WOMEN'S STUDIES CELEBRATION
Women's History Month 2006

NOMINATION: Papers and projects done in completion of course work for Spring, Summer and Fall 2005 eligible for nomination. Students do not need to be enrolled Fall 2005 or Spring 2006 to be eligible.
(Students are encouraged to identify works they would like nominated and approach their professor to initiate the process.)

Instructor Laurel Kieffer Dept. WMNS

Course Number and Name WMNS 433: Ecofeminism Semester completed Spring 2005

Title of Nominated Work PATRIARCHY AND ENVIRONMENTAL TOXINS: THREATS TO WOMEN AND CHILDREN

Pick one-
CATEGORY:

~~Sampson:~~
_X_ Undergraduate Research Paper
~~___Undergraduate Project~~
___Graduate

___**See**
___**Olson**
___**Kessler**
___**Turell**
___**Belter**

(The judges retain the right to reassign categories for all nominated works.)

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****WHY DO YOU, THE INSTRUCTOR, RECOMMEND THIS AS AN EXEMPLARY STUDENT PAPER/PROJECT?** (Attach a separate sheet.)

As the nominating instructor, please notify the student and ask them to turn in the paper, or attach to your nomination form.

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Awards are sponsored by the UW-Eau Claire Foundation, Helen X. Sampson Fund, and by private individuals. Research involving human subjects must conform to the guidelines given by the Institutional Research Board. Contact Research Services, 836-3405, with questions.

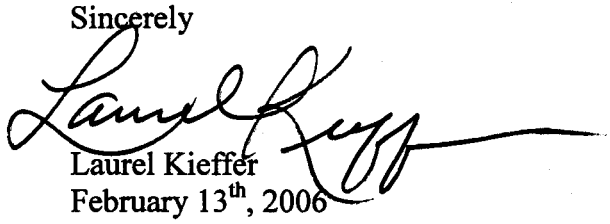
Submission deadline is February 13, 2006.

Aimee Schneider submitted this paper as her research project for WMNS 433: Ecofeminism. The quality of her project presentation and passion for her research were quite evident. In addition, she convinced at least one or two other professors on campus that the impact of environmental toxins on fetal development was worthy of inclusion in their class content.

This paper is an extension of Aimee's desire to pursue becoming a nurse practitioner/midwife. I believe that through this, she has effectively bridged her commitment to improving healthcare for women with her concerns for the environment.

Aimee will be co- presenting this paper and her experiences in the Ecofeminism class at the upcoming WMNS conference. I'm honored to share her work.

Sincerely



Laurel Kieffer
February 13th, 2006

Patriarchy and Environmental Toxins: Threats to Women and Children

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In the book *Having Faith*, ecologist Sandra Steingraber cleverly and effectively creates awareness about a multitude of prevalent environmental toxins that are impacting the health of pregnant women and nursing mothers globally. All humans are surrounded by a plethora of toxic chemicals. They exist in the air, water, soil, food supply, and the adipose cells in our bodies. Organic, vegetarian, and vegan diets curtail the amount of toxins that enter our bodies via food, but we have little to no control over the other sources of toxin exposure. Fetuses are the most vulnerable of all human beings to toxic harm. The effects of contaminated breast milk consumption have been minimally studied. Therefore, we do not know how these toxins are affecting young children.

The major goal of Steingraber was to enlighten the public about the unhealthy nature of environmental toxicity. She sought to expose the chemical culprits that play a substantive role in birth defects and mental deficits. In the book, she describes many of the toxins that surround the human species, how we are exposed, and the fetal, childhood and adult health issues resulting from exposure. Peer-reviewed research supports the information presented in the book. There is little doubt in the scientific community that environmental contamination resulting from global industrialization is negatively impacting human health. All of the toxic materials mentioned in the novel are proven teratogens.

Teratogen is the term for any substance that causes developmental damage in embryos and fetuses. In short, a teratogen is a birth defect-inducing substance. Teratogens have a wide variety of effects. The effects are dependant on the type of chemical, the amount of exposure, and the timing of the exposure.

In the third week of pregnancy, "sensitive periods" emerge. Prior to that, zygotes are usually not susceptible to dermatogens because they are not yet connected to their mothers via placenta and umbilicus. A sensitive period is a time when a certain body part, organ or system is forming within the embryo/fetus. Teratogen exposure during these sensitive periods cause damage to that particular body part, organ, or system. Week three is a sensitive period for heart and nervous system development. Teratogen exposure in week three can result in heart defects and brain and spinal cord defects. Weeks four and five are the sensitive period for eye and limb development. The teeth and ears form during week six. Week seven is the sensitive period for palate development. Ear growth continues in week eight and is accompanied by genital and reproductive development. The genitals continue to be sensitive to teratogens into

week nine. The brain continues to develop and is especially sensitive in weeks nine and sixteen.

Steingraber explains the importance of public awareness about teratogenic chemicals. Toxic Release Inventories should be more accessible. A national, comprehensive birth defect registry should be formed. Information about local toxin exposure and geographical birth defect "hot spots" should be accessible by the public.

Steingraber advocates breast feeding in the book. She also demands that more research be done about the effects of contaminated breast milk on human health. Breast milk contamination is of great concern. It has been shown that environmental toxins alter and misdirect fetal development. One might infer that these substances would also influence the development of breast-fed infants and toddlers. Unfortunately the research is inadequate and inconclusive. The consequences of breast milk contamination must be understood for the sake of our species. Infants are essentially at the top of the toxin consumption pyramid. Toxins accumulate in plants which are eaten by animals, both human and non-human. Furthermore, many humans consume non-human animals. Since toxins never really disappear, they must reside somewhere. Since most toxins are fat soluble, they reside in the tissue of living organisms. As the food consumption pyramid narrows, the toxins become more and more concentrated. Since humans reside near the top of the food chain, their toxin levels are quite high. When a woman nurses her baby, a lifetime of toxic exposure enters that infants mouth. That is a frightening thought, especially since we do not know the long and short-term effects of such exposure. However, such information is not public knowledge. Lactation guides for nursing mothers rarely mention the issue of contamination. Those that do dismiss it as "trivial." The last part of *Having Faith* compels its readers to pursuit knowledge regarding breast milk contamination. Perhaps piqued public interest will drive researchers to focus on the topic.

Finally, Steingraber provokes thought about the male-dominance and medicalization surrounding pregnancy and childbirth. This is certainly a feminist issue. It is also of ecofeminist interest. Women have been having babies since the beginning of the human race. It is a natural process. Since the male-dominance of pregnancy attempts to dominate both women and a natural process, it should be of ecofeminist concern. For thousands of years, women gave birth in the company of their female relatives, friends, and midwives with minimal intervention. In the 1800's, a major change occurred. In order for men to maintain dominance over women, reproductive

control was essential. At this time births moved from homes to hospitals and midwives were exchanged for male physicians. Steingraber outlines many of the tragedies and complications that accompanied the male-dominance and medicalization of childbirth.

Persistent organic pollutants (POP's) are a class of uncontrollable synthetic chemicals. As their name implies, they are long-lasting and resistant to degradation. They are also fat-soluble meaning that they accumulate in living organisms. POP's are potent even in small amounts. In humans, they have the ability to promote cancer and suppress the immune system. They also have the ability to alter brain function, decrease fertility, and of course, cause fetal damage. The three most infamous members of this group are DDT, PCB's (polychlorinated biphenyls), and dioxin.

Rachel Carson's *Silent Spring* of 1962 first brought negative attention to the widespread usage of DDT and other pesticides. At the time, she was deemed "hysterical." Ten years later, with bird populations dwindling and male-science uncovering DDT's negative effect on the environment, Carson's ideas were finally accepted and the use of DDT was banned in the U.S. Now American farmers just use different kinds of pesticide. Globally, DDT is still widely used.

Pesticides with low molecular weights cross the placenta, the "protective" barrier between maternal and fetal blood, easily. Those with heavier weights may be partially broken by placental enzymes into even more harmful substances. This poses a great risk to the fetuses of rural and farming women. Globally, it is women who do the vast majority of all agricultural work.

The children of pesticide applicators and rural inhabitants are at a greater risk for birth defects than those of the general population.
The children of farmers have greater occurrences of cleft palate, cryptorchidism (undescended testes), Down syndrome, spina bifida, hydrocephaly, absent or shortened limbs and digits, urinary tract malformation, genital malformation, and fetal death. Though it has been banned for over thirty years, DDT and the products of its breakdown are still highly concentrated in human tissue. DDT is known to interfere with the prenatal action of sex hormones.

Dr. Vincent Garry of the University of Minnesota conducted a thorough study of birth defects in 1996. Garry noticed several trends. First, he noticed a geographical pattern relating to birth defects. Birth defects were much more prevalent in the Western

half of Minnesota, where much farming is done. Children of non-farming families in the west were 85% more likely to have babies with birth defects than the children of non-farming families in the eastern half of the state. There was also a seasonal link. Most pesticides are applied in the spring. Children conceived in the spring were more likely to be affected. Finally, the types of birth defects that I mentioned earlier are similar to those seen in other farming communities throughout the country. The results of Garry's inquiries seem to support the theses that pesticides are indeed linked to birth defects. DDT is also highly concentrated in human breast milk.

Polychlorinated biphenyls (PCB's) are substances commonly used in the production of carbonless copy paper and as pesticide carriers. Though PCB use is widely banned and heavily regulated, there are still some legally allowed uses. PCB's remain stored in human adipose tissue for 25 to 75 years. During pregnancy, PCB's decrease placental blood flow, meaning that the fetus may be deprived of needed oxygen and nutrients as well as "flooded" by its own wastes. PCB's suppress fetal immune systems and lead astray thyroid hormones essential in brain development. This contributes to decreased intelligence and behavioral disorders later in life. Sources of human exposure include freshwater fish, dairy, and meat. PCB's also contaminate breast milk in high concentrations, especially in impoverished and indigenous women who have no alternatives to eating contaminated fish and meat.

Dioxin is a formidable herbicide. It has the ability to initiate cancer growth, suppress the immune system, interfere with hormone delivery, reduce fertility, worsen endometriosis, cause learning disabilities, and inappropriately activate liver enzymes. It is also highly teratogenic, capable of invoking numerous congenital defects. Humans are exposed to dioxins by consuming contaminated fish, meat, and dairy. Dioxin was a component of Agent Orange, which was mixture of chemicals sprayed during the Vietnam War to clear roadside brush to prevent the ambush of U.S. troops. It was also used as a weapon when sprayed over Vietnamese food crops. Three decades later, birth defects are still common in the areas that were heavily sprayed. Dioxin remaining from the Agent Orange attacks is still present in the soil, water, and fish consumed by the Vietnamese people.

Organic solvents are a class of chemicals used to dissolve other substances. Examples include kerosene, acetone, and benzene. They are components of many adhesives, paint thinners, household cleaners, dry-cleaning solutions, spot removers,

and pesticides. These solvents are dangerous again because of their longevity. Once they evaporate, they enter the air where they are readily inhaled. Solvents too pass easily through the placenta and cause fetal damage. Fetal exposure to solvents increases the risk of heart defects, skeletal malformations, brain and spinal cord defects, neural tube problems, clubfoot, kidney defects, deafness, and abnormally small genitals. Miscarriage and stillbirth are also common with prolonged exposure. Women who work in health-care settings, offices, cleaning services, textile industries, cosmetology, printing, and graphic design are at the greatest risk for exposure. Such jobs, especially in the cleaning and textile industries, are held by poor women of color.

Polycyclic aromatic hydrocarbons (PAH's) are a family of chemicals that contribute to the teratogenic effects of air pollution. There are many natural as well as synthetic substances that are considered PAH's. Further more, PAH's result from the combustion of organic substances. They are formed when wood, gasoline, diesel, coal, and fuel oil are burned. The use of automobiles and coal-burning power plants are significant contributors to PAH air pollution. Combustion-formed PAH's are highly carcinogenic. An example of this is cigarette smoke. The PAH's created from the burning of tobacco cause many types of cancer. Fetal exposure to high levels of PAH's causes low birth weight, low body length, and small head size.

Thanks to the work of Frederica Perera of Columbia University's School of Public Health, we know that PAH's attach themselves to human chromosomes. This interferes with the rapid cell division that is required in developing embryos and fetuses. This yields smaller newborns. Low birth weight newborns are more likely to die within the first year of life than normal weight infants. They also have increased incidence of infections and brain damage. Low birth weight infants exhibit slow growth throughout life. They typically receive lower intelligence scores and are socially immature. There are also immune complications with infants who were exposed to PAH's in utero. Perera's research provided the first evidence of the ability of airborne pollutants to cause fetal damage.

Lead has been recognized to cause brain damage for at least 2000 years. Lead is a natural element found in the geological world bound with other elements. It serves no purpose in the ecological world. Lead does not exist by itself in nature. Lead must be smelted out of other materials. Once it has been released from its geological

captors, it becomes very harmful to the ecological world. It is non-biodegradable, and persistent. Essentially, it never really goes away.

Excess lead exposure causes brain capillaries to erode. This causes bleeding and swelling. In the sixth month of pregnancy, a woman's body frees up calcium for the development of fetal bones. In this process, systemic lead is also freed and fast-tracked to the fetus. The amount of lead that is passes to the fetus is dramatic and frightening. If a women was previously suffering from lead poisoning during the pregnancy, her symptoms would be alleviated at this time because most of the lead would leave her body and enter the fetus. Commonly, fetal death results from heavy lead exposure. Smaller doses of lead cause developmental problems in fetuses. Later in childhood, this damage will be manifested by low IQ, aggression, poor language skills, and hyperactivity.

The main causes for environmental lead toxicity were past usage of lead paint and leaded gasoline in the U. S. Though the effects of lead on the human brain have been known for centuries, lead was added to gasoline in 1922 to prevent engine knocking. Lead had previously been added to paint. In 1925, much of the world recognized the harmful effects of leaded gas and paint and banned it. This did not happen in the United States because of the amount of power and money in the lead industry. Environmentally conscience scientists lobbying to ban leaded substances on the basis of public health were deemed "hysterical" by the lead industry's scientists. It was not until the late 1970's that lead was finally recognized as a cumulative brain toxin by the U. S. government and banned for use in gasoline and paint. By that time, 15.4 billion pounds of lead had already been cast out into the environment settling in the soil, invading plants, and taking up residence in the bodies of human and non-human animals.

Like lead, mercury is an element found in the earth's crust. Unlike lead, mercury can naturally migrate from the crust to the surface. Mercury is shorter lived than lead and does not persist in the environment as long. Human's exponentially increase the amount of mercury residing in their own bodies by clear-cutting and burning coal for power. Clear-cutting allows mercury to leave the soil and enter rivers, lakes, streams, and groundwater. Coal-burning power plants release 100,000 pounds of mercury annually into the atmosphere in the United States alone. There are presently no laws to curtail mercury emissions. This has become an issue of recent concern and mercury

regulations are beginning to emerge. Unfortunately, the burning of coal for power and clear-cutting are also areas in which industries downplay the negative health consequences. As with lead, it may be possible for these industries to prolong regulation and continue polluting for several more decades, hoping that their "scientists" can keep "proving" that mercury is harmless.

Mercury is another substance that is actively pumped across the placenta. In fetuses, it arrests neural development, halts cell division in the fetal brain by binding with chromosomes, and interferes with brain cell migration. Mercury most commonly damages the cerebellum, the part of the brain that controls posture, balance, and coordination. Mercury can also damage the autonomic nervous system, increasing blood pressure later in life.

Methylmercury is the most toxic of all mercury forms. Widespread methylmercury poisoning occurred in the Japanese fishing village of Minamata in the 1930's, 40's, and 50's. In the 30's, a factory using methylmercury as a catalyst in the production of vinyl chloride opened in the village. Excess methylmercury was dumped into the ocean nearby. Soon, the seaweed, fish, and birds began to die. Dogs and pigs were drunkenly staggering about. In the 50's, the cats of fishing families began dying. Soon, children and adults were being hospitalized slurred speech and unsteady gait. Next, hands and feet began to tingle. Swallowing became difficult, paralysis set in, and death ensued. Doctors began referring to this as Minimata's disease. It was later discovered that the symptoms were elicited by methylmergury poisoning and not an infectious agent.

In addition to the previously mentioned symptoms, prenatal exposure to methylmergury caused blindness, deafness, small heads, and deformed teeth. Fetal exposure caused the most extensive damage. Continued exposure after birth frequently resulted in death.

The main source of human mercury exposure comes from consumption of fish and other seafood. Recommendations vary regarding fish consumption during pregnancy. The Food and Drug Administration (FDA) and Environmental Protection Agency (EPA) are monitoring the mercury levels in the seafood for human consumption. They recommend that pregnant women and women planning to become pregnant consume minimal amounts of seafood. It is recommended that these women should limit seafood consumption to one serving per month. Others argue that one serving per week is acceptable. This is clearly a problem to cultures ,such as the Inuit, that are

sustained by fish and seafood.

Research by Philippe Grandjean indicates that the fetal effects of mercury are both brain damaging and dose-dependant. A study done in the Faroe Islands in 1986 found that the more mercury a women was exposed to, the more damage the fetus sustained. This information was contradicted by a man named Philip Davidson who did a similar study on women in the Seychelle Islands. He concluded that consumption of mercury contaminated fish posed no threat to development. Grandjean then conducted another similar study on women living on the Moroccan island of Madeira. Once again, he concluded that mercury is damaging to cognitive development and that the amount of exposure was reflected in the severity of the abnormalities. As a result, Davidson's methods have been questioned. More recent studies have indicated that diets high in fish and seafood elevate the risk of mercury-related brain damage in fetuses.

Steingraber advocates breastfeeding. Breastfeeding an infant promotes health. Breastfed infants have fewer respiratory, gastrointestinal, urinary tract, ear, and spinal infections than do formula-fed infants. Sudden infant death syndrome (SIDS), is less common in breastfed infants. They are at lower risk for developing allergies, asthma, type I diabetes, and Crohn's disease. Breastfed infants are leaner and at a lower risk for childhood obesity. The antibacterial and antiviral properties of breast milk protect infants from pathogens that their undeveloped immune systems would otherwise be unable to protect against. Breast milk expedites and strengthens the developing immune and digestive systems. Mothers also benefit from breastfeeding. It helps the uterus return to its pre-pregnancy size, aids in weight loss, acts as a natural birth control, and lowers the risk for ovarian and breast cancer. As Steingraber points out, would women formula-feed their infants if they were made aware of these great benefits? Doctors and nurses do not provide women with enough information about lactation and the importance of breastfeeding. Many post-partum resources do not explore the benefits of breastfeeding and the risks associated with formula-feeding. There is a societal aversion to lactation.

With regards to breast milk contamination, the information is lacking. Few studies have been conducted about the health effects of contaminated milk on nursing infants and toddlers. Contamination certainly exists. Studies have shown that there are

significant amounts of POP's and other chemicals in surprisingly high concentrations in breast milk from women all over the world. Nobody really knows how this contamination affects children. One study has indicated that high levels of dioxin in breast milk cause misplacement of dental enamel resulting in soft, deformed teeth. Other studies have been inconclusive. In order to protect human health, breast milk contamination and its effects must be studied in more and in greater detail and scope.

The medicalization and male-dominance of childbirth has transformed a miraculous, natural process into an affliction. Pregnancy is not a disease. For the most part, it does not require medication. It was male physicians that introduced pregnant women to ~~thalamide~~ thalidomide. Thalamide was created in 1953 and was first used as an anticonvulsant, then a sedative. In 1958, physicians discovered that it minimized the nausea associated with morning sickness. It was readily prescribed to pregnant women. No testing was done regarding its safety. We know now that thalamide is a teratogen. It causes limb abnormalities. Children were born with dwarfed, flipper-like, and missing limbs. Thalamide also caused miscarriage and stillbirth. Thalamide was withdrawn from the market 10,000 birth defects and three years later.

DES was a hormone given to pregnant women to prevent miscarriage. It was first distributed in the late 40's and was prescribed widely until 1971. In 1971 Dr. Arthur Herbst published a paper linking prenatal DES exposure to later vaginal cancer. More research ensued. Prenatal exposure to DES caused infertility in both males and females. In addition to vaginal cancer, DES daughters were found to have abnormal uterine shapes, placing them at risk for tubal pregnancies and preterm labor. DES sons experienced crytorchidism and urethras that opened on the underside of the penis instead of the tip. It was concluded that DES actually increased the incidence of miscarriage and stillbirth. DES also increased the risk of breast cancer in the mothers.

Presently, anesthetics and pain relievers are widely used in delivery rooms. In the U.S. 80-95% of hospital births involve some type of analgesic or anesthetic. Labor pain medications unnaturally speed up delivery which does nothing but cause additional pain for mothers. Epidurals interfere with the mother's ability to push and delay labor. This increases the risk of complications and fetal distress. Most medications given to the mother will cross the placenta and affect the baby as well. Medicated deliveries yield sleepy, unresponsive infants. Countries that withhold pain medications and

anesthesia tend to have better birth outcomes. Relaxation and breathing techniques can be effective methods of pain relief and have no negative side-effects.

The medicalization of childbirth has also introduced frequently used, yet rarely needed procedures like cesarean section and episiotomy. Episiotomies are incisions made into a woman's vagina to decrease the amount of tearing as the baby emerges. Episiotomies are used in up to 90% hospital deliveries. Episiotomies are extremely painful. They are more painful than natural tears, are more easily infected, and take longer to heal. Vaginal massage is a much safer and more effective technique to prevent tearing. Cesarean sections, where the baby is surgically removed from the uterus, are only warranted in medical emergencies, yet in 1998 21% of all hospital deliveries occurred via c-section.

Gravity helps to ease delivery when women stand or squat during labor. It was male doctors in Western society that conceived the idea of childbirth in a reclined position. While delivery tables make it easier for doctors to monitor progress, they make it substantially more difficult for women to deliver. By moving around during labor, women expedite delivery. In hospitals, women are frequently confined to beds and are prohibited from walking around.

Those in favor of hospital birth argue that hospitals make childbirth safer. Studies, however, indicate that home births equally safe and often safer. Home birth is an empowering experience for many women. It is also described as more comfortable.

Steingraber has contributed greatly to ecofeminism. Like Rachel Carson, she used a biological approach to studying the domination of the natural environment. Biology is a recognized and respected science. Intertwining biology with ecofeminism gives ecofeminism credibility. By backing up her theses with "real" science, Steingraber makes them less vulnerable to refutation. It is important that ecofeminism be taken seriously. Steingraber makes an effort to push ecofeminism beyond its stereotypes. She demonstrates that ecofeminism is more than just the whining of hysterical, tree-hugging, vegetarian lesbians, its science and it matters.

Steingraber's main contribution to ecofeminism is her presentation of knowledge. *Having Faith* is a well-written book that is easy to read. Until the book was published, much of the information that it contains was buried in science text books and professional journals. Steingraber interpreted the data into layman's terms so that it could be understood outside of the scientific community. The book is also highly

accessible to the general public. It may be purchased online or in most bookstores. There are copies in public libraries. Steingraber makes the book interesting and enjoyable because she incorporates her own pregnancy experience into the story. Not only is the book informative, it's witty and captivating. Awareness is essential for the progression of ecofeminism. Steingraber creates awareness through her novels. Public awareness leads to concern. Public concern leads to research. Usually, research yields solutions.

Steingraber's work also has emotional appeal. I think that there is great value in this. Our society reacts very strongly to emotion even though it is something that we try to repress. In a society that values intelligence and ablism, it is frightening to think about deformed and brain damaged babies. Our children are our future, and in lieu of the information presented in the novel, it may not be a bright future. This realization should elicit fear, sadness, and anger. These are powerful emotions that can be very motivating. Steingraber wants us to act upon these emotions. Aldo Leopold once said, "no important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions." Change occurs at the intersection between intellect and emotion. Emotion is essential to the ecofeminist movement.

Steingraber is an excellent ecofeminist role model. She walks the talk. That is very admirable and adds to her credibility. Nobody is perfect, but by making educated choices and being conscientious everyone can make a difference. Steingraber provides grounds for these educated and conscientious choices.

Steingraber has been criticized because she makes us aware of the problems, but gives no suggestions on how we can go about fixing them. In response to those critics, I suggest that they read her work in more depth. Steingraber never comes right out and says, "do this and don't do this." However, she implies proper courses of action throughout her work. For example, in *Having Faith*, Steingraber describes the multitude of problems associated with mercury exposure. She also states that the major contributor to environmental mercury levels is the coal-burning power industry. One should imply from this, that Steingraber wants us to pursue other energy sources. This may include lobbying, doing research about alternative sources, or simply curtailing ones own use of energy. Just because Steingraber doesn't spell it out, doesn't mean that she's failing to provide solutions.

I try to live as eco-friendly as possible. I try to use as little water and electricity as possible. I eat organic foods whenever I can. To me, it is important to actively share my ideals with others. Like Steingraber, I am spreading awareness. I am trying to combat the ignorance that allows our species to use and abuse, failing to realize the long and short-term consequences. I feel that my career choice will greatly reflect Steingraber's theses. By working with pregnant women, I will be able to make them aware of the environmental toxins that are affecting themselves as well as their offspring. An advanced degree would also allow me to do research, something that Steingraber advocates. I will also help to restore reproductive control to women, and in doing so empower them. In my own life, I try to set an example just as Steingraber does.

Things are not so optimistic on a meso level. Many of the people surrounding me in the community are not so guarded about their energy consumption. They drive gas-hogging trucks and SUV's when compact cars would suffice. My neighbor wastes gallons upon gallons of water hosing off his driveway for no apparent reason. The school that I attend does not offer organic or locally grown foods in its cafeterias. The nearby grocery stores have a limited selection of organics. Those that are offered are certainly not local. A monstrous smokestack and endless black puffs remind me that my campus is not exploring energy alternatives. The Toxic Release Inventory for the Eau Claire area is not easily accessible. There is no local system for monitoring birth abnormities or breast milk contamination. As a community, Eau Claire could certainly be more aware. In some ways Eau Claire is progressive. Local citizens are working with the DNR to stop local corporations from infringing on marshland. Concerned citizens are fighting to have fluoride removed from our public water. When I go to the farmer's market, there is usually a crowd. My college is offering a class on ecofeminism. Many of my friends and acquaintances are turning to nurse-midwives for their obstetric and gynecological needs. My alma matter grade school has incorporated water and energy conservation into the curriculum. There is hope.

I have very little optimism on a macro level. The leaders of this country allow their personal interests to dictate policy. These policies are negatively impacting the health of the environment and its inhabitants. Long-term consequences are ignored because there is money to be made. Corporate greed is robbing the earth of its resources and robbing us of choice. The needs of the wealthy, white, able-bodied,

heterosexual, educated, corporate male are satisfied, but good of the all, is not taken into consideration. The government tells us that to consume is to be American. Though we have the technology, we opt not to use it in pursuit of more eco-friendly and sustainable energy sources. President Bush feels that he has the right to preside over the reproductive choices of every woman in this country. American citizens are denied information about birth defect "hot spots." The government frequently denies or downplays the health risks associated with pollution of all types. I don't foresee a paradigm shift, but one is needed. Slowly but surely, environmental toxins are identified and in some cases they are regulated. We have industry-bought science to thank for the sluggishness. Thankfully, the ecofeminist movement is taking hold. Grass-roots activists are still devoting themselves to change. Small battles are won everyday. Knowledge is contagious. It just needs to be spread around. Steingraber is doing her part. I also think that emotion is contagious. As I said earlier, change occurs at the intersection of intellect and emotion.

Global Industrialization is a great threat to the earth's delicate ecosystems. Much of this comes back to the United States government who convinces other countries to exploit their resources. They suffer and American corporations turn a profit. By introducing pesticides and genetically modified organisms, corporate America has robbed indigenous populations of their livelihoods and health. Thankfully, the policies of most other industrialized nations are more eco-friendly. These countries have banned genetically modified organisms and are working to control the emission of pollutants. They are participating in the Kyoto protocol. Many European countries have established data bases and registries for both birth defects and breast-milk contamination looking for patterns and creating awareness. They aim for long-term sustainability.

Sandra Steingraber has inspired me to seek truth, to live as an example for others, and to act upon my emotions. Discouragement is inevitable, but it is also a powerful motivational tool.

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