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Introduction

Birth is the way we all arrive in this world—and each of us will repeat, prevent, delay, or reject reproduction during our lives. As we do, we will interact with designs of all kinds: products, devices, programs, and policies. While being born is a universal human experience, the designs that shape that experience are not. Many remain taboo, rarely considered, or inaccessible to many people.

Design impacts each step in the arc of human reproduction, from the menstrual cup that can be used time and again to collect monthly menses and maternity wear that allows its user flexibility to systems of care that encourage autonomy and development for both babies and adults.

But who shapes these designs? Some of the objects and systems you'll encounter in this exhibition are the product of industrialized medicine, like the Kuddle-Up baby blanket, while others have been shaped by dire need and collective political will, such as the *Infant Ready*[™] Emergency Feeding Kit developed for natural disasters. Still others have been conceived by activist designers frustrated at the lack of innovation in designs for reproductive health, such as 21st-century pregnancy tests that are biodegradable and flushable, or that are tactile rather than based on sight cues.

Designs can make and break our experiences around reproduction, even if most of us are unaware of their development. *Designing Motherhood* invites us to consider why and how designs that facilitate reproductive health have been developed and to ponder their social, economic, and political implications. This exhibition highlights how birth and the culture that surrounds it affect every living person. These are not just women's issues; they are human issues and they matter to us all.

1. Craft + Caregiving

Care is essential to craft. Craft encompasses skilled making practices that prioritize ancestral wisdom, material intelligence, and haptic or tactile learning. Processes such as tending a 2,000-degree ceramic firing or warping threads across a floor loom are time and labor intensive, and necessitate collaboration and technical knowledge that is shared and honed over many generations.

Like craft, parenthood shares these intertwined properties of care, labor, embodied history, and familial knowledge. Many of the implements that facilitate caregiving are handcrafted. From woven swaddling cloths and quilted baby blankets to embroidered carriers and basket-woven sleeping vessels, handwrought objects mediate the space between the womb and the world.

As you move through the galleries, consider the tenets of craftsmanshipcultivated skill, transformation of raw material, and compounded time-that are required by caregiving experiences like birthing, feeding, weaning, tracking, carrying, and clothing children. While craft is often the first human experience of the built environment, this exhibition demonstrates that such reproductive experiences are forms of craft in and of themselves.

1.1 A.L. Mills (American, active 20th century) *Kuddle-Up Blanket*, first produced in the 1950s Manufactured by Medline Industries (formerly Mills Hospital Supply), 1966 Cotton Courtesy of the Designing Motherhood Archive

A simple white cotton blanket with alternating stripes of pink and blue, the Kuddle-Up is an iconic object found in countless standard hospital delivery rooms across the world. In 1910, a group of nurse-nuns approached apron maker A.L. Mills, who sewed aprons for Chicago's meatpacking industry, to create hospital garments. As a result of their collaboration, the medical garment and textile supply business was born, and with it came various universal hospital designs including the jade green surgical gown and the Kuddle-Up blanket. The latter was inexpensive and durable, with pink and blue stripes denoting the gender binary.

1.2 Emerson Croft (American, b. 2000) *Earth Baby Blanket*, Elements Series, 2021 Produced for Berea College Student Craft Program Cotton grown, spun, and dyed in the United States Courtesy of the artist

Emerson Croft (they/them) wove this baby blanket on a flying shuttle loom in the historic weaving studio of Berea College's Student Craft Program. The blanket's alternating stripes in muted green, hazel, and gray are intended to break from the conventions of traditionally gender-coded pink and blue baby blankets and reflect the verdant Appalachian landscape. They designed this series of blankets to evoke universal elements—earth, air, water, fire—and to conceptualize a spectrum of experiences that transcend the gender binary.

Established in 1893, Berea College is a historic center of student-led design production and experiential learning in Kentucky. Their student craft program began as a fireside industry for regional weavers, who were almost exclusively women. It has since evolved into a competitive work-study program within the college where weaving, woodcraft, ceramic, and broomcraft production supports tuition-free education.

1.3 Aaron McIntosh (American, b. 1984) *Transitional Objects #1 and #6*, 2016-2017 Vintage cloth from artist's family, cotton flannel, sheer polyester floral fabric, thread, hand-embroidered "fancywork" Courtesy of the artist

Aaron McIntosh is a fourth-generation quiltmaker and contemporary artist from Appalachia. *Transitional Objects* is a series of figurative baby blankets. If you look closely, you can see the limbs of two people embracing. "Transitional Objects" are described by psychoanalyst Donald Woods Winnicott as objects like teddy bears and baby blankets that support early childhood identity formation. These objects help humans recognize "me" from "notme." McIntosh's transitional objects, in the form of abstracted lovers, instead reflect on the formation of queer identity.

1.4 Alison Croney Moses (American, b. 1983)

My Belly, 2021 Cedar wood, milk paint Commissioned for Designing Motherhood by the Maternity Care Coalition Advisors Courtesy of the Designing Motherhood Archive

My Babies, 2021 Cedar wood, milk paint Courtesy of the artist and Abigail Ogilvy Gallery

Alison Croney Moses studied furniture design at the Rhode Island School of Design. She creates sculptures with wood—a material that, even after being cut down, still mimics life by changing with its environment. In the artist's words:

Pregnancy and motherhood are life changing and full of contradictory experiences of pain and pleasure, heartache and love, fear and hope, and sadness and joy. Our bodies are literally rearranged, torn apart, and drained while growing humans within our womb, birthing those humans, sustaining those lives, and nurturing those tiny people in the critical years of development. When we come out the other end, all mothers are fundamentally changed and it's often difficult to see and feel who we once were. We then begin the journey of bringing back together the different parts of who we were and who we are now and rebuilding ourselves to be something new.

For Black mothers, this transformation occurs while living through systemic racism and personal implicit bias, all made worse during the COVID-19 health crisis. Our physical survival of the birthing process and living is what we are tasked with as humans. The ability to care for ourselves, to celebrate, and to commune with each other is what we need to thrive.

1.5 Tanya White (Ngāti Hineāmaru, Ngāti Whātua, Ngāti Maniapoto) Pēpi Pikia in her woven world, her wahakura woven by māmā Mani, pāpā Hayden and whānau, 2022

Digital photo by artist from her article "Wānangatia Te Wahakura Weaving Wellbeing for Mokopuna and Whānau," *The Vessel,* Issue 3.

Tanya White is a *kairaranga* (weaver) from Aotearoa New Zealand. This photograph shows her *wahakura*, or woven bassinet, made from harvested *harakeke*. These sleeping vessels not only provide safe spaces for children, but they also materially embody the ancestral wisdom that links land, family, care and community.

To read more, follow this QR code:



1.6 Ger Xiong/Ntxawg Xyooj (Hmong-American, b. 1993) Disappearance, 2021 Fabric, thread, steel Courtesy of the artist

Ger Xiong crafted this crimson baby carrier using a Hmong needlework technique called *paj ntaub*, or "flower cloth." Hmong baby carriers, *daim nyias*, incorporate dense fields of surface decoration intended to shield the child from spiritual harm. Narrative *paj ntaub* embroidery, called "story cloth," has long served as a means of recording and communicating historical Hmong knowledge, which was transmitted orally before the 1950s. Xiong's work depicts ghostly figures tending to crops, leading livestock, and walking along crisscrossed, black thread paths. The white voids of these forms evoke

immense, multi-generational loss. After the Vietnam War in the mid-1970s, many Hmong families, including Xiong's, were violently forced to flee to refugee camps and later sought asylum abroad including in the United States. *Disappearance* honors Xiong's family's journey, celebrating Hmong cultural traditions and mourning their losses, carrying the thread of history just as a mother would carry and protect her baby over countless miles.

1.7 Sue Rigdon (Yakama, born 1942) Cradleboard, 1995 Corduroy, cotton fabric, beads Courtesy of the artist

In Indigenous traditions, cradleboards provide a supportive design for infant care. After lacing a baby into the cradle, a caregiver can wear the cradleboard on his or her back while moving around, or the cradleboard can be leaned against a wall to give the infant full view while caregivers take on other tasks. Cradleboards are also used for sleep time, as the tight swaddling gives the infant a feeling of warmth and safety. These practices are alive in many tribal communities today. This cradleboard was created by Sue Rigdon for her daughter Polly Rigdon-Olsen when Polly gave birth to her son Tucker Olsen. The care reflected in its design imbues the cradleboard with love, protection, and legacy.

1.8 Ann Moore (American, b. 1934) Lucille Aukerman (American, 1909-83) Snugli, 1971 Manufactured by Snugli, Inc. Corduroy Courtesy of the Designing Motherhood Archive

Known by many names—including the American Indian and Alaska Native cradleboard, the pan-Asian *mei tai*, the Korean *podaegi*, and the Mexican and Colombian *rebozo*—the baby carrier is one of the oldest worn accessories. Positioned on the front, back, or side of the caregiver, baby carriers have become increasingly popular worldwide.

One of the first mass-produced baby carriers, the Snugli is a popular choice, yet few know of its connection to the first generation of Peace Corps volunteers in the 1960s. Trained as a pediatric nurse, Ann Moore and her husband Mike volunteered to live and work in Togo, West Africa. They were fascinated by the cloth used to bind newborn infants and toddlers to their caregivers. When the Moores returned to the U.S. and had their own daughter Mandela, Ann asked her mother to help her fashion something similar. After several iterations, the Snugli was "born." It was patented in 1969.

2. Exam

Design is never neutral. Some methods of examining bodies and monitoring pregnancy and birth have been developed and used in ways that are at best uncomfortable—and at worst violate consent. Other newer tools and practices, however, have been designed from the patient's perspective, enabling exams that prioritize comfort while providing culturally appropriate, gender-affirming, and trauma-informed care.

2.1 Pompeii Quatra-Valve Speculum, 19th century reproduction of c. CE 79 design

On loan from the Mütter Museum of the College of Physicians of Philadelphia

For centuries, the speculum was the only tool available for internal examination of the uterus. It has three or four prongs that are inserted into the vagina. As outward pressure is applied, the prongs separate and stretch the surrounding tissue to enlarge the opening. Use of the speculum fed into prevailing perceptions of female anatomy and women generally as inferior. Even at the beginning of the 20th century, physicians believed that disturbances to the uterus changed women's behavior. Drawing on the Greek and Latin words for uterus, *hysteria* became a common pseudo-scientific diagnosis that attributed women's issues to their uteruses, not their subjugation in society.

2.2 J. Marion Sims (American, 1813-1883) *Lucy (Sims) Speculum*, c. mid 19th century On loan from the Mütter Museum of the College of Physicians of Philadelphia

Physician J. Marion Sims (1813–1883) specialized in a field that later became known as *gynecology*. Among his contributions was a method to repair fistula, a potentially life-threatening complication of prolonged or obstructed labor. The method involved using a speculum fashioned from a bent pewter spoon and repairing the damage using silver sutures. His speculum design is still in use today.

Although Sim's work has improved women's health, his major success was built on experimentation on enslaved African American women—some of whose names are known, including Betsey, Anarcha, and Lucy. The enslaved patients endured multiple surgeries without anesthesia even after it became available. In 2020, obstetrician Kameelah Phillips decided to rename the Sims speculum "Lucy" as a tribute to one of Sim's patients. Phillips said, "I wasn't going to give honor to a man who operated on the backs and developed instruments on the backs of women who looked like me." Although his work has improved women's health, his major successes owed to experimentation on enslaved African American women during the 1840s.

2.3 Fran Wang (American, b. 1990) Rachel Hobart (American, b. 1991) *Yona Speculum Prototype Sketch and Photograph* In development frog design (est. 1969, Germany; headquartered in the U.S.) Aluminum and silicone Courtesy of Yona Care

More than 60 million pelvic exams using the speculum are conducted each year in the U.S. For too long, people with vaginas had little voice in the design of these tools. Women designers at frog, a San Francisco-based design consultancy, have created a redesigned speculum "for people with vaginas by people with vaginas." The designers interviewed patients and medical professionals and created and evaluated prototypes for efficiency of use, ergonomics, and even auditory effects. Their device, called the Yona (from the Hindu *yoni*, or the life force symbolized by the vulva), features surgical-grade silicone to eliminate the feel of cold steel and diminish the metallic sounds many associate with a speculum. The redesign also modifies the angle of the handle to improve comfort. The designers hope that when the Yona is used, it will alleviate stress and ultimately shorten pelvic exams.

2.4 Eden Laurin (American, b. 1983) Nyssa VieVision Between Legs Self-Check Mirror, 2021 Nyssa (est. 2018, US) Plastic Courtesy of Nyssa

Founded by three new mothers, the company Nyssa launched with a focus on postpartum recovery. This hands-free mirror is shaped so it can sit between the thighs while the user is in a seated or standing position. True to its tagline—"Get to know your vulva in a whole new light"—an LED light illuminates the vulva and vagina. Nyssa's founders suggest using the VieVision mirror for routine checks, for self-grooming, for guiding the insertion of a tampon, menstrual cup, or contraceptive device, or during birth.

2.5 Dilation Chart, c. 2021

Wood Courtesy of the Designing Motherhood Archive

Cervical dilation charts demonstrate how the cervix *effaces* (thins and stretches) and *dilates* (opens) in the days and weeks before childbirth so a baby can fit through the vaginal canal. Once the cervix opens to ten centimeters, the person is ready to birth their baby. Such standards for measurement, however, are not always useful. While cervical dilation checks have become routine with medicalized childbirth, many midwives, doulas, and forward-thinking obstetricians insist that cervical dilation does not predict the

timeline, speed, or cadence of birth.

2.6 Jen Recotta (American, b. 1986)

Cervical Dilation in Clay, 2023 TikTok Video Duration, 10 sec. Courtesy of the artist

Between Worlds, 2024 Ceramic Courtesy of the artist

- 2.7 Gabriela Vainsencher (Argentine-Israeli-American, b.1982) *Postpartum Amphora with Needles, Stitches and Ultrasounds*, 2024 Porcelain, glaze, underglaze, screws Courtesy of the artist and Asya Geisberg Gallery
- 2.8 Kim Harty (American, b. 1983)

CONTRACTION, 2024 Blown and cut glass Courtesy of the artist and Heller Gallery

UTERINE, 2023 Blown and cut glass Courtesy of the artist and Heller Gallery

3. Midwives

The World Health Organization (WHO) defines midwifery as "skilled, knowledgeable, and compassionate care" for childbearing people and their infants and families. Until a few centuries ago, many aspects of reproductive health took place at home, largely attended by midwives. Today, around 10% of U.S. births are attended by a midwife, compared to more than 50% in other high-resource countries. Global health experts recommend that a simple way to improve maternal and newborn outcomes, avoid unnecessary interventions, and create cost savings is to support pathways to becoming a midwife.

3.1 Yucatan Rebozo, 2024 Courtesy of the Mateo Jimenez Collection Wool

A rebozo is a long, hand-woven garment used in pregnancy and the postpartum period. Usually 4 to 7 feet long, the material reflects Mexico's long history of weaving alongside centuries of midwifery. Mexican midwives wrap and move the rebozo against the body to ease ligament, muscle, and back pain as the fetus grows and the pregnant body changes. Midwives and doulas can also use it to reposition the fetus, including using a technique commonly known as "sifting." In the weeks after delivery, the rebozo can be used to massage the postpartum person—or it can be wrapped around the body to support baby wearing and baby carrying.

3.2 Deluxe Flexible Pelvis Model Set, c. 21st century Health Edco

Simulation tools have been used for centuries to train midwives, birth attendants, and doctors. Early models were made from wood, clay, or glass. Anatomist Marie Catherine Bihéron used wax to create movable parts. Because the French academy didn't admit women, Bihéron made a living by exhibiting and selling her models before moving to England where she taught a generation of doctors. The first life-size mannequin was designed by Angélique Marguerite Le Boursier du Coudray. Born to a medical family, du Coudray made models out of fabric, leather, and stuffing—and human bones. She achieved her own prominence when King Louis XV asked her to teach midwifery throughout France.

This Deluxe Flexible Pelvis Model demonstrates how the pelvis moves during labor. A fetal model can be used to show any presentation or positioning. The kit also includes models of the perineum and placenta so trainees can practice and master a range of birth-related skills.

3.3 BA Harrington (American, b. 1965) *Rocker, rock-her*, 2015 Poplar, Baltic birch plywood, milk paint Courtesy of the artist



Image: Madame du Coudray's handmade obstetric manikin, which she called "the machine," pictured at the Musee Flaubert et d'histoire de la médecine in Rouen, France. Photo by James Edmonson.

4. Means of Reproduction

Not all tools to monitor and control fertility have emerged from the realm of medicine; activists, designers, and entrepreneurs have also reimagined reproductive health, often alongside social movements. In the 1990s,16 organizations led by women of color founded the nonprofit SisterSong, launching a movement that defines reproductive justice as "the human right to maintain personal bodily autonomy, have children, not have children, and parent the children we have in safe and sustainable communities."

4.1 Deborah Willis (American, b. 1948) *I Made Space for a Good Man*, 2009 Lithograph, edition of 28 Printed at the Brandywine Workshop and Archives in Philadelphia Courtesy of the artist

"'You took the space from a good man.' These words do not belong to Willis but to a male professor who, in 1975, challenged the artist's position—her space—in a studio course at the Philadelphia College of Art. Thirty-four years later, the words resounded across the triptych of Willis's body. 'I decided to play with the words that haunted me,' she told Harvard Art Museums fellow Hannah Chew in a recent interview. The words morph with her body across the 1976 contact print, a series of photographic negatives brought into pink relief by the lithograph. An indefinite phrase ('A woman ...') turns to citation ('You took ...') and ends, with a raising of arms and eyes, in declaration ('I made ...'). From the multiplication of text and the transformation of print formats (photograph to lithograph), making space becomes a generative act. Willis makes space for herself; for her practice as an artist, historian, photographer, and writer; and for her 'good man,' her future son (and fellow artist) Hank Willis Thomas."

Written by Alejandro Octavio Nodarse for the exhibition *Prints from the Brandywine Workshop and Archives: Creative Communities*, March 4–July 31, 2022, Harvard Art Museums, Cambridge, MA.

4.2 Jennifer Ling Datchuk (American, b. 1980)
 One Tough Bitch, 2019
 Photograph/documentation of slip cast porcelain shards, overglaze, gold leaf edition 1/8
 Courtesy of the artist

4.3 *Two-Child Policy Poster*, 2007 Produced by the India Ministry of Health and Family Welfare Image courtesy of Alamy

4.4 Jihua shengyu haochu duo/Family planning has many advantages, 1974 Originally distributed in the People's Republic of China; reprinted for this exhibition courtesy of International Institute of Social History, Amsterdam

Policies designed to control population growth, whether by contracting or expanding birth rates, have long existed. This includes policies for masssterilization in the U.S., where legislation effectively dressed up eugenics in economic terms. In 1952, India was the first country in the world to launch a mass-media campaign to spread the concept of family planning in response to population growth. Most developing nations soon followed suit. In the 20th century, one country became the poster child-literally and figuratively-for these programs as a result of the visual propaganda it produced in pursuit of population control: the People's Republic of China. However, widespread concern over rising environmental issues and perceived overpopulation (which could often smack, at best, of diplomatic paternalism and, at worst, of eugenic fervor) led many governments to monitor their demographic booms and busts. This sentiment has not disappeared in the 21st century, though hand-wringing over declining birth rates has thus far failed to materialize improved policies for family leave, maternal and infant health, or fair compensation for caregiving.

4.5 Would you be more careful if it was you that got pregnant?, 1969 Photographed by Alan Brooking. Art Directed by Bill Atherton. Copywritten by Jeremy Sinclair Cramer Saatchi Advertising Agency (est. 1970, UK)

Poster for the Health Education Council, issued by the Family Planning ©Victoria and Albert Museum, London.

4.6 Herbert Bayer (American, born Austria, active Germany and U.S., 1900–1985)
The Menstrual Cycle Brochure, 1939
Schering AG, 1851
Herbert Bayer © 2022 Artists Rights Society
(ARS), New York / VG Bild-Kunst, Bonn
Original: Offset lithograph on paper, mounted on black paper
Courtesy of Cooper Hewitt, Smithsonian Design Museum, and the Artists Rights Society

In 1939, Austrian-born designer Herbert Bayer was commissioned by the

pharmaceutical company Schering AG to design illustrations for its new form of estrogen, Progynon-Band Progynon-DH. Bayer loved splicing and reassembling photographs and illustrations into photomontages. This colorful brochure is full of anatomical detail and depicts the menstrual cycle with cosmic reverence. The black background evokes a night sky, and a uterus at the center appears to radiate out into the universe. Bordered by phases of the moon, an ovum circles the page, its satellite journey proceeding from ovary to fallopian tube to uterus and beyond. The uterus appears in perfect harmony with the cosmos—an idealized view that reflected Schering AG's goal of promoting estrogen to correct "menstrual disturbances."

4.7 Jennifer Ling Datchuk (American, b. 1980) *Girl Dad*, 2024 Porcelain sourced from Jingdezhen, China Courtesy of the artist



Image: Installation view of "Girl Dad" at Houston Center for Contemporary Craft, by Jennifer Ling Datchuk. Photo by Graham W. Bell.

5. Monitoring

What we choose to observe and monitor can reveal our greatest aspirations and deepest fears. In the 20th century, designers harnessed science, technology, and the power of communication to create new ways of monitoring our bodies, as well as those of fetuses and babies. Forms of monitoring can be designed to empower individuals, families, and larger communities, but they can also negatively impact the way we perceive and react, magnify our anxieties, or compromise bodily autonomy and more intimate ways of knowing.

The journey to motherhood involves an immense amount of data collection, from calculating dates of ovulation to the weekly measurement of a fetus to the baby's birth weight. From there, the task only grows with the need to track weight gain, number of dirty diapers used, ounces of milk or formula consumed, hours of sleep. Although repetitive and at times monotonous, parenthood, like any skilled craft, requires attention to detail and the ability to adapt to the needs of the task at hand. Over time, countless midnight feedings, changed diapers, soothing embraces, dried tears, and developmental milestones pile up: one day, seemingly without warning, a newborn baby has become an independent child.

5.1 Fisher-Price Nursery Monitor, 1983 Fisher-Price (est. 1930, U.S.) Electronics with plastic casing Courtesy of the Designing Motherhood Archive

Considered a luxury item well into the 1970s, the baby monitor was a major shift in the way adults care for babies. It not only bridged rooms, but it also revolutionized the way we interpret babies' cries. Baby monitors helped further the notion that a baby's cry is a signal that must be noticed immediately and responded to promptly.

5.2 Liss LaFleur (American, b. 1987)

Katherine Sobering *Queer Birth Project Collection 2: on families*, 2024 Chrome bluetooth speakers, Czech glass, hand painted ceramic beads and aluminum Soundtrack and voice: Liss LaFleur Synthesizer and sound production: Clayton Norris Courtesy of the artists 5.3 Seung Lee (Korean-American, b. 1982) *The Sleep Blanket,* 2019 100% merino wool, DK weight Courtesy of the artist



Image: Seung Lee's The Sleep Blanket, a handmade textile that translates the first year of the artist's son's sleep data into a knitted pattern, is shown wrapped around his son. Photo courtesy of the artist.

5.4 Ani Liu (American, b. 1986) Untitled (Labor of Love), 2022 Data containing the first 30 days of feedings and diaper changes in caring for my newborn, breastmilk, diaper hydrogel, diaper cotton, glass, acrylic Courtesy of the artist

Artist Ani Liu gave birth to her second child in the same month that she took up a new professorship. She was not afforded any maternity leave, an experience common to many people in the US where around a quarter of postpartum people go back to work within ten days of giving birth.

Because she had no choice but to return to work immediately, Liu has spent a lot of time with her breast pumps, which allows her to continue creating breast milk for her infant to eat. Every month, she creates approximately 5.85 gallons of breast milk with her body, which is the volume shown circulating between this vitrine and tubes. While she can appreciate the technology that allows her to continue to feed her baby breastmilk, she questions the hidden labor ("My calendar is filled with half hour blocks reserved to pump and clean the parts") that occurs on top of all the other work she performs. The artist reflects:

Among the many places I've pumped: on the train, in various closets, in transportation stations, in restaurants, in parking lots, in bathrooms, and in my studio. In the beginning, the feeling of my baby's suckle and his cute face caused me to let down. These days, the mechanical rhythmic sound of my pump triggers the reflex. In my practice, I have long been interested in the relationship between technology and the body but my relationship with my pump really cemented the cyborg identity for me. I feel a certain intimacy with my pump, and in a way, it allows my body to feed through space and time.

5.5 Corey Ackelmire (American, b. 1981) *The Length of 5 Years: 1825 links*, 2022-2024 Sterling silver, gold solder Courtesy of the artist

Each of the 1,825 links in this substantial chain by Houston-based metalsmith Corey Ackelmire represents one day of her daughter's first five years. In the short windows of time available to her, often after her daughter went to bed, Ackelmire worked silver gauge wire into links and connected them, as the months and years progressed. Like many parents, Ackelmire was consumed by the act of counting as a way of monitoring her baby's health and wellbeing. It was a natural progression to metaphorically and literally link the work of motherhood to her practice as a metalsmith. An affecting visualization of data, this handwrought chain honors the compounded labor of motherhood in the accumulation of fine silver.

6. Parturition

Parturition is the process of delivering a fetus and placenta from the uterus to the outside world. Whether this process is vaginal, by Cesarean, at home, in a hospital, in a pool, or with an analgesic IV drip, it is surrounded by designs that shift dramatically depending on culture, politics, and economic situation. The designs shown here span centuries. Some were invented so that a medical professional could remove a living baby from a birthing person's body. Others speak to the metamorphosis that occurs when a baby emerges and so, too, does a new identity of the birthing person. These designs explore small elements of the wide spectrum of birthing experience, which are increasingly being oriented to the needs, comfort, and agency of birthing people and infants rather than just their survival or the ease of use of the medical provider.

6.1 ECG Toco Fetal Chart Paper, 2012 Vivid Medical Source 6" x 47' Corometrics Model 120 170 Monitor Courtesy of the Designing Motherhood Archive

An electronic fetal monitor (EFM) records a fetal heartbeat in utero to ensure that fetal oxygen supply is adequate. The EFM was first introduced in the 1960s without much evidence of its efficacy, yet the technology was swiftly embraced. Today EFM is used during labor about 90% of the time, according to the American College of Obstetricians and Gynecologists.

Observed changes in fetal heart rate can escalate the use of interventions, from limiting the movement of a birthing person to increasing the use of forceps and cesarean birth. These interventions often increase rather than reduce the risk of complications. In 2015, The New Republic called EFM machines "unnecessary and dangerous." The WHO confirms that "continuous cardiotocography is not recommended for assessment of fetal well-being in healthy pregnant women undergoing spontaneous labor." The view that EFM has no positive effect on infant or maternal outcomes has been clearly articulated in scientific and medical literature, yet EFM machines still crowd labor and delivery wards.

6.2 Raven Lang (American, b. 1943) Birth Book, 1972 Courtesy of the Designing Motherhood Archive

Knowledge from birth workers has often been passed down orally. In the early 1970s, self-trained midwife Raven Lang opened a birth center in Santa Cruz, California, and wrote the *Birth Book*. She found a potential publisher but was told that she would have to remove all pictures of female genitalia. She chose instead to self-publish.

6.3 *The Lamaze Method: Techniques for Childbirth Preparation*, 1983 Produced by Embassy Home Entertainment, 1982

Painless Childbirth: The Lamaze Method, 1979 Fernand Lamaze (French, 1891-1957) Courtesy of the Designing Motherhood Archive

French obstetrician Dr. Fernand Lamaze introduced the Lamaze method in 1951, which was heavily informed by a trip to what was then the Soviet Union, where he studied the medical findings of Ukrainian psychotherapist Dr. I. Z. Velvovskii. The Lamaze method consists of relaxation strategies, breathing techniques, childbirth education, and emotional support from a specialized nurse. The familiar "hee, hee, hoo!" seen in Hollywood portrayals of childbirth was popularized in part through Marjorie Karmel's 1959 book *Thank You*, Dr. Lamaze, which promoted the Lamaze method with U.S. audiences.

6.4 Michelle Leclaire O'Neil, PhD, RN (American, active 21st century) Creative Childbirth: The Leclaire Method of Easy Birthing Through Hypnosis, 1991

Marie "Mickey" Mongan (American, 1933–2019) *HypnoBirthing: The Mongan Method*, 1992 Courtesy of the Designing Motherhood Archive

In his books *Natural Childbirth* and *Childbirth Without Fear*, British obstetrician Grantly Dick-Read claimed that "healthy childbirth was never intended by the natural law to be painful." Hypnosis, he argued, would assist birthing people in interrupting the "fear-tension-pain syndrome," a vicious cycle in which fear of pain contributes to pain and affects the circulation of blood by directing it away from reproductive organs to larger muscle groups in the ligaments.

This new approach launched a movement in the U.S. during the 1970s. By the 1980s, two birth educators were promoting the importance of focusing inward, reframing labor sensations as positive and productive, and feeling safe and relaxed. Marie "Mickey" Mongan and Michelle Leclaire O'Neill both used the term "HypnoBirthing" to describe their technique without either holding a trademark. A decade later, Mongan filed a lawsuit against Leclaire O'Neill for common law trademark infringement. The case was dismissed, and today both educational programs lay claim to HypnoBirthing in their birth training.

6.5 Dr. Bernhardt Kronig (German, active 1850s) Dr. Karl Gauss (German, active 1850s) *Twilight Sleep Advertisement*, c. 1914

Courtesy of the Designing Motherhood Archive

In 1906, obstetricians Bernhardt Kronig and Karl Gauss presented research at the Berlin National Obstetrics Conference on a birthing method they called Twilight Sleep. Touted as a "painless labor" alternative, the method involved injecting the laboring person with morphine at the start of birth pains, and then administering doses of *scopolamine*, an amnesiac with hallucinogenic side effects. As the baby's head emerged, chloroform could also be administered. The drug combination was designed to erase the memory of labor pains, but it was not always effective.

Dr. Elizabeth Taylor Ransom promoted Twilight Sleep in her newly founded maternity hospital in Boston. In 1915, a patient who had been an advocate of Twilight Sleep (Frances Carmody) died during its use while she was in labor with her third child. Although the national news coverage lessened the method's popularity, Twilight Sleep was used well into the late 1960s.

6.6 Chamberlen Forceps, Locking, 19th c. reproduction of a 17th c. design Designed by the Chamberlen Family, England

Smellie Straight Forceps, c. 1752 Designed by Dr. William Smellie, England

DeLee Forceps, c. 1913 Manufactured by Lawton, Germany On Ioan from the Mütter Museum of the College of Physicians of Philadelphia

Forceps are used to grasp a baby's head, hold it firmly, and exert traction to assist with vaginal birth. Their use has always been controversial. Forceps were invented in the late 1600s by the Chamberlen (or Chamberlain) family in England. They promoted midwifery based in part on their invention, which they kept a family secret. After more than a century, they sold the design, and over subsequent centuries, medical providers introduced modifications. Scottish obstetrician William Smellie (1697–1763) separated the blades for more comfortable insertion and, in some cases, to conceal the forceps from his patients, which meant that consent may not have been provided. He also wrapped leather around the blades, believing this adaptation would reduce the temperature difference between the steel and the body. However, the absorbent leather could not be properly sanitized between uses and thus posed an infection risk.

6.7 *Exam Table Stirrups*, c. 1885 Canton Surgical and Dental Co., U.S. On Ioan from the Mütter Museum of the College of Physicians of Philadelphia

The *lithotomy position*—in which a person lies on their back with legs raised and bent at the knees, often with their feet in stirrups—is commonly used for pelvic exams and surgical procedures. This posture is also common in hospital births. An increasing number of providers are now working with patients to address the discomfort that many associate with this position. As Chicago-based midwife Stephanie Tillman says, "Many providers see stirrups or foot pedals as making their day easier because they keep everyone in the same position and facilitate getting to the cervi easily. But we can get to the cervix easily from many different positions. Having people find their most comfortable position and working around that ultimately takes less time."

6.8 Birth: A Film about Feelings and Experiences, 1986 Directed by Sheila Kitzinger Photography by Ivan Strasburg, Diane Tammes, and Mike Fox Sound by Mike McDuffie Edited by Franco Rosso A National Childbirth Trust Film produced by Julian Aston Productions

This film contains testimonials from women who have recently given birth, talking candidly about how they felt physically and emotionally leading up to and after delivery. The first-person accounts are interlaced with scenes of a woman who is giving birth at home, accompanied by a midwife, a doctor, and her husband. Birth advocate Sheila Kitzinger is seen hosting a National Childbirth Trust class, and Dr. Frédérick Leboyer (author of *Birth Without Violence*) talks about the benefits of birth in water.

6.9 *Birthing Stool*, 2020 Manufactured in the US Poplar wood Courtesy of the Designing Motherhood Archive

Birthing furniture and other objects, such as backless stools, have balanced and supported laboring people for centuries across cultures, ethnicities, and geographic regions. An Egyptian wall relief, dating to 1450 BCE, depicts the stool that held Queen Mutemwia during the birth of her son Amenhotep III. The body's position on the stool uses gravity as the newborn emerges from the womb, while the structure engages the birthing person's abdominal, back, stomach, legs, arm, and vaginal muscles.

7. Postpartum

After a baby has entered the world and after the placenta has emerged, the uterus that held them continues to bleed for days or weeks. Nearly every person who has given birth feels stinging when peeing, winces when sitting down, and is reminded of the aftereffects of birth with each glance downward. The designs in this section reflect various phases and experiences after childbirth, called the *postpartum period*.

7.1 (1) Hollow Plastic Ring Pessary

- (2) Self Retaining Cutter's Retroversion Pessary
- (3) Reia Pessary Prototype 1
- (4) Reia Pessary Prototype 2
- (5) Reia Pessary Final to Market Prototype

1-2 on loan from the Mütter Museum of the College of Physicians of Philadelphia, 3-5 courtesy of Reia

Pelvic organ prolapse is a widespread condition caused by a weakening of the pelvic floor muscles that allows the pelvic organs to descend into the vaginal canal. In extreme cases, the uterus may descend through the vagina and protrude outside the body. Prolapse affects a staggering 50 percent of people with vaginas over the age of 50, and while it's not life-threatening, it can be life-altering in terms of one's relationship with one's own body, sex life, and mobility. Despite its prevalence, most people don't hear about prolapse until their diagnosis for reasons that range from lack of investment in design for women's health to shame and embarrassment about reproductive health.

A pessary is a device inserted into the vaginal canal to support descending organs. In the past, pessaries have included pomegranates and balls of wool, or have been made from unyielding materials like wood, metal, or glass, which were difficult for people to insert and remove independently. An all-female design team at Reia redesigned the pessary to be collapsible for easy insertion and removal. By collapsing to half its diameter, Reia's silicone pessary is designed to be easier to put in for exercise and to take out. The designers' goal is an approachable design that provides dignity and confidence to its users.

7.2 *Medical Bill for a Cesarean Birth in the United States*, c. 1940s Courtesy of the Designing Motherhood Archive

Childbirth in the U.S. costs more per capita than in any other high-income country. Of those births, 99% take place in hospitals. More hospital stays in the U.S. are for pregnancy, childbirth, and newborn care than for any other reason. In 2017, the average cost for hospital fees alone was US \$11,200 for

a vaginal birth and US \$15,000 for a cesarean birth when covered by private insurance. Costs can be even higher for the uninsured or underinsured. Home birth is not universally covered by health insurance, but many midwives accept Medicaid and have the ability to customize bills for their patients.

7.3 ScarAway® Clear Silicone Scar Sheets for C-Section, 21st century Courtesy of the Designing Motherhood Archive

Silicone scar strips like ScarAway® are often used to reduce the itchiness and discomfort of a healing incision after a cesarean birth.

7.4 John L. Cox (Scottish, active 20th century) Jenifer Holden (Scottish, active 20th century) Ruth Sagovsky (Scottish, active 20th century) *The Edinburgh Postnatal Depression Scale*, 1987 Courtesy of the Designing Motherhood Archive

An estimated one in seven postpartum people in the U.S. suffers from postpartum depression. Ranging from "baby blues" to severe psychosis, postpartum mental distress is common yet often undiagnosed or underdiagnosed due to both stigma around mental illness and stereotypes of maternal joy. The Edinburgh Postnatal Depression Scale was designed to set a threshold for clinical intervention. While its 10-question format provides a means to assess mood, its designers insisted that it be considered holistically in relation to a patient's wider social support system.

7.5 Mabel Liddiard (British, 1882-1962) *The Mothercraft Manual*, 11th edition, 1938 Courtesy of the Designing Motherhood Archive

"It is not conceivable that women entering into any other vocation of life would think of undertaking it without deliberate preparation. Motherhood is so precious and wonderful that we fear to think of it in terms of definite preparedness. We like to think that it comes natural to be good mothers and that to study in preparation for it or to analyze it might produce more harm than good." So wrote Mabel Liddiard, founder of the Mothercraft Training Society, which established its own infant welfare clinic in London, with a dietetic hospital, and ran a yearlong training course from which students emerged as qualified nursery nurses.

7.6 Staylastic

Elastic Maternity Stretch panel #696, c. 1940-50 Courtesy of the Designing Motherhood Archive

Belinda Musgrave Patterns for Pregnancy, 1987 Courtesy of the Designing Motherhood Archive

With the abandonment of any pretense that pregnant women should attempt to maintain the dangerously wasp-waisted mid-century silhouette, in the later twentieth century maternity fashions began to adopt looser silhouettes. Lightweight stretch fabrics were increasingly available in ready-to-wear garment designs, although one tried-and-tested way to make maternity fashion meet one's own personal style is to sew at home or get something tailor-made.

7.7 Anna Liebmann (Scottish) Organic Woven Willow Rattle, 2024 Willow, Carlin peas Courtesy of the artist

Marcia Lewis (American) *Untitled (Rattle*), c. 1970 Sterling silver, plastic Courtesy of the artist

Knotwork LA Linda Hsiao (American, b. 1982) *Wooden Baby Rattle: Carabiner*, 2013 Oregon oak, popcorn, mung beans Courtesy of the artist

Wooden Baby Rattle: Round, 2013 Walnut, popcorn, mung beans Courtesy of the artist

7.8 Prefold Cloth Diaper and Snappi Fastener, 2017 Unbleached birdseye cotton and polyurethane Courtesy of the Designing Motherhood Archive

7.9 Scottish Baby Box, 2017–ongoing Courtesy of the Scottish Government

Between the two world wars, a new generation of community-minded officials and organizers in Finland worked together to address urgent social and economic concerns. In 1938, the Finnish Social Welfare Committee introduced the *äitiyspakkaus*, a box packed with baby clothes and baby-care items for low-income parents. By 1949 and continuing to today, the benefit was available to all expectant Finnish citizens, including adoptive parents.

Inspired by the Finnish precedent, the Scottish Baby Box was designed to give every child in Scotland an equal start in life. The box contains everything from baby clothes and a blanket to a thermometer and nursing pads. The box itself can also be used as a crib, and its exterior can be colored in by family members.

7.10 Jess T. Dugan (American, b. 1986) Self-portrait with Vanessa and Elinor (2 days old), 2018 Archival pigment print Courtesy of the artist

Jess Dugan is an American-born artist whose creative practice centers around an exploration of identity—particularly gender and sexuality— through photography, video, and writing. As a queer, non-binary person, Dugan is motivated by an existential need to understand and express themself and connect with others. Their intention is to create work that facilitates intimacy and encourages empathy, understanding, and critical conversations about identity and contemporary social life.

In 2011, the artist began an ongoing project photographing their family. *Self-portrait with Vanessa and Elinor* (2 days old) was an unplanned addition to the series, made in the hospital when the new parents realized they had some quieter moments in the immediate postpartum period.



Image: Sara Hubbs, Weaning Vessels Series, 2024. Mold-blown glass, cold-worked. Dimensions variable. Photo courtesy of the artist.

8. Milk

Milk can be nursed, extracted by a pump, obtained from donors, or created in a lab and sold over the counter. For some, feeding babies is a deeply enjoyable or even sacred act, and for others it can be a fraught business. Debates over what is "best" often drown out the truth that empowers people to make the decisions that feel right for them. The World Health Organization (WHO) guidelines encourage breast milk as an appropriate source of nutrition for infants through six months of age and beyond. This recommendation respects cultural and economic realities for many, but for others it is impossible due to individual well-being or a lack of appropriate public or workplace accommodations. In the U.S., almost a quarter of postpartum people return to work within 10 days of giving birth, making it often impossible to continue to produce milk and meet WHO recommendations. While the designs here may appear to ease feeding, what they don't show is the labor involved, which—whether it's endless breast pump sterilization or cracked nipples—often falls to women.

8.1 Sara Hubbs (American, b. 1978)

The Weaning Vessels: Mother Daughter Mother, Claw Clip, BB's, Hairpin, 2024 Mold-blown glass, cold-worked Courtesy of the artist

Weaning Fountain, 2021 Digital video Duration, 43 sec, Edition of 2 of 9 Courtesy of the artist

8.2 Francesca Fuchs (American/British, b. 1965)

Baby 1, 2004 Acrylic on canvas Courtesy of the artist and Inman Gallery

Baby 2, 2005 Acrylic on canvas Courtesy of the artist and Inman Gallery

This series of paintings by Houston-based Francesca Fuchs depicts the artist breastfeeding her youngest son. The monumental scale of the paintings points to the all-consuming practice of nursing an infant in the first months of life. These works capture how a mother and baby still share a body in the so-called "fourth trimester," reflected here as the artist's body becomes a

wall-sized landscape on which the figure of her baby is positioned. Although breastfeeding is an act that unites all mammalian life, often the process requires assistance and is learned and honed over time.

Fuchs' 2015 essay "Artist and Mom" is available in the reading room.

8.3 Aimee Koran (American, b. 1982) Chromed Life (Machine Pulled), 2020 Chrome-plated breast pump Courtesy of the artist

Artist Aimee Gilmore explores care work that is often heavily gendered, socially devalued, and unpaid. By adding a chrome veneer to everyday objects, her work brings focus to their designs and makes permanent a moment in parenting that can seem both fleeting and interminable. Gilmore writes, *"Chromed Life (Machine Pulled)* is made by the vacuum metalizing process that more commonly makes trophies. This chrome series highlights the tension that arises between the technologies that exist to assist us but that also impel or compel care workers and mothers to, in turn, work more."

8.4 Madeline Donahue (American, b. 1983)

Biological Clock, 2021 Glazed ceramic Courtesy of the artist

Aerial, 2021 Glazed ceramic Courtesy of the artist

Sphynx, 2021 Glazed ceramic Courtesy of the artist

8.5 Crochet Breastfeeding Demonstration Set, 2024

Part of the history of functional craft, this type of breastfeeding demonstration aid is popular with midwives and (in the UK) with health visitors, midwives and nurses that visit postpartum people at home as part of the free National Health Service. They are used to show the best way to get a baby to latch on to the nipple and how to mold or hold the breast to get the nipple in the right position for the baby's mouth. They're also used to teach how to express milk and how to deal with problems like blocked ducts. Downloadable patterns abound, for example, on the website of the Lactation Consultants of Great Britain.

8.6 Glass Nipple Shield, c. 1800–1850

Boxwood Nipple Shield, c. 1775–1825

Pewter Nipple Shield Containing Lead, c. 1850–1900 Manufacturers unknown On Ioan from the Mütter Museum of the College of Physicians of Philadelphia

A nipple shield is worn over the areola and nipple during breastfeeding to provide a larger surface for the baby to latch onto and also offer some protection to the nursing parent. Modern nipple shields are made of soft, thin, flexible silicone and have holes to allow the breast milk to pass through, much like these 18th and 19th century examples. The glass design caught milk under clothing between feedings, with a hole to empty collected milk.

- 8.7 Galen Boone (American, b. 1990) *MOTHER | Nipple Shields*, 2018 Copper, vitreous enamel, bone, silver Courtesy of the artist
- 8.8 Phenix Breast Pump, c. 1879 Manufactured by Whitall Tatum & Co., USA On loan from the Mütter Museum of the College of Physicians of Philadelphia

Einar Egnell (Swedish, 1880-1976) Sister Maja Kindberg (Swedish, 20th century) *Egnell SMB Breast Pump*, c. 1956 Courtesy of the Designing Motherhood Archive

Einar Egnell, a Swedish civil engineer, was one of the first mechanical breast pump designers. In the mid-1950s, after a gynecologist friend challenged him to improve upon existing technologies, Egnell started with human anatomy rather than that of cows, on which previous mechanical pumps had been based. His breast pump was named for "Sister Maja" Kindberg, the nurse who collaborated on its testing with new mothers in Stockholm's maternity hospital. Breast pumps were initially restricted to medical spaces until the early 1990s, when the home electric pump became widely available. In 2010, the breast pump experienced its biggest public boost in the U.S. when the Affordable Care Act mandated that health insurance cover its cost.

8.9 Make the Breast Pump Not Suck Team, 2018 MIT Media Lab, Cambridge, Massachusetts www.makethebreastpumpnotsuck2018.com Courtesy of the designers

The breast pump is often praised as a timesaving device that makes extracting breastmilk look effortless. Yet the effort required to use the pump has not been matched by efforts to improve its design.

A multidisciplinary group of more than 100 designers, technologists, and community partners met in 2014 at the Massachusetts Institute of Technology's Media Lab to reimagine the future of breastfeeding. Called "Make the Breast Pump Not Suck," the project centers the experiences of breastfeeding people, embraces the perspectives of marginalized people, and breaks taboos related to bodies and bodily fluids. A second gathering in 2018 widened the focus to policies surrounding paid leave, breastfeeding in public, and health care innovation. Through its "hackathon" format, the project has played an interventionist role by using the breast pump to expose the need for family leave policies.

8.10 Gerber Battery/Electric Breast Pump Kit, 1990s Courtesy of the Designing Motherhood Archive

Haakaa Breast Pump, 21st century Courtesy of María-Elisa Heg

Willow Wireless Breast Pump, 2021 First generation released in 2017 Courtesy of the Designing Motherhood Archive

The market for breast pumps has reached up to US \$7 million with room to grow, according to a 2017 article in The New Yorker by Jessica Winter, who wrote about the amount of money Silicon Valley kingmakers were "leaving on the table by shunning women and mothers and babies." Newer designs are finally reaching the market. The Haakaa pump attaches to the breast with suction and can work mechanically or manually. The Willow pump has no tubes or electrical cords and tracks the amount of milk pumped on a mobile app.

8.11 Maria Eife (American, b. 1977)

Dress Flanges, 2019 Nylon and metal Courtesy of the artist

Invited to create a work in response to the collection of the Mercer Museum in Doylestown, Pennsylvania, Philadelphia-based jewelry designer Maria

Eife gravitated toward the butter prints housed in the museum's dairy room. Generations before, pats of butter were pressed into these prints to give them each a decorative shape that would make it stand out from that produced by other vendors. As a new mother, Eife felt a kinship with these milk-oriented designs that allowed the production of milk to shine instead of, as she was beginning to experience with her own breastfeeding, remain secret. Her response was to create these dress flanges, both 3D printed and fashioned in metal, lavishing care on their design. The intention is that they are worn with pride, adorning the part of a pump as it attaches to the breast that are otherwise standard and usually never seen in public.

8.12 Various Baby Bottles, 20th–21st century Courtesy of the Designing Motherhood Archive

Before the modern nursing bottle, infants were fed milk out of any container with a spout or narrowed end. In the 1840s, the American inventor Elijah Pratt patented his design for a rubber nipple, and further developments came through the invention of heat-resistant glass and plastic. By the 1940s, the U.S. Patent Office had issued more than 200 patents for baby bottle designs. As bottle shapes have evolved, design goals such as improving milk flow and mimicking the nipple's shape have remained the same.

8.13 Shilo Ben Zeev (Israeli)

Emulait Anatomy Bottle, 2024

New Orleans Breastfeeding Center (American, New Orleans, LA) Infant Ready[™] Emergency Feeding Kit, 2024 Supplies families need to safely feed their children ages 0-2 years old in an emergency: hand sanitizer, alcohol prep wipes, disposable medicine cups, breastmilk storage bags, cooler bag and disposable ice packs, permanent marker, nursing cover, LED light, bottled water, education booklet, facemask

Courtesy of Birthmark Doula Collective

8.14 Milkify (American, est. 2018 in Houston, TX) *The Future of Infant Feeding*, 2024 100% human milk, freeze-dried Courtesy of Milkify

Aimee Koran (American, b. 1982) Celestial Body Beads, 2024 Dried breast milk in resin, elastic cord, polyester tassel Courtesy of the artist



Image: Sara E. Hubb's contemporary mold-blown glass forms were inspired by late Bronze Age and early Iron Age ceramic weaning vessels that demonstrate ancient bottle-feeding practices. Photo by K. Rebay-Salisbury.

3. Our Bodies Ourselves

The latest edition of *Our Bodies, Ourselves*, published in 2011 and more than 900 pages long, is a far cry from its originating documents—a Xeroxed sheaf of handwritten notes passed among women in Boston in 1969. Originally titled *Women and Their Bodies*, the text was collaboratively written by the Boston Women's Health Book Collective, a group of White middle-class women. That first text included an essay on the intersection of women, medicine, and capitalism, and chapters on basic anatomy, sexuality, sexually transmitted diseases, birth control (including abortion), pregnancy, childbirth, and postpartum care. First-person testimonials formed the core of the book, overriding predominantly male doctors to place trust in women's own embodied experiences. By highlighting social and cultural norms (including stigmas) around human reproduction, as well as the designs that have emerged to challenge or change them, this section explores complex topics related to bodily autonomy.

- 9.1 Galen Boone (American, b. 1990) *MOTHER | Menstrual Pour*, 2018 Silver, silk, jasper, coral Courtesy of the artist
- 9.2 Jane Hartman Adamé (American, b. 20th century) Andy Miller (American, b. 20th century) *FLEX Cup* (originally Keela Cup), 2017 100% Medical grade silicone

DIVA Cup, 2003 100% Medical grade silicone

All Matters Menstrual Cup (originally OrganiCup), 2012 100% Medical grade silicone

Ultucup, 2018 100% Medical grade silicone Courtesy of the Designing Motherhood Archive

Menstrual cups are more affordable and environmentally friendly than disposable alternatives and can last about 10 years. Their design dates back as far as the mid-19th century. In 1932, the midwifery group McGlasson and Perkins improved the menstrual cup by developing a bullet-shaped prototype out of rubber. In 1935, former Broadway actress Leona Watson Chalmers designed what would eventually become the first commercially available menstrual cup, and she later collaborated with businessman Robert Oreck to produce the Tassette. (*Tasse* means cup in French and, with the suffix *-ette*, indicates a little cup). Today, menstrual cups are more popular than ever, with everyone from global health advocates to large companies promoting their efficacy, comfort, affordability, and sustainability.

9.3 Freedom Pads, late 20th century Cotton Courtesy of the Designing Motherhood Archive

New Modess Luxury Sanitary Napkin Belt, mid 20th century Elastic, metal hooks Courtesy of the Designing Motherhood Archive

Fax, 1930s Cotton Courtesy of the Designing Motherhood Archive

Tampax, 1936 Cotton Manufactured by Tampax Courtesy of the Museum of Menstruation

Many reproductive health products owe their development to wartime designs and technologies. During World War I, U.S. Army nurses repurposed a cotton substitute that was used to absorb blood, called Cellucotton, for their periods. After the war, businesses quickly commercialized Cellucotton to sell leftover products. This modest invention proved groundbreaking. By the early 1920s, Kimberly-Clark's Kotex brand was born. Since then, some "feminine hygiene" brands have become near-universal. The Tampax brand produced a compressed cotton tampon with a cardboard applicator. Invented by American doctor Earl Hass and patented in 1933, the applicator allowed insertion without touching the vagina. It was marketed as "hygienic and discreet." In 1969, Kotex introduced a new innovation—the Stayfree mini pad—that adhered to underwear and eliminated the need for safety pins and belts to keep the pad in place.

9.4 Madeline Donahue (American, b. 1983) *Pregnancy Tests*, 2021 Glazed ceramic Courtesy of the artist

9.5 Dr. Hubertus Rechberg (German, 1948-2019) Dr. Werner Steinschulte (German, active 20th century) Natalie Rechberg (German, b. 1980) Niklas Nathe (German, b. 1985) Herman Ramsauer (German, b. 1964) Klaus Puchinger (German, b. 1965) Therese Naef Milani (Swiss, b. 1971) Britta Pukall (Swiss, b. 1965) *BABY-COMP®1.0*, 1986 AEG Berlin and Valley Electronics, founded 1986 in Germany Courtesy of the Designing Motherhood Archive

In 1983, German businessman, Dr. Hubertus Rechberg, laid the foundation for a series of fertility trackers when he and his wife searched for alternatives to hormonal contraception. His computational design for cycle tracking combined a thermometer with a computer and software. Users simply measured their basal body temperature under their tongue with the device in the morning, immediately after waking up and before getting up. Three years later, Dr. Rechberg founded Valley Electronics GmbH and launched the world's first fertility tracker: the Baby-Comp. The company's products have been continuously developed, with Dr. Rechberg's daughter, Natalie, working with an all-female Swiss design team to create the Daysy 1.0 (2014) and Daysy 2.0 (2019), the latter of which incorporates a smartphone app. These designs allow users to make informed choices about their menstrual cycle, their fertility, and their body.

9.6 Bethany Edwards (American, active 21st century) Anna Couturier Simpson (American, active 21st century) *LIA*, 2018 Courtesy of the designers

LIA Diagnostics Inc. is rethinking the home pregnancy test as a plasticfree and -discreet experience that can be flushed away shortly after use, reducing the impact on the environment and increasing privacy. The company name is a play on the scientific term *lateral immunoassay*, a type of rapidly readable fiber test strip integral to a pregnancy test. The designers developed a biodegradable paper—lighter than six sheets of two-ply toilet paper that remains durable when in contact with urine, yet breaks down almost immediately when flushed. Since Margaret Crane's original design in the late 1960s, the form and aesthetics of pregnancy tests have rarely received innovative attention, a common story in women's reproductive health. Today, young designers are increasingly focused on this field, challenging both social taboos and the historically gendered nature of the design world.

9.7 Josh Wasserman (British, active 21st century) Royal National Institute of Blind People, UK Tactile Pregnancy Test prototype, 2020 Courtesy of the designer

Blind or visually impaired people taking a pregnancy test almost always have to rely on others—sighted partners, friends, healthcare workers, or strangers—to tell them their results, which can feel intrusive, belittling, and uncomfortable. This new pregnancy test developed by the Royal National Institute of Blind People (RNIBP) attempts to address this issue. Created by Josh Wasserman, an independent designer, the prototype is larger than the conventional urine-stick test and features bright yellow and pink panels so people with low vision can differentiate the top from the bottom. It works with the same existing technology sensors but relays information through tactile bumps. A small bump on the underside of the stick confirms that the urine has been absorbed by the pad and a separate set of bumps on the stick's top side raises to indicate a positive result. In its accessibility to all users, not just those with sight loss, it is an example of universal design.

9.8 Omniflex Diaphragm (size 75), 2021 Manufactured by Cooper Surgical (est. 1990, The Netherlands) Silicone, reusable plastic container Courtesy of the Designing Motherhood Archive

Diaphragms have been around nearly as long as sex has. In ancient times, people inserted items like leaves and lemons into the vagina, but the first recognizable diaphragm was developed in the 1880s by German gynecologist Wilhelm Mensing. Mensing published the first description of a rubber contraceptive device with a spring molded into the rim that was sold as an effective barrier method of birth control. Birth control activist (and eugenicist) Margaret Sanger learned about the diaphragm in the 1910s and illegally imported large quantities of diaphragms from Germany and the Netherlands.

The diaphragm became one of the most widely used contraceptives in the US in the twentieth century. According to Planned Parenthood, they are 94 percent effective when used correctly every time. In 1940, one-third of all American couples used a diaphragm for contraception. That number dropped dramatically after the 1960s introduction of the IUD and the pill. Today, most public health professionals perceive the diaphragm as having low acceptability. Yet, the diaphragm remains an important contraceptive option for people who can't or don't want to use hormones or Intrauterine Devices (IUDs).

9.9 *Protest Buttons*, c. 1960s-1990s Courtesy of the Designing Motherhood Archive

Social justice buttons have been popular as a way to advertise individual or collective demands, desires, and beliefs since the pin-back button was first invented at the turn of the twentieth century. Take for example, the image of a wire coat hanger emblazoned on a button. In the 1960s and '70s, as Americans argued over legalizing abortion, supporters of abortion rights sometimes held coat hangers aloft as an eloquent, grisly reminder that desperate women used them—and other methods—for horrific, sometimes fatal self-induced abortions.

René Lee Henry (American, b. 1970) CHOICE, 2022 Copper, resin, steel Courtesy of the artist

9.10 Birnberg Bow IUD

Unidentified 375 Copper Coil IUD Margulies Spiral IUD Hall-Stone Type Ring IUD: Uterine Shaped Lippes Loop IUD Majzlin Spring IUD Saf-T-Coil IUD Cushion Shaped Disc ICD (Intracervical Device) in 14 Karat Gold Unidentified Silver IUD Paragard Copper IUD Mirena IUD Dalkon Shield IUD On Ioan from the Mütter Museum of the College of Physicians of Philadelphia

IUDs are regulated in part because of side effects experienced by women who used the Dalkon Shield in the 1970s and 1980s. After the Dalkon Shield had been prescribed to 2.5 million women, it was found to have caused widespread pelvic inflammatory disease and infertility because its multifilament string allowed bacteria to enter the uterus. Loretta J. Ross, a pioneer of the reproductive justice movement, shared her story to prevent future generations from suffering as she did:

The design flaw was the wick [that] caused an infection and caused me to lapse into a coma. I underwent a total hysterectomy at the age of 23 that ended my fertility prematurely. By age 25, I was experiencing menopausal symptoms. I wasn't able to give permission for the hysterectomy; there was no informed consent. I did not wake up until the doctor who had performed my hysterectomy was standing by my bedside. He was the same doctor who for six months had been misdiagnosing my symptoms as a venereal disease, or what we call an STD [sexually transmitted disease] today. He didn't remove the Dalkon Shield until my fallopian tubes erupted.

9.11 Manual Vacuum Aspiration Foot Pump, c. 1960 Metal, plastics Courtesy of IPAS (International Project Assistance Services)

This foot-pump-activated manual vacuum aspiration (MVA) is used to perform abortions in the early weeks of pregnancy. Once the tube is fed through the cervix and into the uterus, the foot pump is activated to create a vacuum, which extracts the contents of the uterus into the jar. This twentieth-century foot pump for use by medical providers and its cousin, the at-home Del Em, are part of a long history of the collective struggle over control of the uterus.

9.12 Cynthia Mulcahy (American, b. 1966) *Abortion Seed Library (War Garden series)*, 2022 Seeds, flora, glass tubes, cork, gold foil-stamped pink Italian book cloth, marbled paper, board, archival glue Edition of 10/2 AP with numbered colophon from Cloverleaf Studio Courtesy of the artist and Talley Dunn Gallery, Dallas

Plants traditionally used to terminate a pregnancy-aka abortifacientshave a long history in world societies. The names of abortifacients populate literature from ancient Egyptian cuneiform texts and Greek plays of classical antiquity to early medieval illustrated herbals and Islamic medical texts. The abortifacient seeds and accompanying flora that comprise the 48 glass vials of the Abortion Seed Library are variously sourced from ancient Babylonian recipes, 8th-century Sanskrit texts, Greco-Roman literature, Middle English herbals, Inquisition ecclesiastical proceedings, herb gardens of medieval Benedictine nuns, a 12th-century bishop's pharmacopoeia, and early rabbinical writings. Other seeds come from traditions of Native American indigenous societies and First Nations peoples of Canada as well as the shared knowledge of early American enslaved women, midwives and apothecarists. The rest are based on texts from Founding Father Ben Franklin, 18th-century novelists Daniel Defoe and Laurence Sterne, modern scientific studies, Ayurvedic medicine, and Simon & Garfunkel and Nirvana lyrics.

9.13 Ani Liu (American, b. 1986)

Untitled (pregnancy menswear), 2020 Silk organza, suiting boning Courtesy of the artist Ani Liu is a research-based artist working at the intersection of art and technoscience who exhibits internationally. Integrating emerging technologies with cultural reflection and social change, Liu's work examines the biopolitics of reproduction, labor, and care work. This suit is "a sketch of an idea," an ongoing project informed by a series of conversations between the artist and trans and nonbinary persons regarding fertility.

9.14 Alicia Eggert (b. 1981)

OURs, 2022-2024 Neon, custom controller, steel, paint, sandbags Neon bending by Amy Enlow Fabrication assistance provided by Megan Scoma and Allison Wentworth Courtesy of the artist

Cycling the words, "OUR BODIES," "OUR FUTURES," and "OUR ABORTIONS," this neon sculpture by Dallas-based Alicia Eggert is a largescale version of a sign that accompanied a 2022 cross-country tour with Planned Parenthood. Its first stop was the Supreme Court of the United States in Washington, D.C., where the 1973 decision of Roe v. Wade upheld the right to legally terminate a pregnancy. For over 50 years, a majority of Americans have consistently supported abortion access - from 54% in a 1975 Gallup poll, to 63% in a 2022 Pew Research Center poll. Nevertheless, on June 24th, 2022, Roe v. Wade was overturned. With near-total bans on the procedure in primarily southern states, where a majority of black, trans, and nonbinary people of reproductive age live, the tragic effects of this decision continue to make headlines. Humans have always exercised reproductive choice, from procedures chronicled in the 7th century BCE Indian epic The Ramayana, to Ancient Roman records of herbal abortifacients. OURs (2022) affirms that the ability to choose when, how, and why to reproduce defines both past and future.

9.15 Martha Poggioli (Australian, b. 1988) Incomplete Patent Chronology, 1838-2021, Scheme A61F (6/00, 6/06, 6/08, 6/14 & 6/20), 2018-ongoing Courtesy of the artist

This timeline shows an evolution of reproductive tools and devices. Each object depicts a unique patent claim related to IUDs, pessaries, and other insertable devices. The drawings are proposed inventions within the category "A61F" in the Cooperative Patent Category classification system. Patents on this map are from the U.S., China, Russia, Japan, Denmark, France, South Korea, Spain, Switzerland, and the UK. As online databases containing these kinds of patents continue to expand, so too will this chronology, which will likely never be complete.

9.16 Tarina Frank (American, b. 1989) *Nursing Mothers*, 2022-2024 In collaboration with John Runnels Photograph and paper weaving on canvas Courtesy of the artist

9.17 Patti Lou Richardson Mother and Child, 1996 Acrylic on canvas Courtesy of the artist

This is a portrait of Regá Richardson Waggett, a pioneering advocate in the breastfeeding movement, painted by her mother. An attorney and former member of La Leche League, Regá played a key role in the passage of Texas's first breastfeeding law, Section 165 of the Texas Health Code, in 1995 (only three other states had done so by this year). Her advocacy began when a nursing mother was asked to leave a Houston museum, prompting Regá to organize a public rally that gained significant media attention and support from then-Texas State Representative Debra Danburg and then-Senator John Whitmire (now Houston's Mayor), leading to the drafting and passage of HB 359 in one legislative session.

10. Temporary Bodies

Coined by fashion historian Lauren Downing Peters, whose work focuses on cultural constructions of body size and shape in fashion, the notion of a "temporary body" applies to most humans. We change due to aging, illness, and what we eat, to name only a few factors. The designs in this section respond to the ways in which the human body moves through temporary states in different moments of the reproductive arc and infancy.

10.1 Ryan Mario Yasin (British, active 21st century) Petit Pli, 2017 Courtesy of the designer

Children typically grow seven sizes in their first two years. Aeronautical engineer Ryan Mario Yasin was shocked to see his young niece and nephew quickly outgrow clothes, which inspired him to design versatile garments that grow with the child who wears them. Clothes in the Petit Pli line are pleated to stretch and grow bidirectionally, snugly fitting a range of sizes from four months to three years. The proprietary textile is windproof, waterproof, and resists tearing and staining. Because it's made of a recycled mono-fiber, it doesn't have to be separated into component fibers for recycling. Petit Pli garments gesture toward a new paradigm of reducing waste in fashion.

10.2 *Elastic Maternity Stretch Panel,* c. 1940–50 Courtesy of the Designing Motherhood Archive

Abandoning the idea that pregnant people should maintain dangerously waisted silhouettes that were in vogue in the early 20th century, maternity fashions began to adopt looser silhouettes by mid-century. Stretch fabrics were increasingly available in ready-to-wear garments, although one tried-and-true way to make maternity fashion meet one's own personal style was to sew at home or get something tailor-made.

10.3 Wei Hung Chen (Taiwanese, b. 1993) Modular Dress 2.0, 2017 Cotton blend with a silk cotton blend lining Courtesy of the designer

Wei Hung Chen strives to make his work sustainable and avoid generating waste by creating and constructing garments that are modular and interchangeable. Through his approach to design, the Taiwanese creative has developed unique shapes that allow people to construct and deconstruct their outfits according to their needs and desires.

10.4 Edward McCartney (American) *Custom Tape Measure Jacket*, 2019 Paper infant measuring tapes On Ioan from the collection of Scott + Judy Nyquist

10.5 Cassie Arnold (American, b. 1986) *1 in 4 (I had a miscarriage)*, 2019 Hand knit linen and stainless steel thread, undyed organic cotton, pine, brass Courtesy of the artist

10.6 *Mother Tongue*, Issues 1-7, 2021-present Courtesy of the designers

Mother Tongue was launched by two mothers tired of the traditional media portrayal of motherhood. In place of idealized aspiration and agony aunt problem-solving, the boldly-designed magazine focuses on the complex, real lives of mothers and the issues they share around "art, sex, pop culture, politics, food and a few things in between." It is a bi-annual publication, first published in 2021. Founded and edited by Melissa Goldstein and Natalia Rachlin, in collaboration with Creative Director and Designer Vanessa Saba.

10.7 "Chummy Dream" Collapsible Stroller, 1969 Sakai (Japan, 20th century)

10.8 *"Umbrella" Baby Stroller*, 1960s Aluminum alloy tubing and saran polythene fabric

This stroller is modeled after the original design by aeronautical designer Owen Finlay Maclaren, who applied his experience in designing fighter planes to the problem of his granddaughter's baby carriage when he created the first collapsible stroller. His design pared the product to its essential components. With a lightweight aluminum frame, the stroller weighed just six pounds—less than many newborns. Its handles mimicked the classic umbrella shape, and its fabric chair made a perfect canvas for eye-catching patterns. Maclaren took his prototype to Silver Cross, a British manufacturer of strollers, which said there would be little market interest and rejected the concept. In response, Maclaren formed his own company to mass produce the umbrella stroller. A decade after the stroller's debut, more than 600,000 were being produced annually.

10.9 Home Affairs Art Collective Arzu Ozkal (Turkish-American, b. 1976) Nanette Yannuzzi Macias (Turkish-American, b. 1957) *ArtSit, V.2.*, 2023 Phenolic Baltic birch plywood, molded plastic Courtesy of the designers

Home Affairs Collective's *ArtSit* is a stroller design that allows children up to five years old to view art at eye level. The chair is available for families to use with assistance on Saturdays.

Sign up today at our front desk to reserve the ArtSit or reserve online using the QR code.



10.10 Liss LaFleur (American, b. 1987) Katherine Sobering

> *Queer Birth Project Collection 1: on bodies*, 2022 Steel, neon tubes, electrical wire, transformer, and glass rods

Queer Birth Project Collection 2: on families, 2024 Printed fringe curtain and hanging device

Queer Birth Project Collection 2: Future Kin, 2024 Print on pink paper, endless copies



Designing Motherhood: Things That Make and Break Our Births. Photo: Erik Gould. Image courtesy of Designing Motherhood.

Further Reading

Designing Motherhood: Things that Make and Break Our Births by Michelle Millar Fisher and Amber Winick (2021)

Select Works from the Exhibition

Birth Book by Raven Lang (reprinted 2010)

The Mothercraft Manual by Mary L. Read (1926)

Mother Tongue Magazine edited by Melissa Goldstein and Natalia Rachlin, designed by creative director Vanessa Saba (2020-present)

Our Bodies, Ourselves, 9th edition by the Boston Women's Health Book Collective (2011)

Artist Lens

Acts of Creation: On Art and Motherhood by Hettie Judah and Brian Cass (2024)

The Argonauts by Maggie Nelson (2016)

Artist and Mom by Francesca Fuchs (2015)

Carmen Winant: My Birth by Carmen Winant (2018)

CORRESPONDANCE by Marie Déhé and Josephine Löchen (2020)

EXTREME PAIN, EXTREME JOY by Maggie Shannon (2024)

Fräulein Magazine, Issue 29: Geburt/Birth (2020)

Motherhood by Nicole Giese-Kroner (2024)

Pillars of Home by Csilla Klenyánszki (2016)

Reframing Motherhood by Annie Hsiao-Ching Wang (2020)

Temporary Conversations: Suzann Gage by Bonnie Fortune with Suzann Gage (2009)

The Vessel Magazine, Issue 3: Embodied Knowledge (2022)

Critical Accounts

Essential Labor: Mothering as Social Change by Angela Garbes (2022)

Mother Is a Verb: An Unconventional History by Sarah Knott (2019)

Mother's Day Is Over by Shirley Radl (revised 1987)

Things That Helped: On Postpartum Depression by Jessica Friedmann (2017)

Medical Bondage: Race, Gender, and the Origins of American Gynecology by Deirdre Cooper Owens (2017)

Pushed: The Painful Truth about Childbirth and Modern Maternity Care by Jennifer Block (2007)

Reproductive Justice: An Introduction by Loretta Ross and Rickie Solinger (2017)

Reproductive Injustice: Racism, Pregnancy, and Premature Birth by Dána-Ain Davis (2019)

Trans Bodies, Trans Selves: A Resource by and for the Transgender Community, 2nd edition, edited by Laura Erickson-Schroth (2022)

Taking Charge of Your Fertility: The Definitive Guide to Natural Birth Control, Pregnancy Achievement, and Reproductive Health, 20th-anniversary edition by Toni Weschler (2015)

The Birth Partner: A Complete Guide to Childbirth for Dads, Partners, Doulas, and Other Labor Companions, 5th edition by Penny Simkin (2018)

Young Readers

Before You Were Born by Jennifer Davis, illustrated by Laura Cornell (1998)

Is Your Mama a Llama by Deborah Guarino, illustrated by Steven Kellogg (1997)

And Tango Makes Three by Justin Richardson and Peter Parnell, illustrated by Henry Cole (2015)

Heather Has Two Mommies by Leslea Newman, illustrated by Laura Cornell (2016)

Love Makes a Family, written and illustrated by Sophie Beer (2018)

Good Night Stories for Rebel Girls by Elena Favilli and Francesca Cavallo (2016)

Let's Talk About Body Boundaries, Consent and Respect by Jayneen Sanders, illustrated by Sarah Jennings (2017)

A Mother is a House by Aurore Petit (2021)

You Are New by Lucy Knisley (2019)

What Makes a Baby by Cory Silverberg, illustrated by Fiona Smyth (2013)

Inspiring Titles

Nurture: A Modern Guide to Pregnancy, Birth, Early Motherhood—and Trusting Yourself and Your Body by Erica Chidi Cohen (2017)

Spiritual Midwifery, 4th edition, by Ida May Gaskin (2002)

Period Power: A Manifesto for the Menstrual Movement by Nadya Okamoto (2018)

Revolution at Point Zero: Housework, Reproduction, and Feminist Struggle by Silvia Federici (2020)

Revolutionary Mothering: Love on the Front Lines, edited by Alexis Pauline Gumbs, China Martens, and Mai'a Williams (2016)

We Live for the We: The Political Power of Black Motherhood by Dani McClain (2019)

Mother / Founder: 68 Women on the Trials and Triumphs of Starting a Business and Raising a Family by Amanda Jane Jones and Jennifer Fernandez (2024)

The Nursery by Szilvia Molnar (2023)

Credits

Designing Motherhood Curators

Juliana Rowen Barton Michelle Millar Fisher Zoë Greggs Gabriella Nelson Amber Winick

Designing Motherhood Traveling Curators

Juliana Rowen Barton Michelle Millar Fisher

Houston Center for Contemporary Craft Curator

Sarah Darro

Curatorial Support María-Elisa Heg Zaynab Hilal

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Risograph Printing Mystic Multiples

Exhibition Design Sarah Darro

Interpretation

Natalie Svacina

Editors

Mary Headrick Natalie Svacina

Translators

Carolina Villarroel JD Pluecker

Lead Preparator Iva Kinnaird

Table Design Helen Cahng

Table Fabrication

Exhibition Partners

In Houston, project partners include *Mother Tongue*, a biannual print magazine that interrogates (and celebrates) modern motherhood through inclusive stories about art, sex, pop culture, politics, food, and a few things in between, and Planned Parenthood Gulf Coast, an organization that ensures the right and ability of all individuals to manage their sexual and reproductive health by providing health services, education, and advocacy.

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Collaborators

In Philadelphia, *Designing Motherhood*'s thought partner was Maternity Care Coalition, which ensures that families can birth with dignity, parent with autonomy, and raise babies who are healthy, growing, and thriving.

In Boston, *Designing Motherhood*'s thought partner was Neighborhood Birth Center, Boston's first independent and freestanding birth center, with the vision of improving birth experiences and outcomes, across communities, for generations.

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