



BELOW THE SURFACE

Design Against Environmental Preservation

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As the sun set on the horizon of the city, Diamond gazed out of a window and strapped up her boots. She checked the thermostat on her wrist watch and glanced out of the window once again, tapping her foot impatiently as the sun sunk beneath the skyline. Sweat trickled down her forehead; she hastily wiped it away. She found it an immense nuisance to wear such thick coverings and a mask when it was this hot. Rarely did she sweat, but with her watch reading 125 degrees, she felt warm this night.

“Four more minutes.”, she thought. That was the amount of time left that she needed before it was cool enough to go outside. She had travelled throughout the night for sixty days, stopping only when the sun began to rise, becoming too hot to breathe. She didn’t have to leave her underground city, but she was eager to be a part of a community that was beginning to build their own. The idea of young individuals with dreams of creating a city that focused on the cultivation of a new community was ultimately too much to resist. It had been over 1,000 years since the Great Evacuation, and only stories remained of the tragedy that took place so long ago. Life was much different now from how it was in 2050; nonetheless it was normal for Diamond. She was born into a world where living below the surface was how humans who were left during the Great Evacuation had survived; hundreds of feet below the surface, where it was just cool enough for life to be sustained.

Things on Earth had changed dramatically since the increase in the temperature breached the critical level for human safety. Natural disasters became too frequent to combat hurricanes, rising sea levels and excess rains that completely submerged parts of Asia, Africa and North America. The hole in the ozone layer had expanded so much that, in essence, there wasn’t one. Only patches covering parts of the planet remained. Certain

areas of the planet had even completely frozen over, with no human or animal able to survive the immensely low temperatures. Very few areas were able to sustain life above ground, but even then, the risk of falling prey to the natural predators that roamed the surface was ever present. There was no certain answer to how many humans were left on the planet. Many of the world’s top scholars, scientists, and those with most of the collective wealth left the planet during the Great Evacuation. Unfortunately, others either succumbed to natural disasters, or died due to a lack of protection from the temperature and the ozone, disease outbreaks caused by shortages in vaccines or food insecurity. Few people knew what it took to exist in such a desolate environment. Much of the previous knowledge left on earth was still there, but humans had to work hard to harness it to ensure the species survived. It was almost as if by chance, these remaining humans had adapted a new sense of fight or flight, and in doing so, a new way of living was developed.

The events that had taken place on Earth might have otherwise been considered a dystopian nightmare. For Diamond, however, living this life was all she knew. In the newly created, underground cities, new scholars emerged, and new methods of teaching were instilled over time. Skills were honed, and technical trades were restructured to focus on the extraction of oxygen from

what was left in the atmosphere and on the Earth's surface. Emphasis on gardening and plant growth became a high priority, and the conversion of salt water to fresh water was now a highly regarded skill. Knowledge and language became sacred, and all children who were lucky enough to survive birth were taught no less than three languages from early childhood. Humans had finally learned to appreciate life and what it meant to live. This, of course, came only after the near extinction of the human race.

Diamond's parents wanted her to learn the trade of water conversion. They knew their child, or so they thought, and they knew she would want to learn a skill that allowed her to quench her insatiable curiosity and reach her full potential. Her parents knew their daughter had the makings of a master Water Converter, and they wanted to ensure their daughter secured her future as a highly regarded advisor. Diamond, however, had other plans for her life. She wanted to learn the one skill that was held to the highest of regards. It had not been mentioned beforehand, as it was such a highly esteemed advisory position, and those who learned the trade were often the only individuals to master the field. These trade counselors had gone on to orchestrate the trade for the entirety of their lives. This was the trade of the Architect.

The Architect trade is what had made the under-

ground cities possible. This was arguably the most important position a scholar of the new world could achieve. The responsibility of the architect was to create a vast network of underground "roadways", dwellings, tall and short structures, and spaces that implemented all of these components to form a healthy living environment. The architect is also the engineer in this trade, and it was imperative that they understood the importance of being in a physically healthy environment. Healthy environments foster healthy thoughts and habits and an environment that caters to the connection between human and nature is an one that is set on cultivating positive life practices. In the new world, every life was known to be precious, so keeping up the mental, physical, and spiritual health of each human was of the utmost importance.

Diamond understood all of this too well. Ever since she was young, she had dreamed of learning the trade of the Architect. It was what she really wanted to do. She spent much of her childhood marveling at the underground city she lived in. The landscape was full of vegetation and in the distance, a large cavernous underground mountain extended high above the city. The ceiling, referred to as the "sky" by residents in the city, was illuminated so well, one could almost be tricked into thinking they were on the Earth's surface in mid-afternoon. Every building and structure was so unique to her, and she would spend hours deconstructing the designs sketch by sketch. She was sure: this was her calling. Diamond started learning the trade of the Architect when she was fifteen but by then, she had already drawn a complete blueprint of her entire city. It wasn't until she was twenty-five that she decided she was ready to migrate elsewhere to help construct a new city of her own.

The underground city was twenty miles below the Earth's surface and

it spanned nearly 300 square miles. At both the north and south end of the city, two large archways stood across from each other. In the middle of the city, on a plot of carved stone, stood a large pyramid shape made from glass and steel. The pyramid mirror was on top of a ten-mile-high tower. Its purpose was to reflect the sunlight onto the city using large, flat mirror sheets that cascaded down the cities entrance, covering the ten-mile distance from the surface to the pyramid mirror. The sunlight reflecting onto the city was a large part of how they collected heat energy and how they grew vegetation for food. The larger structures in the city were shaped in rectangular form and they extended no higher than 800 feet. It was important not to make the buildings too high or overheating issues could arise in the structures. Each rectangular structure had a transparent ceiling, as well as a transparent wall that faced the mirror tower. This allowed for almost complete illumination into each rectangular structure that was carved out of the earth's crust. For the smaller structures and dwelling units, the shapes varied, but they all included a sloped ceiling and transparent wall. Many of the dwelling units had the same shape configuration, due to the city being carved out of the rock rather than being built with other materials. This, however, still allowed for a uniqueness when it came to design. Each dwelling unit and small-scale structure had to have the sloped roof in order to activate the proper ventilation techniques. This can be described as the "chimney effect": this process vents the air into the atmosphere from an angle once the heat rises within a structure. The digital and technological aspects of each stone structure was monitored using a system developed by the first Architects of Diamond's underground city. The technology of the new world was used to assist humans rather than replacing the human functions completely. This was intentional, as the Architects did

not want future populations to hold the importance of technology over human life.

Surrounding the pyramid tower was a large lake that branched off into five winding rivers of drinkable water. These rivers extended into smaller streams that allocated a consistent flow of water to each rock structure. These streams also extended further into the city for the use of maintaining the lush vegetation that covered the landscape. With the assistance of the Botanists, the Architects designed a system of bridges grown from interlocking vines and tree branches. These bridges extended between multiple tall structures and spanned long distances to allow for easier travel for those taking a trip to the other side of the city. This was orchestrated over decades of design and plant manipulation techniques used by the Architects and the Botanists. Though the bridges were still in use, years of development allowed for new methods of transportation to be cultivated. These methods included "thermal bikes" that were charged using the heat from the earth's core. Bullet trains powered with thermal energy were also used to get from one side of the city to the other. With the modes of transportation and the city's landscape having run efficiently and smoothly for the past 1000 years, Diamond felt the need to develop a new city with new people that she could one day teach and pass on the Architect knowledge as an advisor.

Her time had come. Contact with other humans outside of the city had happened by circumstance nearly one year prior to Diamond deciding to leave. The contacted group was referred to as the Roamers. They spent a large amount of their life roaming the Earth's surface looking for shelter and food. As conditions on the surface continue to sustain the harsh environment, a group of the Roamers had decided to begin creating their own underground city. Once Diamond had heard of the outside contact, she was adamant about leaving to help with the design. Her parents gave staunch pushback on her decision, but nonetheless, Diamond was confident in her knowledge of architecture and she would not have her mind changed so easily. She felt a duty to contribute, and though she loved her city and her parents dearly, the promise of contributing to something new and much bigger called her.

Diamond glanced down at her watch again and thought, "only one more minute". She was energized, though she could feel the heat radiating through her protective gear. She knew this was her true calling as she put her hand on the door handle of the small concrete shelter she had called home for the night. "Let's do this!", she exclaimed to herself. She opened the door and began her continued journey to the new city.

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