



MUTANT MATTER AND MEMORY: DIFFERENT BODILY FORMATIONS IN WARD ONE OF TOLEDO, OHIO

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In memory of Caroline Schrag-Erler, her sister Elsie, and my father, John Erler

Introduction

Following in the line of feminist literary theorists from Helen Cixous and Catherine Clement (1986) to Patti Lather (2007), the main goal of this work is to “get lost” (Lather, 2007): to find new ways of saying meaning through images and writing. Images and text appear together on the page to provoke a sense of movement and disjuncture between modes of “showing seeing” (Mitchell, 2002). New meanings are coaxed out of the gaps between image and text, The text is itself a recombinant form of scientific discourse, grounded ethnography, personal narrative and metafiction.

“Mutant Matter” is part of a longer work that explores the possible sources and future trajectory of the chromosomal genetic mutation known as BRCA2. The complete text is structured around four interfaces, described as Inside out; Outside in; Microscopia and Topographia; Body and Environmental systems; and Self (host) /Invader (other). The interfaces are not seen as lines to be crossed but rather zones of different differences. The first is Inversions, in which one can be two and, at the same time, three or four, or none, in infinite unfolding or infolding of difference without self-replication. The second considers Scales of perspective from different points of view at the same time that it raises issues of juridical and social justice. The third interface involves systems; in particular, the systemic interchange of energies and materials between human, posthuman and environmental bodies. Contact - between bodies, organs, plastics and other inorganic materials conceived in terms of

host/self and invader/other - constitutes the fourth interface. A fifth interface, Affects, weaves through the previously named four and extends a ghostly sentience that does not retreat at the outer surfaces of the human body. Although “Mutant Matter” is one part of a longer work, its internal structure strives to image the longer text in a holographic method.

Insofar as “Mutant Matter” suggests a narrative or theatrical performance, a central actor is cancer. Cancers are specific and contextual. The existence of the BRCA2 chromosomal mutation came to light in the course of the ten-year Human Genome Project, an international research project with the primary goal of mapping the entire sequence of chemical base pairs that make up DNA and identifying the 20,000-25,000 genes of the humane genome (Krulwich, 2001). Scientific researchers disagree about possible sources of the genetic mutation. Scientists whose philosophical outlook is here considered “mainstream” attribute the mutation to Founder’s Syndrome, a cluster of hereditary symptoms issuing from isolated communities with a common ancestor (Lynch, Casey, Snyder, Bewtra, et al., 2009). Feminist researchers, on the other hand, especially those influenced by the work of environmental biologist Rachel Carson (1962), are looking for answers in the areas of land-use and industrial pollution (Main, Mortensen, Kalev, Bolsen, et al, 2006; Crystal, Brown, Morello-Frosch, et al, 2011). These feminist researchers agree with Henri Bergson’s (1911) and Karen Barad’s (2007) concept of “emergent evolution,” which points out that Darwin himself did not know why or how novel genetic shifts can occur in the course of a single generation. The research presented in this article investigates the latter hypothesis, and takes a feminist theoretical perspective on hereditary cancer research in grounded, site-specific historical, biomedical, geographic, economic and political contexts.

BRCA2 is an inherited mutation that predisposes carriers to breast and ovarian or prostate cancer by 60 percent, according to the National Cancer Institute (2011). Carriers are often but not always diagnosed before the age of fifty. The present article purports to explore a “family cancer” because four members of the author’s own family were diagnosed with, or died of, breast cancer (including a male relative) at a relatively young age. This is not a fiction. The methods and tools of analysis in this facet of the research included open-ended interviews with living

relatives and auto-ethnography. Family photo albums and scrapbooks, Ancestry.com, the Genealogy Room in the Lucas County Public Library in Toledo, Ohio and the website, Toledo's Attic, were tremendously helpful in mapping a picture of my ancestor's lives.

Turning a posthumanist materialist feminist lens on the subject, the present article traces the source of disease to the neighborhood in Toledo, Ohio – Ward One - where my ancestors lived and worked for most or all of their lives. In this way, the research is grounded in local identities. Ward One of Toledo, Ohio is the oldest and most industrial part of the city. The central industry in the neighborhood was, and remains, glass production. At least one relative who is part of this study worked in the Libbey-Owens Glass Factory. The connection to visual culture, already a given in scientific and cultural geography research, is enhanced by the fact that Libbey of Libbey-Owens Glass amassed an art collection which led to the foundation of the Toledo Museum of Art and, more recently, the Glass Pavilion, which houses one of the largest collections of art glass in the world. Edward Drummond Libbey also helped found the elite Toledo Club in downtown Toledo, where the part of the Libbey art collection considered most appropriate for a Victorian era gentleman's club remains to this day (the club started admitting women in 1930).

Glass production and its environmental impact on the residential area immediately surrounding the Libbey-Owens Glass factory are scrutinized in this article, for, as Rachel Carson (1962) insisted, industries cannot emit large quantities of pollutants and substances toxic to humans, mammals, marine life and plants without negatively impacting the quality of life and public health of the surrounding area.

Readers are asked to consider the flexible and experimental nature of the multiple factors at play in this interdisciplinary text: feminist narrative forms, genetic science, posthuman philosophy of science, human geography and, above all, the broad and highly transdisciplinary field of visual culture. Readers are asked to allow gaps and silences in the text to remain unanswered, as this is an intentional strategy and essential part of the work's methodological structure. More accessible modes of generating meaning are thought to create illusions of mastery and wholeness that weaken the ability to challenge familiar ways of thinking and fostering Other ways of knowing.

To art educators, this signals a break from reliance on concepts and a turn toward flows of experience, data and information. As Rosi Braidotti (2002) wrote in the prologue to *Metamorphoses: Toward a Materialist Theory of Becoming*, “the point is not to know who we are, but rather what, at last, we want to become, how to represent mutations, changes and transformations” (p. 2). This means rejecting deterministic packets of meaning that tie works of fine art to art histories and pedagogies. Instead, a radical situatedness of meaning is proposed, a creative process of attentiveness to spatiotemporal shifts within bounded cartographies, environments and political economies of gender, labor and race.

The Narrative Thread

Time and location intersect in 1900 at house number 370 on Ohio Street in Ward One of Toledo, Ohio. A 49-year old-second generation German immigrant husband, his second-generation German immigrant wife, and three of their four children occupied a “folk house” on the north end of town, close to where the Maumee River meets Lake Erie. The family's 16-year old daughter was living with her grandmother several blocks away at 1440 Michigan Street. Between these two points was the Libby Glass factory at 940 Ash Street.

Caroline, pronounced in the German way as Carolyn, was the youngest of the Schrag family. In 1896, the year she in which was born, her sister Elsie was 10 years old, Marie was 13 and John, the eldest, was 17. This is not a fiction.

When Caroline was still a small child, her brother John moved to a another town with their aunt Berta. Berta was their mother's youngest sibling. She was only five years older than John – old enough to have been Caroline's birth mother, although no documentation exists to support this. By 1910, John and Berta had married. Nine years later John died of blood poisoning after pricking himself with a fishhook in Florida.

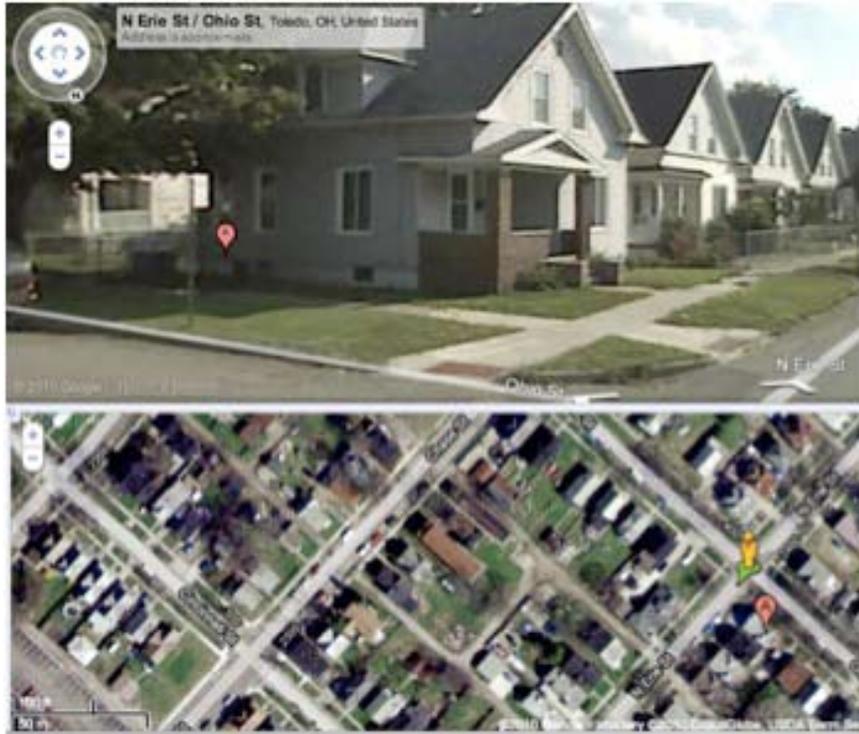


Figure 1. The house at 316 Ohio Street, 100 years after the Schrag family lived at the address. Combined “street” and “satellite” views provided by Google.

This information was gathered from oral histories of living family members, family photo albums, and Ancestry.com.

The legal reasons for blurring the faces of photographed subjects are perfectly clear. They are the same for researchers who work with human subjects. I am so not sure of this clarity anymore (could the blurred faces be ghosts?).



Figure 2. Child captured by Google Street View cameras in front of the residence at 370 Ohio Street, Toledo, Ohio.

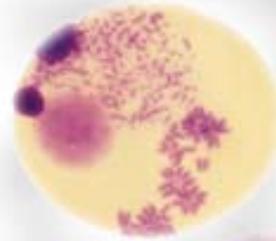
Objects blur while in motion. A moving body becomes something other than what it was before movement commenced. But when it stops moving, it recovers its former appearance, with a small allowance for decay. This sameness of appearance is what allows the human eye and mind to ignore the body’s potential for radical alterity.



This picture of a girl is not not
“just there.”

This girl is not not
“just there.”

A specter is both visible
and invisible, both phenomenal
and nonphenomenal: a trace that
marks the present with its absence
in advance” (Derrida, and Stiegler,
2002, p. 117).



Mutagens

Toxic metals such as cadmium, lead and mercury began accumulating in the Maumee River/Lake Erie watershed about 170 years ago, when canals were replaced by railroads (Olson, 2002). By 1900, rail companies like Toledo Terminal Railroad and supporting pyrometallurgical industries shrouded the landscape in coal dust, scrap waste and sludge (Sparks, 2005). Resistant to biodegradation, metals concentrate in streams and flow with the sediment or bioaccumulate through the food chain (Maumee Restoration Action Plan & Duck & Otter Creeks Partnership, Inc., 2005, p. 75). Thus by 2002, Toledo had concentrations of cadmium, a known human mutagen and carcinogen, greater than 90% of all other US cities (Scorecard, 2002).

Figure 3: Cancer cells impacted by heavy metals and other industrial-environmental contaminants.

Figure 4: Microstructure of glassy silica.

Detwiler Ditch, named after the owner of a land syndicate in Northwest Ohio, was a vast brownfield until 1972, when the newly formed Environmental Protection Agency (EPA) designated Lake Erie a top Area of Concern (AoC). The ditch was dredged, drained, and transformed into urban green space. Today a water purification plant stands between the park and Lake Erie. The Detwiler area, bound on three sides by Lake Erie, the Maumee River and the Ottawa River respectively, was once the site of a Libbey warehouse whose ghostly imprint remain in the land, as satellite imagery shows. The Schrag family residence at 370 Ohio Street was within 4 blocks of this environmentally compromised area, and only one block removed from the Maumee River.



Figure 5: Satellite image of former EPA Superfund site, now classified as a Reporting Site: The former Libbey Bassett Street Warehouse.



Figure 6: Libbey Glassworks in Ward One of Toledo, Ohio. Date unknown. University of Toledo Ward M. Canaday Collection.

In the amorphous structure of glassy Silica...

no long-range order is present.

The ordering is local...

CHOLER-MIASMA

Caroline was fourteen years old when the Brookford Filtration Plant began operation, using the Maumee River as its water source. For the first time, filtered chlorinated water was supplied to Toledo residents (City of Toledo Dept of Public Utilities, 2010). “Water treatment has practically eliminated cholera, typhoid, and dysentery in developed areas of the world,” wrote J.A. Salvato (2009) in *Environmental health and safety: Municipal infrastructure, land use and planning, and industry*, first published 50 years ago.

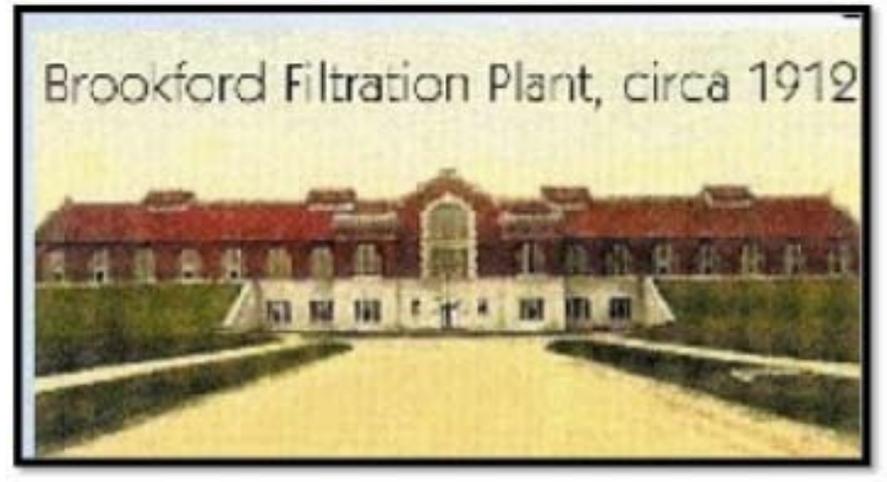


Figure 7: Postcard of Toledo's first water filtration plant, 1912.

Figure 8: Film frame of Caroline Schrag-Erler taken with a 9.5 mm camera by her son, John F. Erler, ca. 1940.

Figure 9: Film frame of Caroline Schrag-Erler taken with a 9.5 mm camera by her son, John F. Erler, ca. 1940.

Figure 10: Film frame of Caroline Schrag-Erler taken with a 9.5 mm camera by her son, John F. Erler, ca. 1940.



Figure 9



Figure 8

NOPPERA-BO

Noppera-bo, or faceless ghosts, appear at first as ordinary human beings. They can make themselves look like loved ones, living or dead, to whomever they meet. They delight in frightening people by suddenly making their face disappear, transforming the look of the dear one into a blank, smooth sheet of skin.

Biphenyl A (BPA) is a synthetic estrogen. Concentrations are: “highest among the youngest: fetuses, premature newborns, and young infants. BPA crosses the placenta, enters the fetal bloodstream and is excreted by the fetus into the amniotic fluid. Scientists have detected BPA in human urine and blood (including the cord blood of newborns), in placental tissue and in breast milk” (Breast Cancer Fund, 2009).

Figure 10

CROSSING THE PLACENTA

Synthetic estrogens were first developed in the United States in 1907. Soon they were in everything from canned foods to plastics and epoxies. A BPA such as inorganic polymer, which is similar to the organic borosilicates in glass production, is compatible with human blood, meaning it can activate plasma upon contact (Lelli et al., 1995).

The Endocrine Society, an international body of medical researchers and practitioners, warned in 2007 that Biphenyl A contributes to the rise of early-onset puberty among girls in the US. Early onset puberty is considered a major indicator of breast and ovarian cancer susceptibility (Main et al., 2006; Moore, 2000; Yang et al., 2006).

Inorganic arsenic, a human carcinogen, is a by-product of coal-fired power plants, smelting and mining operations. Like cadmium and BPA, arsenic flows through bodily membranes and binds with organic particles in fatty tissues and hormone-producing organs such as placenta. By mimicking hormones in the body, it stimulates cell proliferation in breast tissues and effects estrogen-regulated genes (Martin, Reiter, Trung, et al, 2003).

Animal studies have shown that arsenic and cadmium contribute to fetal deformities and developmental delay (Mathias, n.d.).

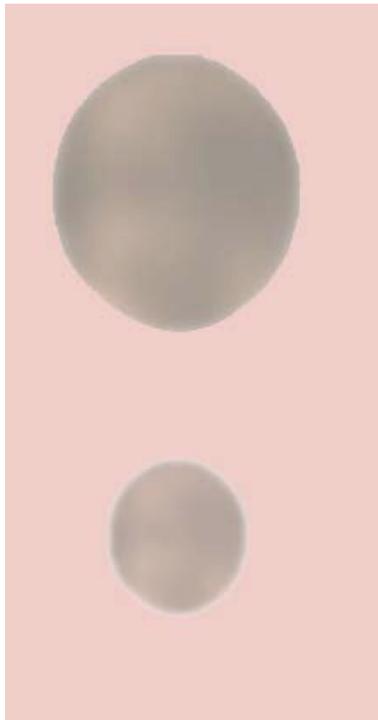
Figure 11: Human cancer cells impacted by inorganic arsenic.

Figure 12: Study suggesting toxic arsenic levels in animals.

“genomic DNA damage/mutational events (e.g. deletions, insertions, point mutations)....

It is unclear, however, at what stage these slippage mutations might occur...” (El-Ghor, 2010, p. 161).

“Women’s corporeality is open and fluid. The parallel to global capital, which smashes national economic borders, is significant” (Eisenstein, 2001, p. 75).



Aesthetic Turn

“For centuries, by law and by custom women’s identities have been subsumed by those of their husbands. Finding genealogical record sources presents the researcher with a unique challenge, for census records, wills, land records, pension records – the conventional sources of genealogical identification – all have to be viewed from a different perspective if we are to establish the genealogical identity of our female ancestors” (Schaefer, 1999, back matter).

No living person today remembers Elsie Schrag. The chief photographer of the family, – Caroline’s son, John F. Erler – was born in 1925. Elsie’s husband, Charlie, was an amateur photographer who would one day help John build a dark room. But Charlie’s photographs of Elsie escaped Erler family scrapbooks. She died of breast cancer in 1928 at the age of 42. Her sisters were devastated by the loss.

In death, Elsie’s scars took fantasmatic flight. Prognosticating Frederick Jameson’s (1984) call to “grow new organs (p. 80)” as a defense against aesthetic fragmentation (Sandoval, 2000), Elsie’s newly born scars conjugated with contaminants lodged and glowing in local soils and, perhaps in this way, accomplished an incomplete return to corporeal sentience. Her death, a blur. In time, her novel return assumed the almost perceptible appearance of a long, deep, discolored scar that at night, could be seen moving, leaping, skipping mysteriously from body to body across generations, along a dotted line.

Stop everything! The spirits are about to speak. Elsie and Caroline communicate to the living not in voices, but breakages. This leaves us to figure out how, or if, things connect. Spirit voices are incomplete tangles of words, images, sounds, ideas. And silence. The intensity creates a wish for the familiar.

In an essay on the work of Russian model and photographer, Matuschka, Tracey Roslowski (2001) compared the female body to architectural ruins. Focusing on Matuschka's (1993) self-portrait, "Beauty out of Damage," in which the fashion model posed with one breast, Roslowski wrote, "The torso may be damaged, but the ruin lacks nothing..." For Roslowski, the woman as ruin – the mastectomized woman – "is never mere matter, but a kind of physical embodiment of the active principle... released into the aesthetic attitude" (565).

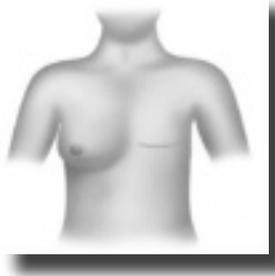


Figure 13: Diagram of a mastectomy from an oncologist's exam room.

Sonia Baez-Hernandez (2009) proposed a reconciliation of the mastectomical scar with a feminist/queer aesthetics of trans-embodiment. Working from Deleuze and Guattari's (2000) concepts of territorialization and deterritorialization, she envisioned the body "in continual passage into other assemblages" (p. 20). She considered the art and literature of breast cancer as a cartography of the breast "outside the logic of objectification" (p. 18), a language generating conceptual and representational intensities.

BOTH /AND

Glass is classed as an amorphous solid rather than a liquid.

However, the atomic structure of glass

is like the structure of supercooled liquid.

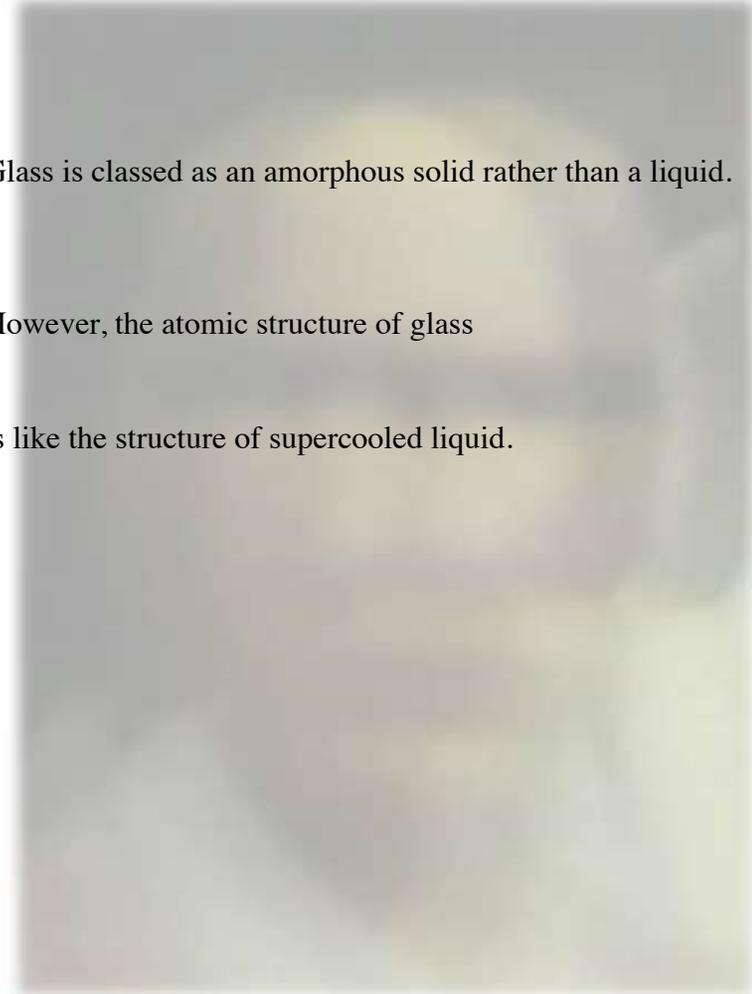


Figure 14: Film frame of Caroline Schrag-Erler taken with a 9.5 mm camera by her son, John F. Erler, ca. 1940.

A MATRIARCHIVE

The long scar of Elsie's ruined body is not ready to reconcile. Not with aesthetics. Not with theory. It looks elsewhere for ways of saying itself, despite the obvious wreckage of time and inability to speak without causing a fright. In trying to understand it, I think of a quotation on page 67 of Chela Sandoval's *Pedagogy of the Oppressed*:

A constant that changes is by definition paradoxical, and therefore messy. The idea of an inconsistent constant so bothers some physicists that they proposed a new kind of funny stuff in the universe, called quintessence. The term comes from the fifth essence that ancient philosophers believe permeated the universe—in addition to the four fundamental essences of the earth, air, fire and water.

“Quintessence,” said University of Pennsylvania astrophysicist Robert Calwell, “is shorthand [for a cosmological constant that varies]. It's dynamic, it's real, it's substantive. But isn't not like any other kind of matter.” (*Los Angeles Times*, Missing Pieces of the Cosmic Puzzle, Monday, June 15, 1998, p. 1)



Aesthetics presupposes an object of observation that obeys traditional laws of physics. That is why Elsie will not submit to its regimen.

This ambience of fright, of being observed from the shadows of the room in which I write, is an example of what I think Freud meant by *unheimlich*- which translates into English as “the uncanny.” In his lecture on Freud's (1939) *Moses and Monotheism*, Derrida (1995) invoked a biological archive of mnesic traces, archaic and transgenerational heritage (p. 34); this, too, hovers close to the truth of the feeling of writing about, inscribing an archive of the m/other - a matriarchive - of embodied, place-based, oncogenetic particulars.

To Freud, transgenerational memory was an irrepressible authority, a force that makes history and culture possible. Without it:

There would no longer be any question of memory or archive, of patriarchive or matriarchive, and one would no longer understand how an ancestor can speak within us, nor what sense there might be in us to speak to him or her, to speak in such an *unheimlich*, “uncanny” fashion, to his or her ghost. *With* it. (Derrida, 1995, p. 36).

The spectral, quintessential subject speaks in the medium of the flesh. Its speech is corporeal and raw matter and one with the biogenetic archive. Text and body, signifier and sign, are sealed in a kind of covenant.

If, as Derrida (1995) wrote, circumcision is an inscription “inside and outside the book, *right* on the book” of newborn male bodies in Judaic tradition, so too, perhaps, with another kind of unifying covenant. Ana Porroche Escuerdo (2009) compared mastectomy not to circumcision, but to castration. Women whose breasts were an important erotic and erogenous site for sexual excitement are left sexually disembodied by mastectomy. An exam room pamphlet on becoming sexually active after a mastectomy stresses patience, communication with one’s partner, and keeping a positive attitude. A well-meaning friend suggests that problems of sexual dysfunction will be fixed or greatly reduced by wearing breast prostheses or having breast reconstruction surgery. In this view, poor self-image and lack of self-esteem are the main obstacles to resuming a full and satisfying post-mastectomy sex life.



I have been asked if breast reconstruction restores sensation to the breast. I have also heard women speak of post-mastectomy breast reconstruction and cosmetic breast enhancement as if the two surgical procedures were somehow alike. I wonder if they would if speak of a person with a false leg possibly feeling her own toes. comparable. Legs are not usually regarded as ornamental body parts, but:

If we take into account...cultural assumptions about women’s breasts, which emphasizes their voyeuristic male arousal potential, it should not be surprising that the discourse on breast reconstruction frequently reduces the breast to an object which can be changeable or improved with breast reconstruction, rather than to see it as a site of lived experience or a bodily extension of the self. (Escuerdo, 2009, p. 4)



Derrida wrote of circumcision as ancestral writing, a scar or parchment held close to the body in Judaic tradition. In circumcision, the paternal heritage – the patriarchal - speaks: “Here, read my book.” The book contains laws, rules, codes, cultures and histories constitutive of Jewish patriarchy. If circumcision is a symbolic castration (Derrida, 1995), then mastectomy is nothing less than fully lived (Escuerdo, 2009). Some body artists may regard this as a form of aesthetic experience. For the Schrag bodies, bodies traversed and transected by broken tissue, mastectomy was all circumcision is not: embodied, female, disintegrating.

References



“Here, read my book”

- Baez-Hernandez, S. (2009). Breast cancer: A new aesthetics of the subject. *NWSA Journal*, 21(3) 143-65.
- Benjamin, W. (1973). *Illuminations*, London: Fontana.
- Braidotti, R. (2002). *Metamorphoses: Towards a materialist theory of becoming*. Malden, MA: Polity.
- Breast Cancer Fund. (2009). Abstracts of selected bisphenol A (BPA) studies. Retrieved from http://www.breastcancerfund.org/assets/pdfs/tips-fact-sheets/bpa-abstracts_mar2009.pdf
- Deleuze, G., & Guattari, F. (2000). *A thousand plateaus: Capitalism and schizophrenia*. (B. Massumi, trans.). Minneapolis: University of Minnesota.
- Derrida, J. (1995). *Archive fever: A Freudian impression* (E. Prenowitz, trans.). Chicago: University of Chicago Press.
- Eisenstein, Z. (2001). *Manmade breast cancers*. Ithaca: Cornell University Press.
- El-Ghor, A. A., Noshay, M., El Ashmaqui, H. M., Eid, I., & Hassaane, M. S. (2010). Microsatellite instability at three microsatellite loci (D6mit3, D9mit2 and D15Mgh1) located in different common fragile sites of rats exposed to cadmium. *Mutation Research* 696, 160-166. Doi: 10.1016/j.mrgentox.2010.01.007
- Escuerdo, A.P. (2009, November). Writing from breast cancer patients' lives: The erotic significance of the lived nipple. In P. Reynolds (Ed.), *The Erotic: Exploring critical issues*. Symposium conducted at the meeting of the Fifth Global Conference of Inter-Disciplinary. Net, Salzburg, Austria.
- Jameson, F. (1984). Postmodernism, or the cultural logic of late capitalism. *New Left Review*, 146, 53-92.
- Martin, M. B., Reiter, R., Trung, P., Avellanet, Y. R., Camara, J., Lahm, M., Pentecost, E., Pratap, K., Gilmore, B. A., Divekar, S., Dagata, R. S., Bull, J. L., & Stoica, A. (2003). Estrogen-like activity of

metals in MCF-7 breast cancer cells. *Endocrinology*, 144(6), 2425-2436.

Mathias, M. (n.d.) Building capacity to address environmental health issues during pregnancy. U.S. Environmental Protection Agency Final Grant Presentation. Retrieved from [http://yosemite.epa.gov/ochp/ochpweb.nsf/content/Final_Grant_Presentation_Ohio_PDF.htm/\\$File/Final%20Grant%20Presentation_Ohio.pdf?Open&preview](http://yosemite.epa.gov/ochp/ochpweb.nsf/content/Final_Grant_Presentation_Ohio_PDF.htm/$File/Final%20Grant%20Presentation_Ohio.pdf?Open&preview)

Maumee Restoration Action Plan, & Duck & Otter Creeks Partnership, Inc. (2006, January). *Draft: Maumee Area of Concern Stage 2 Watershed Restoration Plan, I*. Toledo, Ohio.

Olson, J. S. (2002). *The encyclopedia of the Industrial Revolution in America*. Westport, CT: Greenwood Press.

Roslowksi, T. A. (2001). Woman as ruin. *American Literary History*, 13(3) 544-577.

Sandoval, C. (2000). *Methodology of the oppressed*. Minneapolis: University of Minnesota Press.

Shaefer, C. K. (1999). *The hidden half of the family: A sourcebook for women's genealogy*. Baltimore, MD: Genealogical Publishing.

Scorecard. (2002). Pollution report card for zip code 43606. *Scorecard, The Pollution Information Site*. Retrieved from http://scorecard.org/community/index.tcl?zip_code=43606&set_community_zipcode_cookie_p=t&x=0&y=0

Sparks, D. L. (2005). Toxic metals in the environment: The role of surfaces. *Elements*, 1, 193-197.

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