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Rebecca Faery; Writing on Contemporary Issues

Essay #3

Building Green; Bridging the Gap Between Urban Living and Nature

For the first time in history, the majority of human populations live in cities, and people are continuing to leave the countryside to live closer to urban centers. Concentrated populations may actually help to decrease our global footprint since density is efficient. Houses or apartments that are packed together are typically built within walking distance to shopping centers and office buildings, and it is easier and cheaper to provide electricity, water, and gas. Despite the benefits of cities, it is crucial to encourage urban innovation to keep the living and working areas safe and healthy for both the people and the environment. It is clear that natural systems closest to cities often degenerate into shattered remnants of what they once were, which is tragic, since most cities grow up where nature was once bountiful. The layers of infrastructure between urban inhabitants and the natural world hinder the ability to make smart, long-term decisions with the interests of the earth in mind. How we choose to incorporate nature into the places where we live and work is a challenge that will determine our future. Literature and research alike anticipate the downfall of our society and our world if humans' urban development continues in the same manner it has been carried out for centuries.

The Word for World is Forest is a science fiction novel by Ursula K. Le Guin that takes place several centuries in the future. Earth has suffered some environmental disasters, one of the most notable being the complete deforestation, paralleling the destruction of forests in Vietnam during that war, when the novel was written. Humans on Earth just kept cutting down trees and the forests until there was nothing left. The sky was filled with smoke that blocked out the sun,

and some of Earth's inhabitants left the planet to seek forests on another planet and begin the same destructive process over again:

Men were here now to end the darkness, and turn the tree-jumble into clean sawn planks, more prized on Earth than gold. Literally, because gold could be got from seawater and from under the Antarctic ice, but wood could not; wood came only from trees. And it was a really necessary luxury on Earth. (Le Guin 13-14)

Everything that surrounds us, shelters us, feeds us, and clothes us was, in some way and at some time, a part of nature. If we use up our resources, we will no longer have the necessities that are needed for simple survival. It is time our society starts living on the planet as if we intended to stay. It is realistic to plan the gradual replacement of our current technology and systems by first applying bridge technology to reduce our impact on the planet, and then to transition to new systems that allow human populations to live in harmony with the environment. Those who work in big bland office towers trudge off to work each day knowing the drab interiors can be a bit depressing. Many office buildings have poor ventilation and in some cases artificial light can leave some individuals feeling sick. Luckily, buildings like these can be revolutionized with daylight, interior plants, cleaner air, improved airflow and access to outdoor space. In addition, improving the conditions of work areas may increase both the level of attendance and the productivity of workers.

One way we can start to make changes to our urban living is to make it a point to live in a city where environmental advancements are developed and green solutions abound. We must first have some idea as to what would qualify as a "green" product. The newsletter "Environmental Building News" (EBN) provides industry news and in-depth articles about

products, technologies and topics in green design and construction. According to an EBN article published in 2000, a green project is something that “is used in the manner to reduce the overall environmental impacts of the building, structure, or technology. Creating a green building means matching the products and materials to the specific design and site to minimize the overall environmental impact”. This may include products made with salvaged, recycled, or agricultural waste content, products that conserve natural resources, products that avoid toxic or other emissions, products that save energy or water, and products that contribute to a safe, healthy built environment.

Greening infrastructure is an easy way to advance towards developing our cities to benefit nature. It is possible to create a mutual relationship between urban living and nature. In Ontario’s University of Guelph-Humber’s main building, designers built a four-story indoor wall of ferns, ivy, and other plants as a biofilter. The plants work together to break down harmful airborne contaminants into water and carbon dioxide (Steffen 256). Greenery can be grown on the roofs of buildings, and green facades of vines can be grown on the sides of buildings to shade absorbent surfaces from the sun’s rays. Structures can be built for vines to grow a few inches away from the walls of a building to prevent structural and cosmetic damage. In Cambridge, Massachusetts, a garden built on the roof of a parking garage next to the Marriott hotel, near the campus of the Massachusetts Institute of Technology, demonstrates a clever use of extra space; it is a beautiful and usable outdoor space that can be used for leisure. Rain gardens or green areas on street corners provide a natural cleaning site for the city blocks. Pollutants that are “washed” out of the atmosphere by rain can be broken down by plants or filtered through the soil, purifying the water before it reaches the municipal system rather than having pollutants running through the streets and into storm drains.

The key to start incorporating changes and innovations is to start big with industries and businesses and then work our way down to private homes and living accommodations. A perfect example of where urban development could be heading if we make positive changes is Vancouver, British Columbia. In 2010 all buildings will be required to meet or exceed silver ratings from the Leadership in Energy and Environmental Design (LEED) certification program, a set of rankings that indicates the environmental sustainability of a building (Steffen 231). The University of British Columbia already has one green building with dimming lights sensors, composting toilets, and gray-water recycling and rainwater collection systems that provide irrigation for landscaping. Also at UBC the Liu Center for the Study of Global Issues is constructed from fly-ash concrete, a by-product of coal-fired power plants and an effective substitute for standard cement (Steffen 233). The use of this material puts a waste product to use as well as reducing the emissions of cement manufacturing operations.

Urban innovations are currently taking place in the United States as well. The Bank of America Tower in New York is the first skyscraper designed to attain a Platinum LEED Certification. The building contains a system capable of capturing rainwater and reusing it, it is made of recycled and recyclable materials, and hot and cold water will flow beneath raised floors for efficient radiant climate control. Not only is air entering the building purified to a high degree, but the air exhausted is also cleaner, thus effectively making the tower a giant air filter for Midtown Manhattan (Burke URL). At Oregon Health and Science University, building design complies with the strict qualifications of the U.S. Green Building Council's top-level Platinum rating, and its numbers can argue that the long-term payback through dramatic reductions in electricity, water, and gas consumption cancels out the higher initial investment. For OHSU the building's initial costs came in at ten percent lower than anticipated for systems

and equipment, saving millions of dollars upfront, and the university predicts the building will reach a sixty percent energy savings over what is required by Oregon's state building code and by LEED (Steffen 248).

After targeting big buildings, businesses, and educational systems with green building techniques, we can then move on to individual homes, condos, or apartments. According to the Worldwatch Institute, "People can live in a typical house for ten years before the energy they use exceeds what went into its components such as the steel beams, cement foundations, windows and glass frames, tile floors, carpeting, drywall, wood paneling or stairs, and the construction". Similar to large buildings, homes will gradually transition from their modern inefficient energy consumption to incorporating more energy-efficient components, and then they will revolutionize with completely new designs. Due to the unique location of each home, it would be necessary to have architects really get to know an area and the weather conditions so they can optimize the housing design to match the elements. Having an intelligent design that uses passive techniques for generating energy such as conduction, radiation, natural ventilation, and ice batteries (that use phase transitions of melting and freezing to keep buildings cool) would ideally create a zero-energy home that is self-sufficient. Australian architect Andrew Maynard constructed a very innovative home that could change according to the needs of the house's residents:

Constructed like children's toy blocks that are connected by hinges, the house stacks, unfolds, and changes shape easily... The house adapts. Over time, with this kind of arrangement, a home no longer acts only as a shelter, but as a service system, keeping up with its inhabitants' demands for a comfortable living space. It allows compact living to

be efficient with units that can serve as a kitchen, closet, and sitting room in one. (Steffen 150)

In the end, new megacity innovations will replace our modern technology and temporary bridge technology alike. Inventions and original ideas will revolutionize our living and working conditions and bridge the gap between urban living and the natural environment. It is impossible to determine what inventions will be the most successful in making these changes or what condition our cities will be in a few decades from now, but we have the power to make the most of the benefits that come from compact living arrangements. Exciting new ideas are sprouting everywhere in the world, as cultures globally recognize the vital relationship between humans and nature. Malaysian architects have designed a home outfitted with giant solar panels that open like petals as the day warms, shading the home and capturing electricity, and then fold back up as the evening cools, bringing the colder night air into the house and making the surrounding garden a pleasant place to sit and stargaze (Steffen 282). In Harare, Zimbabwe, architects have created a biometric building that resembles an African termite mound, using earth masses and ventilation tunnels to keep mounds at a constant temperature, needing no air conditioning despite blistering Harare heat (Steffen 282). Some ideas are elegant and simple, while others are less attractive but innovative. Solutions are so broad and vague that people must work together to put these ideas to action, test out their effectiveness, and combine ideas to cover all angles and perspectives of a given project.

No single urban planning tool can be used to solve the problems in every city because every city is as unique as the people living within it. If we keep striving for improvement, the future will contain buildings with aesthetic, economic, social, and ecological values for the

surrounding human and natural communities. With that will come efficient and long-lasting homes and buildings, a healthy Earth, and healthy inhabitants. If we achieve our goals, new developments will have more positive effects on the people and the environment, not just fewer negative ones. So it's time to decide what factors should be the most important in our society—living in a home that is built with our current easily accessible resources and choking out what little nature we have left, or making some changes to our habitats to build or reconstruct buildings and homes to use recyclable products and make ourselves self-sufficient and able to live in harmony with nature.

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