

Cradles of Life: Anthropological Perspectives on Early Life, Loss, and the Infant Incubator

Luiza Ravalli

MA student, Social Anthropology | York University, Toronto, Canada



Contingent Horizons: The York University Student Journal of Anthropology. 2020. 6(1):33-40.

First published online April 8, 2022.

Contingent Horizons is available online at

www.contingenthorizons.com.

Contingent Horizons is an annual open-access student journal informed by an ethos of social justice. It seeks to expand anthropological discussions by publishing students' outstanding scholarly works, and remaining open to a variety of alternative formats. It is published by the department of anthropology at York University, Toronto, Canada.

ISSN 2292-7514 (Print) ISSN 2292-6739 (Online)

EDITORIAL COLLECTIVE Cameron Butler, Isabel Sobotkiewicz, Marion Lougheed, Isabella Chawrun, Ana Speranza, Mikayla Hjørngaard, Kathe Gray

COVER ARTWORK Sydney Chapados

Cradles of Life

Anthropological Perspectives on Early Life, Loss, and the Infant Incubator

LUIZA RAVALLI

MA STUDENT, SOCIAL ANTHROPOLOGY
YORK UNIVERSITY, TORONTO, CANADA

Medical technologies have intervened on the critical post-natal time and space by augmenting and/or optimizing conditions intended to increase survival. As contested, contextual, and transformative spaces, incubators fulfill particular biological needs while also becoming sites where political realities, human emotion, ritual and symbolism converge upon vulnerability. I explore sociopolitical contexts of vulnerability and protection in global and cross-cultural context, while drawing on prior scholarship in anthropology of motherhood, material culture, as well as feminist and reproductive anthropology. Events in popular culture like the Danish Octo Project and Purple Butterfly Initiative provide insight into lived experience and everyday interactions with incubators and the neonatal intensive care environment. In response to popular assumptions of technological advancements in clinical medicine as apolitical apexes of innovation, we must complicate their technical utility with profoundly human experiences toward and around them. In doing so, we situate and implicate technology in political and discursive narratives and reflect on these objects as more than sums of their parts. This essay contributes to broader discussions about the materiality of medical technologies and their environments, and illuminates new possibilities to examine corollaries of grief, hope, maternalism, memory, and the resilience of human psyches and physiologies.

KEY WORDS Material culture, medical technology, grief, hope, cultural anthropology, motherhood, materiality

The infant incubator is a material representation of the fragility and precarity of early life and the innovations of biomedicine. In its role as a simulated womb, an incubator provides the potential for the medically complex newborn to survive the critical perinatal stage, a highly contextual time and space. This essay employs both theory and popular culture to locate the infant incubator at the nexus of biomedicine and anthropology. Beginning with a historical analysis, early iterations of medical incubation technology are examined as places of material-cultural transformation occurring through symbolic meaning and contextual realities. I argue that incubators undergo intentional spatial transfiguration by those who interact with them, and that these transformations are rooted in fundamentally human experiences like grief, bereavement, hope, and empathy. To accomplish this, I explore the incubator's clinical and cultural roles by examining the lived realities of people who use them in the Global North and South. Incubators as

transformative biomedical spaces challenge the dominant narrative of biomedicine as an apolitical enterprise wherein human health and life is manipulated and intervened upon with neutrality. Rather, I suggest that no technology meant to function as an extension of a human mother's body could ever be exempt from gendered and political discourses of human health, privilege, and vulnerability.

Drawing from biomedical and anthropological scholarship, the incubator can be understood in terms beyond its ostensible material function(s). Considering these functions, it is logical, then, to begin with contextualizing early forms and uses of the technology. I acknowledge that other methods of keeping medically fragile newborns safe and warm have been around in various forms since time immemorial. For instance, the work of James Chisholm (1978) examines the combined use of swaddling and cradleboards by Navajo peoples, an extension of Dr. Earle Lipton's earlier observations on swaddling (259-260). In *The Swaddling Hypothesis: Its Reception* (1954), anthropologist Margaret Mead suggests that the focus of anthropological perspectives on early infant care be on understanding cultural changes rather than origins, including how "peasant habits" become part of the "cultural character" (396).

Incubators in Euro-American History

In the wards of a late nineteenth century French maternity hospital, premature infants were dying of hypothermia at such a high rate that an obstetrician named Stéphane Tarnier found himself searching for solutions. Drawing inspiration from the chicken incubators at the Paris Zoo he fashioned an early prototype heated by hot water bottles and ventilated with convection fans (Baker 2000). Taking an empirical approach, Tarnier lauded his invention as an important life-saving technology by comparing survival statistics of over 500 infants before and after its integration on the wards. Indeed, his research concluded that the mortality of preterm infants was halved when the infants were warmed in an incubator (Baker 2000). A few years later, the technology was optimized by other French inventors to incorporate thermostats and forced ventilation systems. However, as the cost of production grew so did the need for funding (Baker 2000). Alexandre Lion, a French physician, inventor, and businessman, had the idea to raise money by charging admission fees to view babies in incubators in an exhibit at the Berlin Exposition in 1896 (Baker 2000). The spectacle garnered the attention of the American medical community and it was not long before similar exhibits appeared in American cities. Omaha, Buffalo, Chicago, and most infamously the Coney Island boardwalk, displayed newborn babies in functioning incubators every summer for 40 years (Pollack 2015). It is important to note that while the incubated babies were on display, they were actually receiving comprehensive care by physicians and nurses, including keeping the babies' mothers and wet nurses nearby for breastfeeding (Pollack 2015). During its run beginning in 1901, the Coney Island display incubated 8000 preterm babies, 6500 of whom survived (Pollack 2015). While the notion of human infants on display to the general public is rather unsettling, the spectacle served as an exhibition of a successful, if not revolutionary, technology. Incubators were, after all, developed by physicians who utilized their expertise to protest a medical system that was demonstrably failing premature and medically fragile infants. The babies on

display provided unprecedented visibility that thrust the technology into the public eye, and in this way, invited laypeople to passively participate in the empirical enterprise of proving the incubators efficacy. Dr. Martin Couney, the mastermind behind the boardwalk exhibition, addressed his critics with a promise to shutter the exhibits once hospitals embraced the technology and other specialized methods of caring for preterm/premature infants (Pollack 2015). True to his word, as the emerging biomedical field of neonatology proliferated in the 1940s, the exhibitions came to an end (Pollack 2015). This historical insight brings forth vivid imagery that puts vulnerability (that of the babies, the mothers, and of the credibility of experimental technology) on display. It seems that Dr. Couney understood the impact this imagery could have on lay people as spectators, propagating cultural perceptions of physicians as ‘miracle workers,’ the incubators as glass cases through which ‘miracles’ can be witnessed, and biomedicine as the system in which ‘miraculous’ technology is embedded.

Transforming the External Womb

The incubator itself is a receptacle of rather austere clinical aesthetics. Whirring sounds, neutral linens, clear tubing, and transparent panels with holes for outside hands to reach in, set the scene for imparting the medical/clinical gaze. The incubator serves as a pedestal for observation, occasional manual manipulation, and the display of vulnerable bodies. Objects such as blankets, soft toys, stickers, and symbols are sometimes placed in and around the incubator in order to imbue it with a more human-like quality, transforming its warm, plastic environment into something more closely related to a womb. Anthropologist Kyra Landzelius (2001) refers to the ritual of decorating and ornamenting the incubator with such objects as “teddy bear diplomacy” — a way in which mothers attempt to navigate the peculiarity of finding their premature infant(s) outside of their bodies. Adorning the incubator allows a mother to express agency by bridging the gap between her infant and herself with material artefacts like teddy bears, photographs, and other items believed to bring strength and luck to the fragile newborn (Landzelius 2001). Contemporary examples of such artefacts in Europe and North America include tiny, crocheted octopi, which are placed inside the incubator with the premature or medically fragile infant. American news source CNN reported on the phenomenon, relaying that the idea is to tap into the infant’s muscle memory of clutching the umbilical cord in utero, and that the tentacles offer a familiar structure for occupying tiny hands so that they do not disturb tubes and monitoring equipment (Gatewood 2017). One organization, dubbed the Danish Octo Project, has distributed these octopi to Neonatal Intensive Care Units (NICU) all over Denmark and the movement has since gained some popularity. Another example of ornamenting the incubator for transformative purposes is the Purple Butterfly Initiative developed by Millie Smith, a bereaved English mother of twins who put a purple butterfly sticker on the incubator of one of her daughters who did not survive (Packham 2016). The sticker provided a symbolic way to keep the little one’s brief life visible, transforming the incubator into a memorial space, even as the living sibling continued to occupy it. The woman who developed the initiative felt that preterm infants who did not survive vanished too quickly from the collective consciousness of the NICU staff and other parents

in the unit, so the butterfly served as a gentle reminder to approach the bereft parents with sensitivity and empathy for their loss (Packham 2016). In this case, grief and loss were the human experiences that underpinned the transfiguration from neutral clinical technology to adorned epitaph, conveying a profound message about the impact of loss. As the incubator undergoes transformation, so does the experience of hope: that there is no longer hope for that child's survival, but there is hope instead that the child will not be forgotten too quickly.

Medical technologies act as things that liberate us from the constraints of our own biology, acknowledging that when our anatomy or physiology 'fails' us, there are often technological surrogates available to compensate (Lock and Nguyen 2018). An incubator represents an attempt at replicating the ecology of a human womb. The technology thus functions as an extension of a mother's body. Incubators supply the regulated temperature that a preterm or sick infant is not able to provide itself, in some ways replicating a function of the hypothalamus in the human brain. Similarly, it is available to house and facilitate growth of a preterm infant with the help of oxygenation and provision of vital nutrients, acting as an external placenta and uterus when enteral feeding technologies are used. While mothers, family, and staff keep watch and occasionally engage with the incubator or the baby, this becomes a space where biology is intervened upon by technological mechanisms or helping hands. In her conception of cyborgs and chimeras, Donna Haraway (1994) acknowledges the opportunities for "coupling between organism and machine" (83) in modern medicine; the incubator presents a compelling example of a place where the boundaries between the "natural" and "crafted" worlds become ambiguous.

From the outside looking in, it is romantic and reasonably tempting to glorify biomedicine for advances in the innovation of external biological surrogates, however, by virtue of its inherent political magnitude a critique of biomedicine should not be avoided. Working from the notion that biomedicine is underpinned by a technocratic imagination of the human body — one where the physical body operates like a machine and is therefore prone to system error and breakdown — it follows that there is specific expertise and highly specialized "tools" required to "fix" it. The "One Two Punch" (Davis Floyd 1994, 1125-1126) of the technocratic approach involves first rendering a natural process dysfunctional, and then remediating that process with technology. In her book *Birth as an American Rite of Passage* (1992), anthropologist Robbie Davis-Floyd applies this phenomenon within the technocratic birth model, which necessarily renders the woman's body and reproductive system inferior, and therefore requiring technical interventions based on the paternalistic perspectives of biomedical practitioners. Medical technologies that attempt to reproduce human biology exist because of the reality that human biology sometimes yields unexpected or undesirable results. In accepting that biological processes (like birth or pregnancy) do not always progress as desired, biomedical models of ante- and post-natal care have historically and contemporarily capitalized on women's vulnerability during pregnancy, especially if they are from marginalized communities and relying on biomedicine for access to care (Davis-Floyd 1992). Experiences of, and reactions to, pregnancy and birth run the gamut of human emotions, and often these emotions are connected to their outcomes. Undesirable outcomes, variations in the birth experience, and coping with complex or atypical prognoses result in highly individualized and deeply contextual ways of coping with loss or uncertainty.

Incubators in the Global Margins

In peaceable and wealthy geopolitical regions, hospitals and their NICUs generally operate as well-oiled, technologically advanced machines with both staff and resources in generally good supply. In global areas where an overrepresentation of low birth weight or medically fragile outcomes occur due to barriers to healthcare, incubators may provide additional functions beyond warmth and accessibility to medical intervention(s). When low resources, poor infrastructure, and proximity to violent conflict threaten the safety and stability of the biomedical space, technologies like the incubator undergo yet another transformation — they become places of shelter, less concerned with a progression of health, and more urgently concerned with preservation of life. General Electric, an American conglomerate, has partnered with Wipro, a billion-dollar Indian tech corporation, to innovate an infant incubator that is resistant to electrical surges and built with Kevlar (Jensen and Page 2015). That these modifications exist indicates a clear difference of needs between preterm and medically fragile infants in the Global South and North. Wipro contends that their technology addresses a critical global need, presumably that hospitals in the Global South simply are not safe enough to protect the most delicate of patients (Jensen and Page 2015). Nevertheless, medical innovation in both the Global North and South comes together in its failure to meaningfully address the sociocultural realities of mothers experiencing precarity regarding access to safe biomedical spaces, and the broad spectrum of physiological conditions that can complicate pregnancy, birth, and the postpartum period. Indeed, these physiological conditions are not always endogenous in either global region, however acute. Preventable disease and injury are all too often a reality for those living and working in politically destabilized regions. Making it through the night is a different sort of success in British or Canadian NICUs than it is in places like Gaza, Haiti, or Papua New Guinea. In *Biomedicine in an Unstable Place* (2014), Alice Street discusses the role of medical technologies in the production of hope projected toward relief from both socio-political and physiological ailing. She refers specifically to x-ray technologies and the interpretive encounter between patient and physician, in the discussion and interpretation of results, as the mechanism by which hope is produced (Street 2014). Engaging with Street's thought process makes it difficult to imagine a more applicable example of technology producing hope than an infant in an incubator. Parents, family, and medical staff similarly interact with the infant in a dynamic production of hope and partnership as they collaborate and participate in the infant's care. After all, the best case scenario for an infant in an incubator is that they will eventually be healthy and/or strong enough to leave it.

In regions of the Global South it is unlikely that butterfly decals adorn incubators. In fact, extensive research into contextual examples of the teddy-bear diplomacy discussed earlier produced very few results. This is not to say that mothers in so-called 'developing' countries do not symbolically or ritually engage with the medical technologies around them, but there seems to be more readily available information (both in popular culture and in scholarly literature) on the politics of motherhood in areas where infant mortality is high due to political realities like abject poverty and war. Nancy Scheper-Hughes (1996) suggests that mothers in disrupted environments engage in a system of "maternal thinking" (354) by prioritizing letting go of sick or dying infants over holding on, simply because of the frequency with which they must face situations of grief, hardship, and loss. To this end,

Scheper-Hughes' work in rural Brazil contextualizes how early infant loss and bereavement is experienced in a region where there is little access to biomedical care (and the technologies associated therein) as well as starvation and poverty. The Brazilian women draw from their Catholic faith to reimagine the loss of their infant as a benevolence from God, who has taken their babies to ease the suffering that comes with another mouth to feed or another future soldier to lose in conflict (Scheper-Hughes 1996). In Puerto Rican culture, a religious figurine or medallion of a saint is sometimes placed inside the incubator with the infant to not only impart good intentions and protection, but to displace responsibility unto a higher power in the event that the infant does not survive (Crouch-Ruiz 1999). This is another example of incubator transfiguration, where it becomes an altar of offering. In some religions, the altar is a transactional space where an offering (like a medallion or other token of adoration) is offered in exchange for protection from evil or strife. As with rural Brazilians, Puerto Rican families who lose a medically fragile infant seem to frame the child's death as an event that is in accordance with God's will. In this way, the incubator-as-altar becomes the site at which a divine arbiter (i.e. God, in Abrahamic faiths) decides the child's fate and the decision is accepted in alignment with religious values of faith and sacrifice.

Conclusion

It is not enough to say that an incubator provides a blank, sterile space upon which to assign particular cultural, religious, and personal meaning, either to the receptacle itself or the child within. What makes this technology particularly compelling is its transformational potential through which deeply human experiences and emotions can be navigated and explored. Depending on the context, incubators can function like part(s) of a body, from the hypothalamic process of temperature control, to the warmth, nutrition, and oxygen that would otherwise come from full term gestation in the uterine/placental environment. Beyond physiological surrogacy, incubators become places like altars, epitaphs, bulletproof cocoons, and windows into medical innovation. People engaging with the complexities of grief, loss, hope, resilience, and other uniquely human emotional experiences transmute incubators into places and things that make sense when caring for a medically complex infant. These experiences are also conceived of in a highly gendered way within the technocratic model of birth discussed earlier: that the mother's body was less or not competent and that technology exists to complete the job of gestating a fetus to term. However, natural processes are not always fixable, and even the most advanced technologies are not always enough to ensure infant survival. When this occurs, mothers and families bear the burden of making sense and meaning of their loss, often doing so by employing ritual and symbolism.

Through objects, rituals, and symbolism, cultural and social attitudes toward life and death are made visible within and around the boundaries of the incubator's transparent panels. A long way from its humble beginnings, medical innovation continues to modify the role of incubators as critical pieces of neonatal technology. However, no technical or clinical gaze possesses the capacity to envision the full conception of pre- and post-partum lived experiences beyond institutionally accepted definitions of survival. To realize truly biopsychosocial health for the incubator-graduated infant is to come to terms with the

reality of life as it exists beyond the NICU. Medically trained interlocutors exist in an inherently political system of interactions between humans and technology. Since biomedicine and neonatology are not practiced or developed in a vacuum, objective medically sterile perspectives are insufficient, and the domain requires a global contextual approach to caring technologies and ways of knowing. Certainly, no object in the medical landscape that functions the way an incubator does should be viewed merely as a receptacle. The moment an extremely vulnerable life is placed within it, the potential for transformation to what the child and caregivers need is profound. Granted, as in biological processes, no technology is infallible and without the risk of failing to meet its intended outcome. Indeed, the reality is that not all babies placed in incubators for recovery or for shelter survive. What remains truly intriguing is how families navigate the liminal period of early fragile life within the structural and ideological boundaries of biomedicine. The NICU environment provides a rich and complex landscape for the continued exploration of cultural shifts in response to evolving technologies at the intersection of anthropology and biomedicine.

References

- Baker, Jeffrey P. 2000. "The Incubator and the Medical Discovery of the Premature Infant." *Journal of Perinatology* 20(5): 321–328.
- Chisholm, James S. 1978. "Swaddling, Cradleboards and the Development of Children." *Early Human Development* 2(3): 255–275.
- Crouch-Ruiz, Evelyn. 1999. "The Birth of a Premature Infant in a Puerto Rican Family." *Hispanic Voices: Hispanic Health Educators Speak Out*, edited by Sara Torres, 26–28. Massachusetts: Jones and Bartlett Publishers.
- Davis-Floyd, Robbie. 1992. *Birth as an American Rite of Passage*. Berkeley: University of California Press.
- . 1994. "The Technocratic Body: American Childbirth as Cultural Expression." *Social Science & Medicine* 38(8): 1125–1140.
- Gatewood, Johanzynn. 2017. "Crocheted Octopi Comfort Premies in Hospital NICU." *CNN*, February 27. <https://www.cnn.com/2017/02/27/health/premature-babies-crochet-octopus-nicu/index.html>, accessed March 29, 2019.
- Haraway, Donna. 1994. "A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s." *The Postmodern Turn: New Perspectives on Social Theory*, edited by Steven Seidman, 82–115. Cambridge: Cambridge University Press.
- Jensen, Jon, and Thomas Page. 2015. "India's Babies Get Bulletproof Incubators." *CNN*, August 26. <https://www.cnn.com/2015/08/25/health/india-bulletproof-incubator-premature-babies/index.html>, accessed March 29, 2019.
- Landzelius, Kyra M. 2001. "Charged Artifacts and the Detonation of Liminality: Teddy-Bear Diplomacy in the Newborn Incubator Machine." *Journal of Material Culture* 6(3): 323–344.
- Lock, Margaret, and Vinh-Kim Nguyen. 2018. *An Anthropology of Biomedicine*. Newark: John Wiley & Sons, Incorporated.
- Mead, Margaret. 1954. "The Swaddling Hypothesis: Its Reception." *American Anthropologist* 5(6): 395–409.

- Packham, Amy. 2016. "Mum Spearheads Purple Butterfly Initiative in Neonatal Units to Alert Visitors of Baby Loss with Multiples." *Huffington Post UK*, June 22. https://www.huffingtonpost.co.uk/entry/butterfly-sticker-initiative_uk, accessed March 29, 2019.
- Pollack, Michael 2015. "The Incubated Babies of the Coney Island Boardwalk." *The New York Times*, July 31. <https://www.nytimes.com/2015/08/02/nyregion/the-incubated-babies-of-the-coney-island-boardwalk.html>, accessed March 29, 2019.
- Street, Alice. 2014. *Biomedicine in an Unstable Place: Infrastructure and Personhood in a Papua New Guinean Hospital*. Durham: Duke University Press.
- Scheper-Hughes, Nancy 1996. "Maternal Thinking and the Politics of War." *Peace Review* 8(3): 353–358.