whether the tiny creature at the end of the first trimester is, or at least was, a viable human life. Although the official museum line is that no complaints have ever been lodged, a docent confessed that anti-abortionists

are trying to bury these “children.” One of the exhibits creators, Dr. Helen Button, also reported that a collaborator had received bomb threats (1991).

If “Prenatal Development” has not yet provoked a visible protest among anti-abortionists, perhaps it is because the underlying message seems to be conservative. Not only does the exhibit reinforce the traditional female role as mother, but it also raises the ambiguous question of when human life becomes legally and biologically viable. Viewing this graphic depiction of gestation—from fertilized egg to full-term infant—it is difficult, if not impossible, to locate decisively when a fetus or embryo’s status changes to “human being.” This volatile question perpetually threatens, yet doesn’t erupt. The museum is clearly apprehensive, as evidenced by the staff’s reluctance to field my questions. Inquiries about the history of the display were either dismissed with perfunctory bureaucratic responses or cheerful denials that “Prenatal Development” was in any way controversial. Despite the MSI’s emphatic desire to remain apolitical, such a stance is clearly problematic while treading, however unintentionally, the explosive terrain surrounding prenatal life.

The exhibit labels are terse, identifying only each specimen’s sex and stage of development. These fetuses and embryos are presented as metonyms (as described by Barbara Kirshenblatt-Gimblett 1991), a mode which “accepts the inherently fragmentary nature of the object.” Each is excised from its original context inside a mother and turned upright. The brief labels camouflage what is absent: the identity of the specimen and its parents (or “authors”), as well as the circumstances of death. Metonyms tend to enhance an artifact’s aura of realness by showing the object in all its partiality. Due to the overwhelming “reality” of dead human flesh, “Prenatal Development” often resists examination of its cultural underpinnings,

1. *At the 1933 world’s fair in Chicago, the Loyola School of Medicine provided fetuses for an exhibit “The History of Human Development.”* (Photo courtesy of Special Collections Department, Northwestern University Library, Evanston, IL)

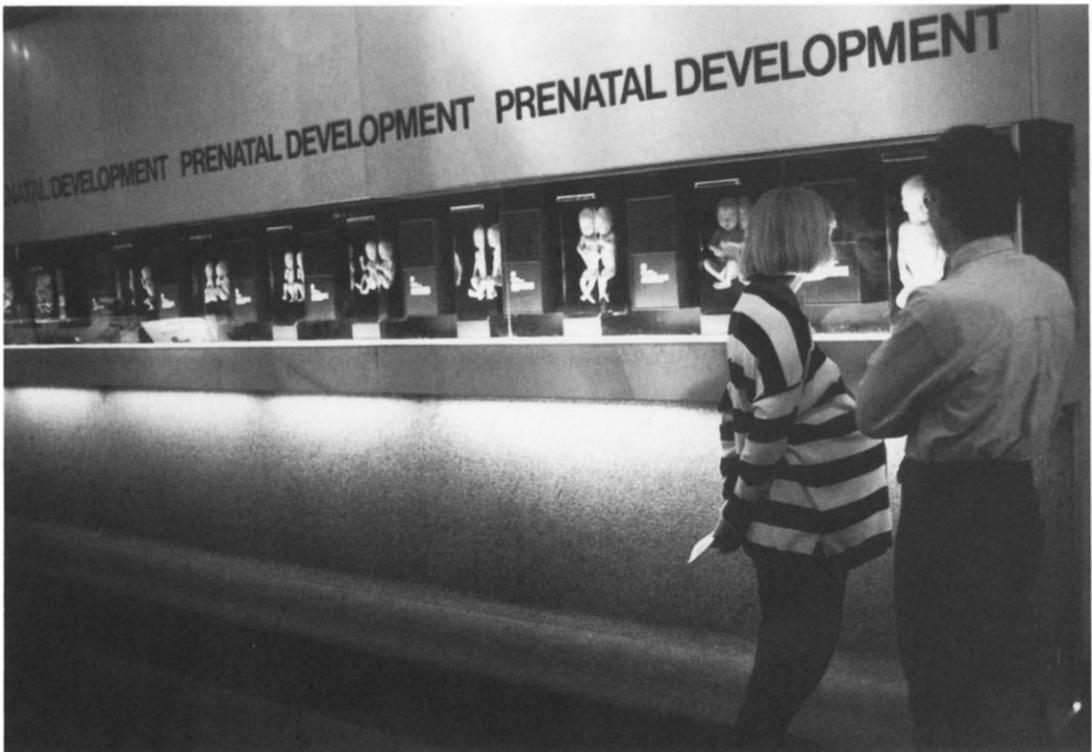


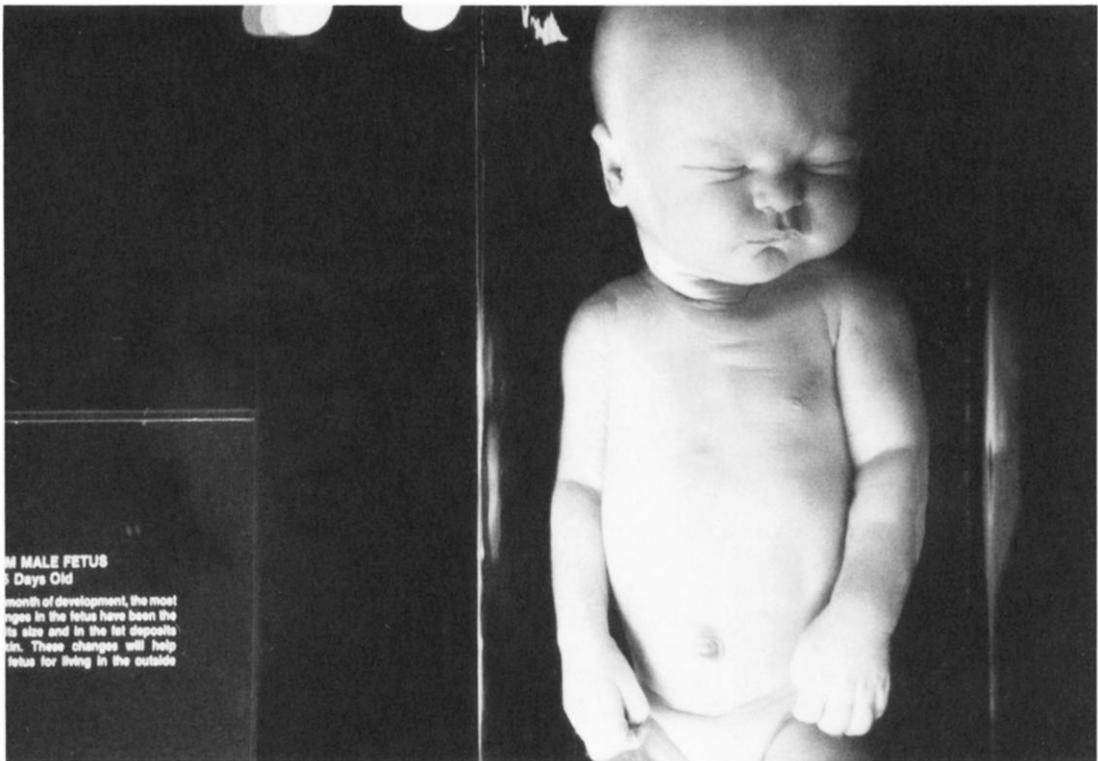
the politics of its representation. Perhaps these fetuses and embryos share with the dead bodies of war, as analyzed by Elaine Scarry, a supreme reality conferring power to ideologies which often remain invisible (1985).

For many reasons, “Prenatal Development” defied my analysis. When I first stumbled upon the installation in the Fall of 1991, I was at once mesmerized, repulsed, intrigued, offended, and confused. This ambivalent response continued throughout. My lived experience of research is significant, for not only is the personal political, but the personal also forms the “invisible yet crucial variable present in any attempt to ‘do research’” (Stanley and Wise 1991:266). The researcher is part of the research. Throughout my work on “Prenatal Development,” I felt the powerful and often invisible tensions affecting contemporary American women. Political issues—such as abortion and the often conflicting expectations thrust upon working women by “family values” rhetoric coalesced with more abstract, theoretical topics concerning gender, sexuality, performance, science, and the poetics of museum display.³

Upon my first visit to “Prenatal Development,” I found it first and foremost compelling. Apparently one of the museum’s most popular installations, it was always mobbed. The display drew viewers right up against the glass, their faces within inches of each formaldehyde-filled jar. Specimens with shriveled gray flesh, closed eyes, and tiny limbs crossed in burial poses fascinated visitors who waited in line to dwell at length upon each of the 40 fetuses and embryos arranged linearly from conception through term. A hush descended, even as the surrounding atmosphere was abuzz with sirens and screaming children. People inched along the line of diminutive corpses, as at a funeral, respectfully silent in the presence of the dead. Adults occasionally whispered to companions or mothers sometimes softly instructed a

2. At the “Prenatal Development” exhibit, a pregnant woman with her male companion ponders the final specimen, a full-term fetus. (Photo by Kwame Braun)





3. As the viewer looks at the dead fetus behind the glass that is used to teach about “life,” she sees also a reflection of herself. (Photo by Kwame Braun)

child about a process of development they once intimately shared. Groups of children were the most vocal of visitors, exclaiming “disgusting,” “gross,” “sick” or “grody,” especially when uterine tissue or the embryonic sack was shown.

An image of myself reflected on the exhibit’s glass surface led me to introspection. I had never before seen actual human fetuses. As a young woman of child-bearing age, I thought about my own reproductive potential. How peculiar to publicly view this most private and mysterious process. How ironic that the dead illustrate here *the* essential process of life. I wondered who the fetuses were, why they died, if the mothers died, if the parents consented to this display. Eventually I forgot I was looking at 40 different creatures and came to view them all as one single gestating fetus. The installation’s linear format constructed the fiction that all 40 specimens are one person. When viewers reached the end of the line where a full-term fetus appears ready for birth, they were suddenly reminded that the apparent developing life just witnessed was a masquerade by the dead. Questions of identity—who the fetuses and embryos were and why they died—once again erupted. The exhibit constantly operated in a dialectic between generated fictions and disguised realities. It was precisely this oscillation which made “Prenatal Development” so powerful and potentially volatile. Abortion constantly resurfaced, as death and life commingled. When I studied the end of the first trimester, I remembered the gruesome photographs I’d seen anti-abortion protestors parading on the street. These were perhaps the only other graphic images of prenatal death I had ever seen. Staring at one particularly ghoulish bottled specimen with sagging flesh and a misshapen head, I felt, guiltily, as though I had been transported to a P.T. Barnum freak show.

The exhibit was disturbing, for reasons I only vaguely understood. The parallels between production and reproduction, which inevitably arise from its placement in America's foremost industrial museum, eventually became clear. Though supposedly a museum about both science and industry, the MSI is primarily a loving paean to male industrial progress. The founding Board of Directors from the 1920s reads like a *Who's Who* of great Chicago industrialists, financiers, and businessmen. None were scientists and all (of course) were men. "Pure science" displays, such as the "Periodic Table of the Elements," hail man's subjugation of nature, proclaiming he has harnessed her power to produce the wonders of industrial progress. Above the museum's lobby looms the motto: "SCIENCE DISCERNS THE LAWS OF NATURE. INDUSTRY APPLIES THEM TO THE NEEDS OF MAN," an aphorism reflecting the mechanized view of nature popularized during the Scientific Revolution. In the late 17th century this rational scientific model supplanted previous organic concepts of the earth as a nurturing female (see Merchant 1980). In light of Carolyn Merchant's thesis regarding the "age-old" association between women and nature and the new scientific image of nature as a female to be "controlled and dissected through experiment," what assumptions about women and gender underlie the MSI's display of the female reproductive "machine"? This display seems to suggest that maternity is the industry of women and that babies are their products.

Lurking in the museum's corners is the larger question "how is 'woman' constructed here?" I returned to the museum a second time to explore the question. At the beginning of the exhibit, elevated on a rotating pedestal, was a life-sized female Transparent Anatomical Manikin (TAM) which initially had entirely escaped my attention. Affectionately known by the staff

4. At the "Prenatal Development" display, people inch along the line of diminutive corpses, as at a funeral, silent, respectful of the dead. (Photo by Kwame Braun)

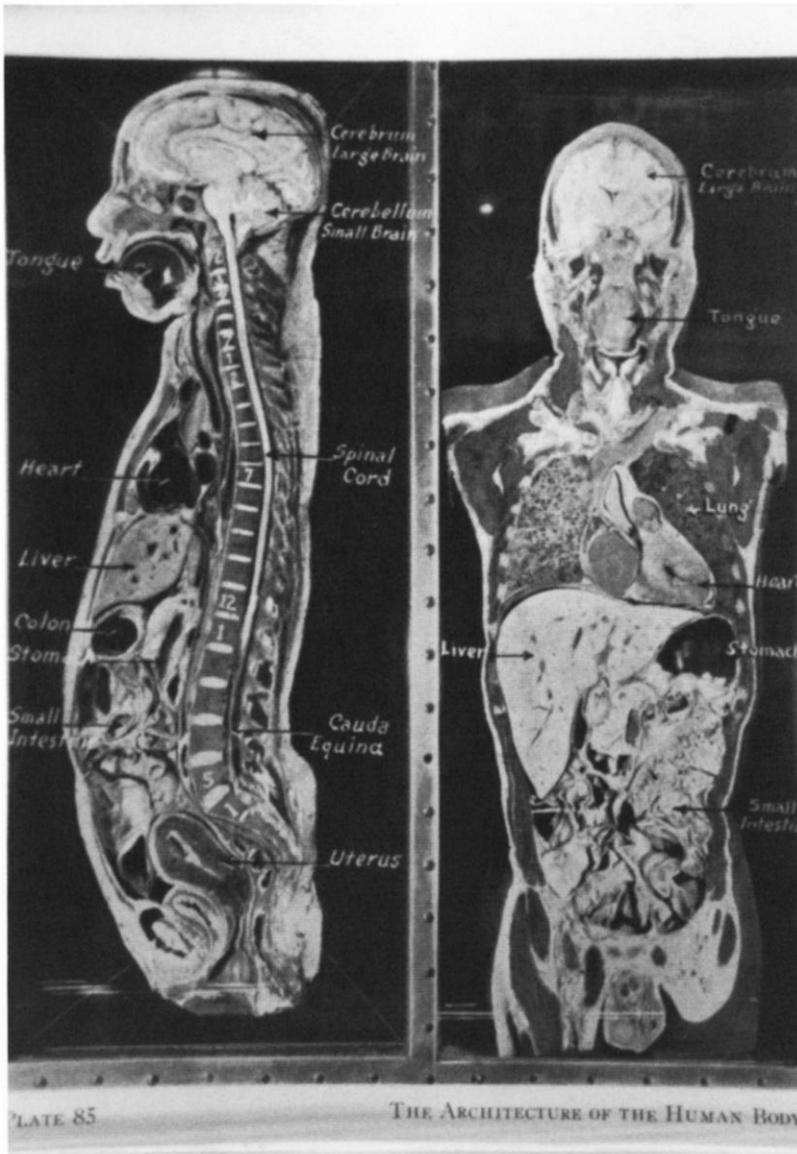


5. *“The Miracle of Growth” exhibit, which had its debut in 1947, featured a pregnant transparent manikin and emphasized mothers as the primary physical, mental, and emotional nurturers of children. (Photo from Miracle of Growth [University of Illinois, 1950]; every attempt has been made to contact the publisher for permission to reprint)*



as “Beulah” or “Tammy,” she was connected to the fetuses not by an umbilical cord, but by a slick display unit of chrome and carpeting.⁴ Tammy’s head was modestly tilted to one side, her eyes cast down, arms rested at her sides with palms turned submissively outward. She invited visitors to gaze upon her as she narrated the location and function of various body parts, each lighting up, for easy identification. At one point the entire pedestal rotated, showing viewers not only Tammy’s illuminated colon, but also the fine curves of her hips and slender waist. No stretch marks or saggy stomach on this fine specimen of Womanhood!

Across the aisle from Tammy and the fetuses was an exhibit called “My Daughter, the Scientist.” Created in 1985 to address the gross underrepresentation of women in science, the exhibit illustrated the often ignored achievements of female scientists and the “hurdles facing women



6. These sections of an adult human were sliced vertically in order to provide the lay public of 1933 an insight into “The Architecture of the Human Body.” (Photo courtesy of the Special Collections Department, Northwestern University Library, Evanston, IL)

who aim for technical careers.” The installation was organized around a series of questions such as, “Does being a girl matter?” and “Why are toys important?,” showing how from an early age girls are socialized away from technical careers. One panel illustrated how certain behaviors in the workplace are often perceived differently when enacted by men versus women. For instance, displaying family photographs might be viewed as a positive sign of stability in a man, yet evidence of potential company disloyalty in a woman. Obviously “My Daughter, the Scientist” is an important gesture at addressing the sexual imbalance in science and industry. I applaud the museum’s recognition of women’s issues and perception of its own role in shaping future scientists. Yet why, I wonder, is the exhibit called “My Daughter, the Scientist.” Why are important women scientists introduced in a possessive grammatical construction? And which parent—mother or fa-

ther—is implied as the possessor? In an institution so overwhelmingly patriarchal, one readily imagines science’s “founding fathers,” celebrated in the museum’s lobby, as the creators of this new invention, the female scientist.

I left the museum percolating with questions about the history of “Prenatal Development.” Subsequent research led me back to 1933, to the Century of Progress World’s Fair. This fair on Chicago’s shoreline was a euphoric celebration of the progress *mankind* had “accomplish[ed] through a mastery and understanding of nature” (Dedmon 1953:333). The fair was directed by Rufus C. Dawes, with inspired assistance by his general manager, Major Lenox R. Lohr—both of whom, significantly, later became directors of the Museum of Science and Industry.

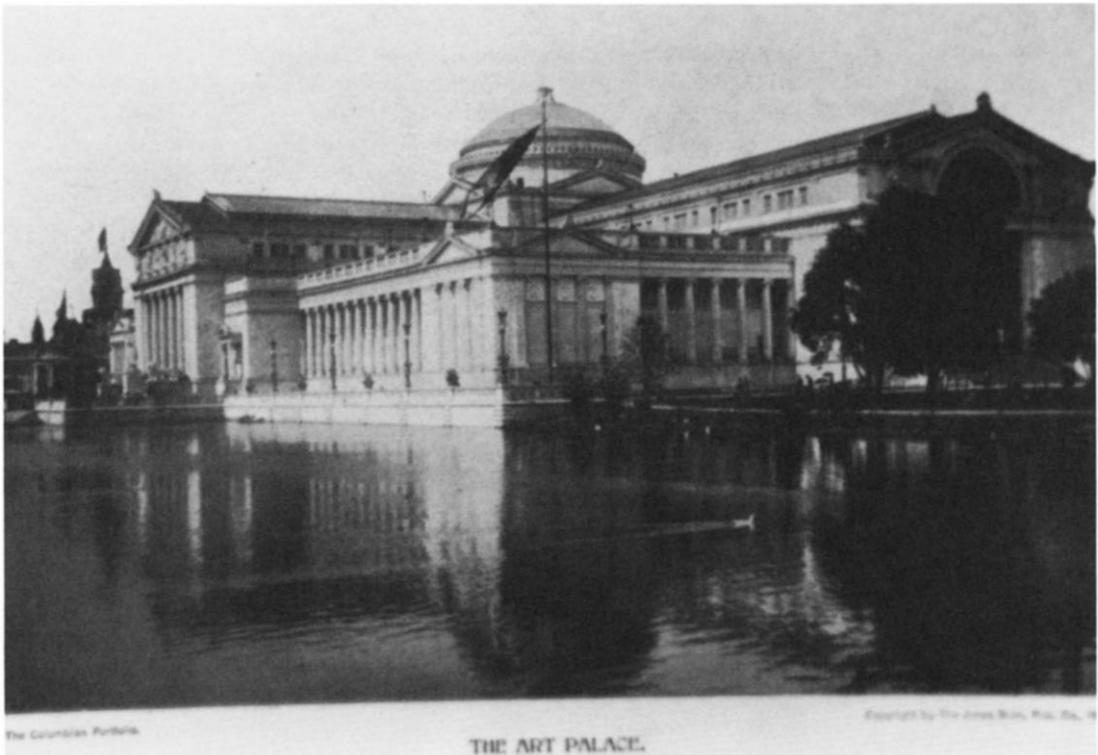
The Hall of Science was central to and emblematic of the fair’s overall theme: industry was the progeny of man’s scientific penetration of nature. On the first floor of the Hall of Science were displays on biology, chemistry, and physics. Under this, in the basement, was an exposition of the medical sciences, including displays borrowed from institutions like the Deutsches Hygiene Museum in Dresden and the Wellcome Research Institute of London. The physical location of the medical displays *below* the hard sciences may have signified medical science’s very recent acceptance into scientific legitimacy. One of the stated goals of the medical exposition was “to instruct the public in the intricacy of the living human machine and to give warning not to meddle with it by dangerous self-medication” (COP 1934:142). Clearly the creators wished to impress upon the public the authority medical science now wielded over the human body, its superiority to formerly accepted health methods now deemed hazardous.

Dramatically announcing the story of medical progress and the intricacy of the “human machine” was a life-sized transparent *male* manikin whose

7. *The medical hall curator of the 1933 world’s fair, Eban James Carey, felt that the public was entitled to share in science’s latest discoveries. Here “the public” flocked to gaze upon these remarkable specimens of prenatal life. (Photo courtesy of the Special Collections Department, Northwestern University Library, Evanston, IL)*



PLATE 84 PART OF CROWD VIEWING EXHIBITS OF ANATOMY AND EMBRYOLOGY



body parts lit up for admiring visitors. Arms exultantly raised in the air, he visually represented not only science's triumph over the body, but also embodied the fair's overall theme of progress. The transparent man became an icon frequently pictured in the world's fair publicity. His confident posture contrasts markedly with the vulnerable pose of the female manikin currently on display in the museum.

Also in the Hall of Science was an exhibit by Loyola University School of Medicine comprised entirely of specimens of preserved human tissue. Divided into two sections, it contained a large collection of human embryos and fetuses showing the "History of Human Development." The second half, "The Architecture of the Human Body," displayed sections of an adult human sliced vertically from head to thigh. (A similar display is currently shown in a stairwell at the MSI.) In contrast to today's "Prenatal Development," the Loyola embryology exhibit was not promoted as having anything to do with maternity or women. According to the medical hall curator, Eban James Carey, the Loyola booth grew out of a belief that

the public was entitled to share in the discoveries continually being made in scientific laboratories of the world. Newer methods were introduced to the medical students in the teaching of the development and structure of the human body a few years ago. It was believed that the subjects dealing with the development and structure of the human body were not only the most fascinating of all studies but they also illustrated many points of practical value to humanity. (1936:114)

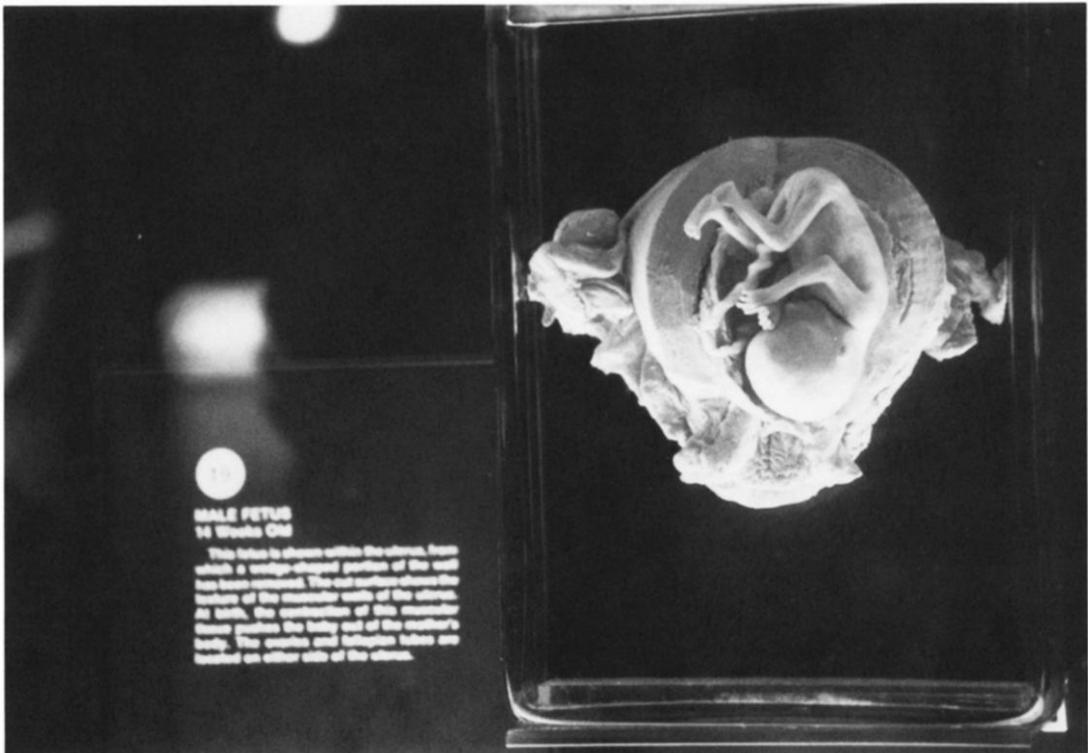
It is difficult to tell what is meant here by "newer methods," as Loyola's display consisted entirely of cadavers, which had been used by science for centuries. Perhaps Carey is referring to the body slices. The fascination hu-

8. The Museum of Science and Industry was once the Art Palace at the 1893 World's Columbian Exposition. (Photo courtesy of the Special Collections Department, Northwestern University Department, Evanston, IL)

man corpses exerted over viewers was apparent by the exhibit's popularity. World's fair visitors flocked to gaze upon these remarkable specimens. Sensitive to the ethics of displaying dead human flesh, Carey stated defensively that the exhibit's appeal was "no more morbid curiosity on the part of the public than it was on the part of medical students" (32). His comment reveals a thinly veiled anxiety about the ethics of ocularity. When did the Hall of Science creators believe it was appropriate to look at dead bodies? Perhaps it was wrong to look out of morbid curiosity, yet somehow "right" if driven by a wholesome fascination (as if the two could be separated).

An editorialist writing about the fair in the June 1934 *Hygeia* magazine ("Health Education at the Exposition," published, incidentally, by the American Medical Association [AMA]) drew a connection between the Hall of Science and the "bizarre" curiosities of physiology displayed in other areas of the fair, such as "the human being with elastic skin, the colored individual turning white, the child born without arms, [and] men and women with remarkable growths. [. . .] Innumerable other specimens of what nature does when it goes on the rampage are here assembled for the wonderment of those who try to understand nature's ways" (AMA 1934:490). According to this editorialist, the crass freak show occurring outside the confines of the lofty Hall of Science shared with it an ability to "bring to the general observer some of the fascination of the unusual that is provided by a study of medical science." The supposed boundary between bawdy freak show and legitimized scientific display was easily transgressed by this editorialist. Even as the creators of the Hall of Medicine tried to distance themselves from "popular" quackery, *Hygeia* saw no difference between licit and illicit spectacles of the human body.

9. Specimens showing uterine tissue or the embryonic sack provoke the most vocal responses among young visitors. (Photo by Kwame Braun)



Throughout the history of medical science, the political and ethical dilemmas of looking at the human body frequently arise, particularly concerning images of the female body. When male midwives emerged in the 19th century, elaborate procedures were devised to control his gaze towards the female patient (Wertz and Wertz 1989). Modern gynecology textbooks must carefully negotiate the uncertain territory between legitimate “scientific” and pornographic images of female genitalia.⁵ A related controversy erupts in art as photographic images of naked women elude secure classification as either “high art,” “erotica,” or “pornography” (Solomon-Godeau 1991). Loyola University’s display of fetuses, embryos, and body slices at the World’s Fair struck a delicate balance between respectability and sideshow shock value. The exhibit was both majestic and appalling, attracting large crowds but failing to provoke any real protest.

Although women were conspicuously absent from the Hall of Science curator rosters, one woman, Dr. Helen L. Button, was in fact largely responsible for Loyola’s neonatal display. Dr. Button was a doctor at Chicago’s Cook County Hospital in the early 1930s during the depression. When poor families had no money to bury miscarried or aborted fetuses, the hospital had to dispose of them in potter’s field. Dr. Button decided to begin collecting and preserving specimens in various stages of gestation. She was asked by Loyola University Medical School, her alma mater, to display her collection at the 1933 world’s fair. Many of the specimen’s currently shown at the industrial museum are in fact from Dr. Button’s original collection.

Dr. Button is an intriguing figure in the history of neonatal display. Like the transparent manikin which transformed in relation to changing American values, Dr. Button’s life was influenced by changing cultural perceptions about science and the role of women. She broke gender conventions by entering medical school in the 1920s, a time when a “closed shop” policy against women prevailed. Although no Chicago-area hospitals were willing at that time to take on a female intern, Dr. Button finagled a position. She became one of the very few women surgeons in America. During World War II Button treated as many as 120 patients a day while male colleagues worked in the military. Determined and passionate, she practiced medicine in Chicago for more than 50 years, taught at Chicago Medical School, married and had two children, and traveled to South America and Africa on medical tours. Today, at the age of 92, she is as energetic as ever, living in Oregon and writing her autobiography.

Throughout her life Dr. Button advocated for women’s rights and health care, serving on the staff of the Mary Thompson Women and Children’s Hospital. She was appalled by conditions in the 1930s: “It was pathetic to watch helplessly as women died from infections after childbirth, simply because we had no treatment for them” (1992). She also recalls the multitude of women she saw during her 15 years as head of the gynecological clinic at Cook County Hospital, women who had “performed all types of abortion on themselves, many with dire results” (1991). Her memories add a much-needed historical dimension to the abortion controversy that has raged at Cook County Hospital throughout 1992. When I asked her about the Century of Progress fair, Dr. Button recalled, “It was very difficult for women’s organizations to secure a booth. All sorts of strategies were necessary and rules and regulations were especially employed” (1991). Displays on women’s hygiene and childcare were included in the Hall of Science, though these were far overshadowed by the more sensational exhibits of man’s Scientific Progress.

When I first saw “Prenatal Development” in 1991, Dr. Button’s name

was not shown on exhibit labels, nor was she listed among records of the Loyola booth at the world's fair. I learned of her existence only through an off-hand comment made by a member of the museum staff. When I finally tracked her down and heard of her remarkable life, I realized that this woman scientist was, in a sense, written out of the history of her own exhibit. In 1992 a plaque with her name was installed at the museum, yet it gives no hint of Dr. Button's impressive contributions to medicine, science, and women's health care. Since the current exhibit seems to be about women, motherhood, and women scientists as role models, neglecting Dr. Button's story is both ironic and unfortunate.

The Century of Progress fair closed in 1934, at which time the fair organizer, Rufus C. Dawes, took over as president of MSI. He brought many of the industrial and scientific displays with him, including Dr. Button's jars of human embryos and fetuses. The new female transparent manikin with modestly lowered arms was constructed and unveiled in 1937. Between 1933 and 1992, the transparent anatomical manikin underwent a gradual shift from conquering male to submissive, somewhat eroticized female. A catalog dating from 1939 or 1940 shows the new manikin fetishistically exposed through parted curtains (MSI c. 1940:27). Also pictured in the catalog is a mural called "The Miracle of Growth," which seven years later became a full exhibit. The infant depicted in the mural is a boy and the central image is of a woman breastfeeding. Above her is the instruction, "Nature prepares the mother to help her feed her child." The mural emphasizes the mother's essential role as nurturer: "It is nature's intention that feeding should be both a physical and emotional gratification for the infant." Breast feeding, according to this text, "best" fulfills a baby's physical requirements, and a mother's mild voice, undivided attention, and loving embrace (not the father's) provide the best emotional sustenance.

The full exhibit called "Miracle of Growth" debuted in 1947. At the time, it was considered shockingly progressive for its graphic depiction of reproduction. Just as the MSI is currently apprehensive about the potential volatility of "Prenatal Development," so the Museum held its institutional breath in 1947, afraid of controversy over "Miracle of Growth"'s frank presentation of the delicate matter of sex education (or "the facts of life" as it was always referred to euphemistically). There was talk of opening the exhibit on separate days for women and men, and barring children under seven (Kogan 1973:121–23). Herman Kogan, the MSI's official historian, claims that although the exhibit "aroused immense interest as one of the [. . .] most discussed and avidly attended exhibits, and though viewed by well over fifteen million men, women, and children, not a single letter or voiced complaint has been received" (122). This may or may not have been true, yet there does not appear to have been any mass outrage over "Miracle of Growth."

Press accounts of the exhibit stressed the relief parents felt, in 1947, at being able to *show* their children the "facts of life," rather than having to talk about it directly. Although children of a preindustrial age—those raised in agrarian settings or living in crowded quarters—might know from an early age how babies were made, it seems many modern American children were in the dark on this issue and they sought answers in, of all places, an industrial museum. The following excerpt from a 1949 *Parents Magazine* article titled "How to Tell the Story of Birth" portrays the typical anxiety-wrought parent:

Where do babies come from, Mommy?

Mothers all over the world are confronted with this age-old ques-

tion, but Chicago mothers have a quick and easy answer: "I'll take you to the Museum of Science and Industry tomorrow and *show* you!"

Thanks to its "Miracle of Growth" exhibit—a three-dimensional picture—the story of the facts of life from conception to maturity is there for all to see. Conception, month-by-month growth in the mother's womb, and the actual process of birth are graphically portrayed. No ages are barred, no fee is required.

Visitors make their way to the room of the "Miracle" exhibit. Setting the tone and dominating the room is a life-sized, transparent, plastic figure of a pregnant woman. In her womb, fashioned of softly glowing plastic, lies a nine-month fetus. The baby-to-be is at the end of his intra-uterine life, just before labor begins and the dramatic process of birth occurs. It is simple, beautiful and impressive.

Visitors enter here, chattering as they stroll from some other exhibit. Then they stop dead still—mouths open in surprise. Parents with a child, parents who have put off the facts with evasive answers, are confronted with this revealing figure and find they can evade no longer. For the child invariably points excitedly and asks: "Is that a baby in that lady's tummy?"

There is a moment of hesitation, a look of "this-is-it" between Mother and Father, then the child is told how babies arrive in the world. (Hildebrand 1949:29–30)

Numerous articles, as well as the exhibit itself and a catalog later published by the museum and distributed throughout America as a sex education textbook (MSI 1950), projected normative behaviors about "proper" sexuality and gender roles. "Miracle of Growth," which became an icon of the museum during the era, reinforced heterosexual behavior, as nearly every press image showed a male and female couple gazing at the display. Mothers were figured as the primary physical, mental, and emotional nurturers. The child whose miracle of growth was charted was generally identified as a boy (girls being a sort of parenthetical aside). Texts stressed how the "Miracle of Growth" was a "dignified" presentation of the facts of life. (Implying, perhaps, that the subject was inherently less than decorous.) Kogan reports that the display supplied "scientifically correct information vividly and authentically to all who seek other than curbstome legends and back-yard myths about human reproduction" (1973:123). Kogan, unlike the *Hygeia* editor during the world's fair, would never have sent readers looking among concessions and freak shows for answers about human biology.

The transparent manikin displayed in "Miracle of Growth" was pregnant and all the accompanying display units were fashioned from wax rather than real flesh. The images of fetuses and embryos were situated in utero, stressing the biological relationship between mother and gestating infant. Covering not only prenatal life, "Miracle of Growth" depicted the entire process of growth, from conception through adolescence. The male role in reproduction, however brief, was shown, as there were cut-away models of both male and female sex organs. If the balcony on which today's "Prenatal Development" rests seems to have the overarching theme of "Woman," the 1947 display projected the dual motifs of "Motherhood" and "Growth."

The emergence of "Miracle of Growth" in the aftermath of World War II and on the cusp of the baby boom is significant. At this time, women who had assumed industrial jobs during the war mobilization were being displaced by returning veterans. A cult of matrimony, maternity, and

homemaking burgeoned as women reentered the domestic sphere and fertility records soared. Susan Householder van Horn has studied how the population growth of the 1940s and 1950s coincided with a revival of traditional values such as patriotism and discrete gender roles. "Strong distinctions between the genders encouraged young people to create families. [. . .] Family creation is the quintessentially gender-distinct activity." Van Horn concludes that "never again [in American history] would the contrast between feminine and masculine bodies, qualities, and activities be so vividly emphasized" (1988:119–20). As the nation sought to put the depression and war behind and the growth of family and economy in the fore, both women and men embraced traditional roles. Whatever feminist consciousness might have been aroused by women's brief spell in the wartime work force was suppressed for nearly two decades.

"Miracle of Growth" projected in 1947 an uncomplicated picture of womanhood. This exhibit in the nation's preeminent industrial museum reflected what was at the time an unquestioned assumption that women belonged not in industry, but in the home producing babies. Today's exhibit, by comparison, is riddled with the bewildering forces which drive, jostle, pull, impel, and confuse contemporary women. Hotly debated issues of abortion, rape, the "mommy track," sexual harassment, pornography, child care, career advancement—these rage on the contested terrain of the female body. Woven throughout the matrix of displays currently on the MSI's northeast balcony is evidence of a deep cultural confusion over "womanhood." The female here is marginalized into a separate sphere, her contributions to science shunted into a corner. The juxtaposition of these three displays resonates with unspoken questions. Is bringing children into the world the responsibility of women and is baby-making their "industry"? Who controls women's bodies? Who can say when a fetus or embryo becomes a viable human life? At the Museum of Science and Industry, these questions are neither answered nor even articulated. The resounding feature of the "woman's" aisle is silence. Just as those fetuses and embryos mutely face the surrounding industrial noise, so is contemporary "woman" often literally dumbfounded by the profoundly contradictory forces affecting her life.

Notes

1. I am grateful to Margaret Thompson Drewal for her interest in this project, editorial advice, and challenges to consider multiple theoretical perspectives.
2. The "women's aisle" is currently located near displays on "tools" and "pain," a juxtaposition both intriguing and suggestive.
3. Theorists who have particularly influenced me in this regard are Margaret Thompson Drewal (1991); Donna Haraway (1989); Mary Jacobus, Evelyn Fox Keller, and Sally Shuttleworth (1990); Ivan Karp and Stephen D. Levine (1991); Keller (1985); Emily Martin (1987); and Carolyn Merchant (1980).
4. Tammy (based on the acronym "TAM" from transparent anatomical manikin) is the name contemporary museum staff gave the manikin. In the 1940s and 1950s she was apparently referred to as "Beulah," a name laden with racial implications.
5. I am indebted to Terri Kapsalis for this observation.

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