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(John) Steven, Norm, Tony, David, Lois, John, Lois, Bruce, and Jen: To you I express my deepest appreciation for your time, insights, questions, and funny looks. Because this story is “my story”, I hope that what’s contained herein hasn’t giving you too much reason for pause (be assured that there’s a real person in here somewhere).

The Oxford comma: important, structuring, helpful and pedantic.

Graham Chapman, Eric Idle, Terry Gilliam, Terry Jones, John Cleese, Michael Palin, George Carlin, Steven Wright, Scott Adams, Ronald Reagan, Lewis Black, Ricky Gervais, and Jim Gaffigan: great men, philosopher-poets, and observers of mankind, always expecting better and compelled to sing; putting voice to mankind’s flaws while simultaneously exemplifying our capacity for change through the meaningful creative-destruction of laughing at ourselves.

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Night-knight; Love you.

DEDICATION

Viewers Like You

Thank You

## FORWARD

I claim not one scrap of original thinking within the volumes of the Neoheurists series. Enjoy!

...but of course I was just lying to you.

[director's commentary] *"now that's style, lying to the reader in the very first sentence..."*

Most certainly the philosophy contained within this series can be traced back to philosophical roots well established in antiquity and therefore should be familiar to the enlightened mind.

[director's commentary] *"nice! a self-assessed complement for the reader... should choose to accept"*

The philosophy reflected in this series is comprised of a collection unconventional positions that some who know me claim I have chosen solely on a contrarian basis meant to purposefully (and often annoyingly) be different, just to be different.

[director's commentary] *"promises... promises..."*

Challenging assumptions, flipping perspectives, cross-pollinating ideas, and the improvisational concept of embracing "yes" are useful mechanisms to produce breakthroughs.

[director's commentary] *"like, really dude... get over yourself..."*

Challenge everything, especially yourself. Be grateful and live a life that accepts impermanence by continuously experimenting, evaluating, and adjusting to circumstances.

[director's commentary] *"starting already... so pushy... If I get it - I get it..."*

I am a self-proclaimed synthesizer, problem solver, creator, multi-model thinker, lover of friendly debate, critic, philosopher, poet, artist, songwriter, singer, engineer, and free thinker who embraces change while simultaneously hating it. I am highly sensitive, emotional, generally uncomfortable, lazy, demanding, living in fear but often brave (to the point of stupidity at times). I care about humanity as a whole but objectify those I do not know. I know how to love but don't know how to express it well. I expect the best from everyone and cannot tolerate being ignored. I have a hard time speaking up even when I'm bursting with ideas that deserve to be shared and collectively explored.

[director's commentary] *"quite a guy, I'm sure... we'll have to go bowling sometime"*

The characters for the most part are flat but are imbued with carefully chosen aspects of humanity.

[director's commentary] *"sounds fun"*

This series is story heavy but plot light.

[director's commentary] *"what the heck does this mean?"*

There are problems to be solved, but suspense has been suspended and to use a video game metaphor the fictional universe is essentially in "easy mode".

[director's commentary] *"will reading it at least help me sleep?"*

The series is conceptually dense, verging upon a manifesto.

[director's commentary] *"oh joy..." "sigh"*

Let there be no pretense, in every conceivable way this series is the author.

[director's commentary] *"deep man... really deep... can we be soulmates?"*

These books are dangerous. Let the universe be changed by reading on...

[director's commentary] *"well at least we've made it this far..."*

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I heard Barry's footsteps echo with the precise rhythm and purposeful snap of a prison guard who'd spent an unreflective lifetime watching over the inmates of Huntingdon's death row. The crispness of each footfall signaling to the damned that he was in charge. Lawyers, judges, juries, and emotional pleas were meaningless once matters were in his "loving hands". The irrevocable decision was made and the process now had to be served. It was his job to make sure that nothing went wrong, and nothing ever did. It was thirty four years that had refined Barry to become an earnestly reliable and highly efficient component of the system. This was his place and he was "my" jailor.

Now as a consumer of the correctional services that as professional I had a hand in shaping, I was "generously" provided by the state with a finite yet vast amount of time in which to dwell in an almost continuous evaluation of the science and art of this place. The omnipresent cameras, high barred windows, enormous caged lights, oppressively heavy doors, white-white walls, smooth-hard floors, and tall-featureless ceilings all combined to intimidate while simultaneously suggesting a hospital-like environment. It was as if the reason that someone would arrive at this place was to receive a cure. It was a trick of course, a means to calm, a means to exert control, a psycho-sociological manipulation on an institutional level. The interplay of psychology and architecture working together to shape behavior by shifting focus and inducing a sense of incorporation.

Snap

Snap

Snap

Barry's patrol meticulously continued. The tempo of his paces penetrating my subconsciousness in a way that the ticking of a clock never could. The reflected power of his strides bursting through the perfectly conditioned air, off the hard walls, directly into the limbic system of my brain. Each pulse of sonic energy was an alarm, a shout, an urgent and terrified scream that announced ever shortening period of time between now and the fast approaching deadline. I instinctively reacted to the impulses generated deep within the most primitive areas of my brain as any engineer would. The project had to be completed, but how?

Barry finally paused at the edge of my cell, it was the eleventh on the west side of the hallway. His eyes were cool, yet somehow a trace of sympathy managed to penetrate his well-earned professional facade. With a surprisingly informal air he extracted a small but sturdy folding stool that had been hiding just beyond the bars of empty cell seventy-seven. As he unfolded the chair he took three steps deeper into the block before sitting. Instinctively he aligned himself so that he could simultaneously see into my cell and scan his surroundings. He was not one to be caught off guard.

On edge but in charge - a purposeful tension that Barry had learned to perfect by channeling the emotional energy of the dangerous creatures that inhabited this place to heighten his own

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violent tendencies that sometimes he was only barely able to control. But of course his habitual nervous energy was a waste because it was only me and him now. For just over seven months I had been the sole condemned inmate waiting to be disposed by the system. It wasn't that the crimes that brought one to a place like this had been cured - it was that the criminals in need of this type of attention were now a thing of the past. In this, our mutual circumstance, I as the prisoner had become a token of a lifetime of service, because once my case was finalized Barry's function also would be. So in a very real way he and I were facing the same fate.

I sat up as Barry sat down. There was an unspoken agreement that had become a habit over the past three weeks to sit together at the appointed hour as if to memorialize something that had not yet happened but surely would. Both were on watch. Both were somehow ready for the end. We were colleagues, compatriots, products of the system, cogs from different parts of the larger machine. But it was I who'd challenged the rules. It was I who'd lept and changed everything. The world now broken or remade the difference was unclear. What was done was done and what was to come was inevitable. For both the caretaker and the machine, it was just a matter of the production that we called "time" to play out.

Waiting for Barry to begin, I gazed into the depths of Huntingdon's death row which was a nearly perfect example of a modern prison. This showroom of correctional standards was immaculately kept and constantly overlit so as to avoid any sense that one could somehow hope to hide in the non-existent shadows that failed to fill even the most remote corner of the long clean hallway. Inside and out, the structure was institutionally pure in form and function, each detail designed to serve the purpose for which it was intended. Oddly the lie that was incorporated into the design of this place - the lie that somehow a cure was to be provided here - had come true. And I within its embrace was simultaneously the motivation, the means, and the ultimate failure of what was to come.

After only a moment my attention shifted back to Barry as he quietly sat. He had a stern look on his face as he considered something that he wasn't quite ready to offer. I was used to Barry's stoic demeanor, the jailor and the prisoner were not meant to identify with each other. Keep it clean. Establish membership with those on your side of the bars and objectify those who were not of your guild. The Prisoner's Guild and the Watchman's Guild - each distinct - each perfect in its commitment. Those who had committed crimes and those who were committed to serving justice. Labels that became beliefs and beliefs that became identities and these identities ultimately driving a social universe of our fragmented personal realities.

I finally broke the silence with false formality bordering on sarcasm, "Good morning Sergeant Orr... How's life on the outside?" Barry's eyes glanced into Gilbert's cell and then back down the block. A trace of a smile shown on his face. He waited a moment and then finally spoke, "I gave in and read your book. I really didn't want to. Partially because in it's day it was too popular. And then when your crimes were discovered the fact that you'd effectively published your confession as a work of fiction - a work of fiction that the public loved." A look of mild disgust crossed Barry's face as he continued, "And it was a work for which you most certainly earned a lot of money. Not that you needed it in the first place. The strange public fascination with your book

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made me think that the world was crazy and I didn't want to be part of that. So, when you arrived here I kept my distance and I was glad that I'd never looked at it..."

Shifting in his chair Barry seemed to let his guard down, "I guess it's because of our mutual circumstance that I finally realized that I wanted to get to know you before it was too late. Let's just say curiosity finally got the best of me, and now there's so little time. I wanted to understand how you had come to be in my charge, so well-known and controversial. A god damn three-phase celebrity. And now that I've talked with you for the past few weeks I've grown to like you. It honestly was hard at first. But now that I know you, it's hard for me to connect the person I see before me now with the the crimes that you committed then." Barry paused but clearly had more to say. I patiently allowed him gather his thoughts. After about a full minute he resumed, "It, your book, it really is a false fiction, just like you said it was. Every word both right and wrong. Matching up your case files and reading your story, they weave together, both versions complete yet incomplete, but when combined something new and something strange."

Rhetorically, I quietly puzzled out loud, "New and strange?" of course I was focusing upon the wrong part of what Barry had said, but automatically I continued my off-topic mumble, "What's the difference?"

Fortunately my impertinent musing didn't distract Barry because at the moment he wasn't able to hear me, too deep in thought, internally machinating upon the situation in which he had finally realized that he was now a part. Maybe there were too many questions. Maybe there were too many conclusions that needed to be drawn. Barry finally turned, looked directly into my eyes and asked, "Is it really that simple?"

I smiled, shook my head, thinking to myself, "The easy answer..." I was willing to oblige, solely because there was sufficient time to teach. With the certainty of a well rehearsed zealot I quickly responded, "It's as simple as yesterday and as complex as tomorrow, or the other way around depending upon your point of view. From either perspective, "now" is the only moment of change and change is all that we are. We are not "nouns" we are "verbs". We are the flow of energy and the pattern of interacting ripples spreading across the membrane of our mutual existence. We are what we do..." I paused to let go of the preacher's pride that had welled up inside of me. I downcast my eyes to embrace the regret and embarrassment of giving into ego and the impulse to be important by claiming through my behavior an inverted ownership of the meme that was the cause of my existence and the purpose behind my being... a sudden soft sadness passed over me as I concluded, "Does that help?"

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He was born Gilbert Gabriel Simmons III. Over the course of an over-privileged and confusing childhood his identity was repeatedly recast. From the time he was a small boy his parents neglected his given name preferring to lovingly call him "Gil" or more simply "Gee". As he progressed through childhood his classmates and neighborhood playmates tended to be disrespectful of his identity subjecting him to a series of unwanted nicknames.

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Gilbert was a highly sensitive child, which made him an attractive target for teasing. The social manipulations of the schoolyard that were meant to induce conformity and gang affiliation were lost on Gilbert. Within his being there was an innate sense of individuality that required no social contract with others beyond the basic ideas of decency and mutual respect. As a child to be cast by others into a group assigned role was wrong in a way that he was logically unable to identify or explain. In these situations he experienced feelings of pressure, confusion, repugnance, and rebellion. The gang leaders delighted in bullying Gilbert with insults and taunts. For some reason the generation of nicknames was a particularly ripe area for cruel provocation. Initially the seizing upon the Gee nickname and transliterating it into "Gees" as in "...geez here comes Gees. From "Gees" his name was evolved to "Geese" and then quickly "Goose". From the phrase "hee bee gee bees" he bore the nickname "G-B" through middle school, as he got older and was able to pare himself away from the larger group he was more respectfully given the nicknames G-Man and G3. Ultimately he decided to go by the moniker "G111" (pronounced Gee-One-Eleven). "G111" originally used as an insult from a rival on his high school bowling team. As a junior and after almost two full seasons of relentless teasing, Gilbert defiantly embraced the G111 nickname, using it throughout college and into his early professional career as a software engineer.

Adoption of the G111 nickname is just one example of his unconventional approach of dealing with everything. Being genetically driven to be different he was always looking for an excuse to say or do the unexpected. This behavior resulted in some of his friends frequently referring to him as an "Against". When in a playfully or irritated mood he would favor responding to what he perceived as stupid questions with off-the-wall or ambiguously menacing statements. In reaction to these often nonsensical yet seemingly on topic responses, he normally received anything from comically puzzled looks to utter contempt... For the most part people who didn't "get" G111, privately and publicly expressed the belief that he was off his rocker and probably dangerous.

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Engaging the surface level philosophy contained within Gilbert's story was easy for most people including Barry, but being asked to reconcile it with the popular models of reality and spirituality was a problem. The publishing community sidestepped this difficulty, marketing Gilbert and his work as a fiction solely intended as entertainment. It was as Gilbert had planned. Taking this approach would not directly challenge the reader's self-beliefs or identity and the instinctive mechanisms that are biologically encoded to safe-guard societal participation would be subverted through a fiction that offered the familiar as strange, the obvious as profound, and represented those who accepted this type of logical substitution as broken... Gilbert knew well that only the power of gripping emotional persuasion was capable of inducing adoption of "his" or any other system of belief. because persistent and episodic trauma are accessible gateways through which a mind can be patiently remade from a distance. Utilizing the friendly wrappers provided by the entertainment industry to insinuate the meme that drove him was the chosen means by which to induce an imperceptible trauma most sublime in its delivery and effect. His

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two stories (both complete and incomplete - both false and true) developed together and always kept separate, each chronicle a component of a psychological binary explosive, a hidden trauma intended to operated on a societal scale.

Of course nothing that Gilbert offered within his fiction was new. Impermanence as a philosophical focal point was a cornerstone of many belief systems. The acknowledgement of change is fundamental to coming to terms with mortality, in that death is the final corporeal change to which a being must submit. The reality of the moment and mindfulness required to acknowledge the gravity of each decision, knowing that the past is merely the aggregation of innumerable single actions. Embracing love and being grateful are the ways we honor and protect our children. All of these ideas, obvious, clean, perfect, simple and biologically rooted.

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Materialized a copy of Gilbert's book from within his uniform, Barry was ready with a reply, "Yes, we are what we do. The thought is uncomfortable, but I understand it. And the reason that I find it uncomfortable is because your manifesto claims that I'm remaking myself in every moment. Who am I, if I must always be remade? What does it mean for me to be me? I am both dying and being completely reborn in every moment, and the decisions that we make are the actions that we take, forever changing ourselves and the universe. Can you explain this to me? We're doing that now, you and me."

I was sure that Barry knew how I would answer and it was clear to me that his question was merely rhetoric intended to draw me deeper into the conversation, "Of course we are... its built into the system... it's a physical property of the universe... the process of change requires no consciousness... both the sentient and the non-sentient are in an endless process of change... creating... recreating... combining... and permuting... at the most fundamental level it is simply energy... but because you and I posses the ability to consider circumstances, imagine consequences, and choose actions, we have the ability to consciously alter reality according to higher order rules that are not solely of the mechanical 'billiard ball' universe where action-reaction dominates... or even subatomic quantum mechanical universe that we are only able to describe using probabilities... intelligent beings operate at the psycho-mechanical level where logic and emotion combine to determine the changes introduced into the system and into themselves... we refer to the patterns and flow of psychophysical energy as free-will...

Your mind is a standing wave of psycho-mechanical energy that is partially shaped by the structure of your brain and body... and partially shaped by the logical constructs of your mentality... the flow of thoughts within your mentality must be self-referential and coherent to function well... these self-referential patterns are simultaneously your model of the universe and your model of yourself within the universe... these patterns ground decision making both at the individual level and the societal level... the psycho-mechanical phenomenon represented by mind differentiates us from the non-sentient universe because the non-sentient universe does not posses the psycho-mechanical energy outside of the intelligences that have emerged within it...

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Without stable self-referentiality at the level of the mind a sense of identity is impossible to maintain... identity is the relationship of self to the universe... this means that making changes to the patterns within your mind is a potentially dangerous exercise... mental pattern instabilities are psychosis, mental breakdowns, or in rare cases flashes of brilliance or insight... but without a willingness to change these patterns learning and growth do not occur... or better said... without a willingness to self evaluate and purposefully change, change occurs anyway but in an undisciplined, potentially random, or subversively influenced manner..."

With a raised eyebrow and a subtle smirk I concluded, "...in my case the danger inherent in aggressively manipulating these self-referential patterns is ultimately what caused me to be in your charge today..."

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If a psychiatrist were to analyze G111's general pattern of behavior and interactions with other people, a clinical diagnosis of mild Asperger's Syndrome and a severe case of Attention Deficit Disorder would be rendered. He struggled with these undiagnosed afflictions for most of his life, never understanding why he'd manifest brilliant and churlish behaviors often at the same time. Frequently regretting not keeping his mouth shut. Callously digging into people with seemingly surprise attacks comprised of 'tough' commentary and less than tactful observations. To watch him in these moments one might be convinced that G111 definitely knew better, but simply had a hard time not indulging his desired to "let people have it" via any of a number of well practiced socially abrasive tactics.

In spite of (or perhaps because of) his Asperger's, G111 was quite intelligent, being both a meticulous thinker and relentless modeler. He enjoyed creating artistic models of every type; having dabbled in sculpture, painting, drawing, photography, filmmaking, poetry and musical composition. In none of these disciplines did he possess any more than rudimentary training, preferring instead to come to understand the materials at hand by experimentation. Utilizing trial and error and his own critical nature to shape his artistic creations into objects of beauty that expressed his own emotional connection to the universe and humanity.

His favorite artistic form was poetry, he considered himself to be quite masterful at it, having crafted more than 200 works. Several of his best poems were "given to him" in dreams.

Musically, almost all of his compositions were sourced from dreams. At least once a year he would awake with full musical scores playing in his mind. On other occasions he dreamt full length motion pictures. The hard part of dealing with dream artistry was clinging to the echoes of these works long enough to transcribe them into a permanent form. Oddly though, once transcribed he rarely shared these creative works with anyone.

G111 also modeled in a variety of technical realms. Recreationally he used computer aided design software to draft architectural plans and he utilized a variety of software modeling applications to diagram everything from business systems to the deepest mysteries of physics,

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ranging from the subatomic to cosmologic.

Computer Science modeling is where he showed off and shared with his academic peers. He was a frequent contributor to several software engineering periodicals, having published articles on subjects from machine theory to business application modeling.

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I was pleased that Barry had taken the time to read my book and wanted to discuss it with me. I thought to myself, "...interesting that the universe should arrange to provide such a well suited individual with whom to engage in these final days... certainly not a coincident... evidence of a higher power... perhaps there's an author whose manipulating circumstances to suit their purpose." I was eager for the opportunity to teach and relieved to have the chance to feel useful, if even only for the few minutes that Barry was guiltily willing spare from his duties... such as they were.

I turned away and stood to continue my lecture, "We are intelligences who are but an inevitable manifestation of the emergent behavior of the entire universe. We are simultaneously macroscopic and microscopic. We are products of the universal stepping function. We are remade in every instance. We are always a new beginning. We are always yet another mindless yet mindful choice made as the result of the higher order logic of the entire system. So in reality each moment is a death and a rebirth for everything. For the person whom you were a moment ago is irretrievable. Changed forever are we by the emergent behavior of the atoms of our being." I caught myself again, inwardly cringing... too boastful... too arrogant.. the inappropriate pride that I allowed myself being compelled to behave as if I were what I had been given... the meme was not me or mine... I was but a vehicle through which it was able to have voice... I caught myself and quickly sat down... knowing that prideful happiness was a sign of folly... hubris... the universe would surely take notice and smack me down putting me back in my place... suddenly silent now, I waited with downcast eyes and forced sadness.

Barry had yet to notice the emotional rise and fall, focusing solely on my words and his own reactions to these. "But relinquishing oneself is so uncomfortable. If a moment ago is gone and me with it, doesn't that somehow make me unreal?"

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The downside of Gilbert's overworked imagination was his willingness to hyperextend models to the point of publicly breaking. Every since his earliest childhood he was prone to making broad declarations and predictions about the universe. He was sometimes mocked or shunned for his eagerness to argue against or transmogrify the materials presented in his classroom lessons. Against the tide of humiliation he consistently resisted the coercion of his peers to be "normal". Nonetheless, he did learn to be selective with whom he shared his musings, so as to not risk the ridicule of those less interested in challenging the status quo of the educational system. His freshman year in college could have been simply subtitled "Theoretically"... Theoretically, being a psychological mechanism that buffered the ever increasing possibility that one of his far

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fetches ideas would prove to be comically incorrect.

A significant area in which G111's modeling failed him was social interactions. People (including himself) were baffling... From an outsider's perspective it might be hard to believe that G111 had managed to 'trick' a woman into marrying him. He sought female companionship for practical reasons, companionship and procreation. He believed that through the creation of his own children he might be able to delve into and understand the how other people thought... this would be a way for him to explore his modeling inclination within the social sciences. Later in life, experiments with his own children proved to be somewhat uninformative due to the fact that his children were inconveniently provided with minds of their own. Frustratingly two of his children were out of touch or uninterested in their own emotions and motivations, thus making the gathering of data regarding their behavior almost impossible to obtain. The third child was an intuitive similar to G111, delving into her mind was also uninformative in that it was too similar to his own, thereby shedding no light on the rest of humanity.

There was one fact that G111 had come to conclude about models (be they artistic, technical, psychological or social), the best that the modeler can hope to do is create a work of beauty; "Beauty" being the highest achievement that a human mind is capable of producing. Beauty and truth are strongly related in that beauty is subjective form of an objective truth. The phrase "Beauty is in the eye of the beholder" expresses the relative view of individuals into the balance and harmony of the universe... the perception of beauty is a personally filtered glimpse into the truth of the universe...

He was said to know when a model was sufficient, when he would look upon the model and "hear the beautiful music"... he existed to hear the beautiful music... nothing was more satisfying... on several occasions "the music" literally brought tears of joy to G111. Despite the fact that he had no conventional sense of spirituality, he derived the deepest most "spiritual" satisfaction from these sojourns into the beautiful, into what he perceived as glimpses into the "divine"...

His personality and predilection for working in the extremes, tended to separate him from those with whom he was surrounded and often put him at odds with those who would have otherwise been very willing to help him. Despite his frustrating disconnection from his peers and a general rejection of authority, the ideas that he expressed through his models always sought to serve mankind and bring meaning to existence...

Throughout his life he managed to establish individual relationships with a variety of "nice" people, tending to avoid those whom he saw as exhibiting some sort of affectation. He easily detected pretentiousness in his peers, considering those who exhibited unnatural "poser" attitudes or behaviors, as bizarre, to the point of foolish. He recognized and was drawn to nice people because of their automatic inclination to be open, seeking first to understand, before pressing their interests. G111 came to realize (much to his own deep disappointment) that for many (most) people this feat of openness and intuitive understanding is lacking, uncomfortable and often faked.

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During his years in college he never truly aligned with any one group. He would drift between cliques of different types often electing to remain on his own or just off to one side in observer mode. Alterity became the self-chosen word he'd use to describe his relationship with humanity as a whole.

Having so many interests and an ill defined relationship with humanity posed significant issues for G111 as he clumsily knocked about academia. During his educational career he was initially kicked out college only to later return and earn an undergraduate degree in linguistics, advanced degrees in computational engineering, artificial intelligence and nanotechnology. Finally, at the age of 32, he'd gave up on higher education in favor of putting the pieces of experience into a profitable and world changing form.

It was at the urging of a colleague that G111 made the leap from the theoretical to the applied. Dr. Cayo Espectro, a long time acquaintance and on again, off again friend gave G111 "the push". Cayo was more about making money than about changing the world, but he definitely knew a good idea when he'd seen one... and one of G111's less outlandish ideas had a financial dynasty written all over it.

The voluntary emotional control cranial implant or VECCI was G111's brainchild. It was a device that promised to ease a lot of suffering and generally improve the human condition. He had actually written a number of theoretical papers on the subject while working on his masters in artificial intelligence. His personal motivation revolved around his disappointment with "the human condition" and his frustration with understanding and maintaining relationships made it clear that he may need to have "help" in controlling his mental impulses to better "fit" into society. Understanding the theoretical nature of the human psyche, as well as the biology of the brain helped him understand and design the changes to the "natural model" of homo sapien to "make it beautiful". In one of his papers he referred to the promise of the VECCI as "Better living through applied neuroscience".

The basic concept behind the VECCI was to provide individuals the ability to select their emotional state so as to be "appropriate" for any given situation. Imagine being able to go into a public speaking opportunity with a complete sense of calm and control or being able to face a difficult business negotiation with keen focus and unshakable nerve. And for those with psychological control problems such as rage, addiction or obsession, the VECCI promised to ameliorate these impulses to enable users to achieve controlled, fulfilling, happy lives. Ultimately, more advanced versions of the device held the promise to allow individuals to choose who they wanted to become and then completely rewriting their behavior to be have personality that they selected.

The most basic version of the device is composed of two bacterial chambers and a logic control mechanism. The entire system is implanted within the skull of a user. Within both chambers genetically engineered bacteria reside. The bacteria within the primary chamber manufacture a hormone that when introduced into the secondary chamber activates those bacteria to

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manufacture a neurotransmitter or mind-altering drug. The drug produced by the secondary chamber is delivered via nanotubes primarily implanted within the subarachnoid space of the skull to specific sites within the brain to induce an emotional state and regulate impulses. The unit's logic control mechanism knows when to produce and deliver the drugs, being able to be programmed via radio signal interface implanted under the scalp.

Cayo and G111 decided to name their newly formed venture the Vici Neuroscience Corporation. Vici being Latin for "I conquered", played strongly into Cayo's ego. The Corporation also decided that the company name and the name of its flagship product, while spelled differently, would be homonyms, enabling Cayo to famously proclaim, "Vici will allow mankind to overcome the design flaws of its primitive emotional origins." Of course he was correct, but very few within the general population appreciated this declaration when it was first made.

Cayo's showy demeanor belied his significant skill as a neuroscientist and neurosurgeon. Cayo and G111 occasionally crossed paths during G111's seemingly interminable education. Cayo being a medical prodigy, completing undergraduate studies by the age of 17 earning his medical degree at 21 and his doctorate in neuroscience at 23. Having practiced for 15 years at several prestigious hospitals and having pioneered and standardized several minimally invasive microsurgical techniques for repairing nerve damage and controlling seizures. In the course of his work he employed graduate students, including G111 to develop the software needed for the automated tools that he used to perform delicate procedures. While working on this software G111 and Cayo socialized, frequently going to lunch together or attending sporting events. Their conversations were full of political debate, economic theorizing, business design, speculation about the nature of the universe at the most fundamental levels and ultimately the role of mankind in eternity of entirety.

G111 regularly played the role of the calloused instigator, whereas Cayo normally played the role of the sympathetic pragmatist in these sometimes week long conversations. It was during one of these conversations that the VEECI device was first discussed. G111 while a free thinker himself had a hard time accepting the shortcomings of others. He proposed an emotional control implant, quickly drafting a rough design and process for its development. The idea being that people should be able to easily program themselves. This approach would be far more accurate than a pharmaceutical approach in that in complex versions of the device a wide variety of emotional states could be programmed during the course of a day, whereas pharmaceutical treatment of a person's emotions were by necessity very general, in that there is no way to quickly clear one drug from the patient's system and introduce a dose of another, because many pharmaceuticals need to build up in a user's system to achieve therapeutic effect.

Cayo pointed out that while quick emotional control changes would be a good thing, the potential for abuse would be ever present. For instance, how would a user know if the program that they wrote from themselves was accurately loaded into their implant... the possibility would exist for a malicious agent to change the program to influence the behavior of an implant user for malicious purposes. G111 suggested a variety of cryptographic techniques to secure the

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user's implant and external programming device. The major hole in the system would be that of trusting the manufacturer to faithfully implement these security measures... unmentioned by G111 was the fact that he had a bit of moral flexibility with regard to potentially allowing a backdoor to be built into the device that would allow the a him control of anyone's implant.

All the neuroscience and nanotechnology in the world were not going to be sufficient to bring the device to the market. The missing piece was the genetically engineered bacteria and the environment in which to culture these that was needed to make the system work. Cayo's high profile and global scientific fame had brought him in touch with numerous bioscience luminaries including those in the field of genetic engineering. While on a speaking tour, Cayo met noted geneticist Ravi Jain. Ravi's most notable achievements were in the areas of Pharmacological production of Insulin and bacterial communication and group behavior.

Ravi was a family man, having been married at the age of 21 while still a graduate student. It was an arranged marriage, of which he was quite happy with because it relieved him of the burden of finding a spouse for himself. His wife Amala worked closely with Ravi in the laboratory and it was occasionally observed that Amala and Ravi were the Pierre and Marie Curie of genetics. Ravi now 47 and Amala 46, had 2 sons and 2 daughters ranging in age from 25 to 12 years old. Professionally, they were a well regarded team often referred to as genetic visionaries. Their work was well known internationally, with papers frequently being presented at the highest profile gatherings of life science luminaries. Despite the fact that they were regularly invited to present, neither had much desire to go in person, sending either send a trusted colleague or providing a pre-recorded lecture to be played at the gathering.

Outside of his work and his family Ravi had a very low tolerance for other people's tendencies to "create chaos". He very much preferred to stay in his well organized laboratory with his well trained staff or relax at home basking in the pleasures of fatherhood, watching his children grow into what he referred to as "new people".

One of the rare occasions that Ravi mingled with his scientific brethren was at the annual international life sciences and medical technology conference that was held every fourth year at a university very near his home. Despite their obvious outward differences, Ravi and Cayo proved to have a great deal in common, connecting on a games and entertainment level. As adolescents and in their early college years both had participated in a variety of culturally unconventional amusements such as exploring caves, role playing games and the 'study' of science fiction. Even as adults they discovered a shared love of all types of sports, games of skill such as poker and games of imagination such like war simulation board games. Both were high-minded and interested in where their respective professions were taking humanity.

Over the years since their first meeting they corresponded electronically and even got together on one of Cayo's many trips to the teaching university hospital near Ravi. Cayo managed to drag Ravi away from his work and his family to attend a playoff game.

Cayo communicated with Ravi regarding the VECCI concept. Ravi was interested in the idea

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because it was an offshoot of the work he'd been doing with Insulin producing bacteria. The major difference being that the insulin bacteria were being cultured outside of the body, whereas the implant would be need to live indefinitely within the user. Ravi pointed out that what G111 was proposing was nothing less than a rudimentary artificial organ.

Cayo brought the founders of the Vici Neuroscience Corporation together for the first time after months of cajoling to convince Ravi to make a trip to meet G111. Their initial meeting was within the confines of an evening gaming event. Cayo had a regularly scheduled game night where he and several of his friends would get together to engage in any of a collection of familiar yet complicated games. This evening was an introduction for G111 to the war simulation game genre. A significant amount of the evening was spent designing battle vehicles, deploying troops and arguing about rules. In terms of actual game play, only about 10 minutes of "board battle time" transpired, although the imaginary damage was quite impressive.

After the simulated war was over several members of the group hung around and talked about the rules of the game and the concept of rules in general. G111, as he often observed when talking about rules or the law, rhetorically asked, "Isn't every political or governmental system just a collection of rules made up by the leaders?" No one cared to disagree, but someone did offer that governmental rules were based upon morals and that morals were absolutes... G111 had heard this argument many times before, but, having strong and contrary opinions on the subject, didn't want to get into it with a group of people he'd just met.

The evening wrapped up leaving G111, Cayo and Ravi to straighten up Cayo's home as best they could before retiring. Within G111's mind the topic of rules was still swirling. Now that the audience had thinned he felt more comfortable delving into the topic of the moral basis of rules within human systems, opening the conversation with the observation, "I've thought a lot about the political rules that we selectively govern ourselves. It seems to me that the moral aspect of these rules is primarily rooted in the practical, not the divine as many religious and political leaders would like us to believe." G111 paused to gauge the reaction of his audience. Both Ravi and Cayo continued with their chores, but didn't seem resistant to exploring the topic.

G111 continued, "Unclear principles, faulty terminology, hidden agendas, personal bias, political compromise and general uncertainty with regard to the future dominate the human condition when it comes to rule making. Almost everyone intrinsically understands all of these rulemaking shortcomings, yet we, on the one hand, proceed as though rules are absolute permanences, that cannot be legitimately violated... while on the other hand we freely ignore the rules when they are inconvenient or we can simply get away with doing whatever we want without regard for the letter of the law. Ultimately, we know that our laws are, at best, subjective guidelines. And we must also acquiesce that the laws of natural consequence are the only real rules that we must faithfully abide."

"And then there's the 'functionality' of the law. What I mean by functionality is the degree to which rules, when enforced, facilitate the interoperation of the parts of a societal system... Let's take our country for instance. We have laws that govern commerce and trade with other nations.

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Ostensibly, these laws aim to protect consumers and promote the overall health of the economy. Certain highly profitable industries may be subsidized to promote their competitive position in the worldwide marketplace... Does it make sense for the government to subsidize highly profitable businesses, furthermore would it be politically feasible to propose taking away these subsidies? The conditions under which industry subsidies are desirable are always temporary.” G111 made a point of stressing the word “always”...

Cayo interrupted to interject, “I agree, politics and business are cousins that are inextricably connected, to alter one is to alter both. And I agree that it’s a quite a predicament, but as long as everyone plays by the same rules... and of course we know that everyone doesn’t... we at least have a shot at operating in an orderly manner.”

G111 retorted, “But then there’s the two party system that we’ve come to embrace. One party promoting business interests while the other party promotes the interests of the individual. The necessity of this adversarial system being that neither party can be trusted to represent the interests of everyone all the time.”

This time Ravi spoke up to observe, “Yes, we are constantly subject to the pendulum of public opinion, cyclically uninstalling and reinstalling each party as the economy and world stability fluctuates. Society’s focus swinging from greed to fear and back again... sometimes, it is most troubling but highly predictable as it turns out.”

Cayo agreed offering, “Bubbles... damn bubbles... are people blind? If there’s one thing that should be taught in school is the ability to detect and protect oneself from bubbles.” Cayo then rhetorically continued, “Why isn’t history taught with more of an applied science mentality as opposed to the traditional events and dates approach? I’d attend a course entitled, History 201 - Applied Historical Analysis.”

“We appear doomed to the boom-bust rhythm of progress, I am afraid. But at least, overall, we’re moving in the right direction, don’t you agree?”, Ravi asked.

G111 had a ready response for this one, “The right direction? It’s all a matter of goals I suppose... Do we simply exist to serve each other and practice our religious beliefs? Or is there some more tangible destiny to which we can aspire?”

Ravi pondered for a moment, now out of his comfort zone, before responding, “Each of us has a relationship with the everlasting... if by goals you mean the ultimate purpose of life itself... for me it is very much a matter of focusing upon eternal renewal within the universe and the fact that the universe is continually building up and destroying only to build up once more. I suppose it’s very much like the bubbles of an economy. My place in all of this is a small one, for sure, but by doing my part I have my place and that is good enough for me.”

Cayo now chimed in suggesting, “The cyclic nature of things is obvious, but I know where Gee is going... Why should we just be crawfish hiding amongst the pebbles in the stream, being

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reluctantly pushed along with the flow? Why not instead leap from the bed of the river to swim with the flow proceeding toward the vast ocean of possibilities that theoretically lie downstream?”

G111 smiled, picking up upon Cayo's theme, “That's right, throughout existence within the universe a series of stages have progressed. Beginning with the Hydrogen fusing into heavier elements these being ejected into space to eventually form a planetary nebula in which the force of gravity produced a new star and accreted a planetary system. Upon our planet primitive life emerged becoming more and more complex and more and more capable... but all of the complexity arising without any apparent intellect or purpose... eventually plants, animals and intelligent life being created... and of these only intelligent life apparently having the ability to selectively influence the course of its own development.”

Cayo continued, having listened to and explored G111 thesis on numerous previous occasions, “It is a law of nature, this self organization into more and more complex forms. Projecting the trend into the distant future one might conclude that the laws of the universe are defined such that everything within the universe will eventually contribute to a type of universal intelligence... but with the advent of intelligent life and the projection to this presumed end state exists the universe can now actively work toward the universal intelligence through engineering... After all isn't that what each of us has dedicated our own life to?”

Ravi took a moment to let this sink in, and finally asked, “How would one distinguish between a divine hand guiding the universe to the point of intelligent life from the physical law based action of the universe producing humanity? Wouldn't the current state be exactly the same?”

G111 had to concede, “Given the assumption of an unseen deity or deities manipulating the universe to become the way it is today would be difficult to prove or disprove... on this matter I have invested a great deal of thought, I have looked to numerous religions including your own... none of these have offered even slightly satisfactory proof of the influence of supernatural beings operating within our universe. Being a man of rationality and science, my best estimate of all religious teaching is that these systems are models drawn from their own times... times which, for the most part, are long gone. At most these philosophies offer the uneducated an explanation for the deepest mysteries of the universe and also offer individuals solace when considering their own inevitable demise.”

G111 continued, “Life invented genes to pass on ‘wisdom’ from generation to generation, albeit physical intelligence... by physical intelligence I mean the instincts to feed, reproduce and protect oneself. With the advent of higher intelligence the previous generation gained the ability to pass on more than physical intelligence... being able to teach was a major advantage, no longer did individuals need to learn from their own experience, becoming adept exploiters of the environment earlier in life than was possible before. A prerequisite to learning is the ability to imagine, because the manifestation of any intelligent possibility proceeds from thought to word to deed... the thought being the imagination...”

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Going faster G111 marched onward with his thesis, "All ideas pass through the evolutionary gauntlet, some survive, some adapt and other are discarded. It's very much the same process by which life forms are tested over the generations. This is where the idea of the 'meme' derives its origin. Genes and memes are analogous where genes propagate when successful within the physical world and memes propagate when successful in the logical world."

Ravi interrupted to ask, "I understand the idea of meme quite well and I see where you are going... attempting to plant your idea of the engineered universal intelligence as a meme within my thoughts... but I see no reason for me to accept this for myself, what would you suggest is the relationship of this meme to me?"

G111 paused and swallowed for this was the hard part of his dissertation, "Unfortunately it seems to me that for you and I our relationship to the meme is bounded by our lifetimes. Hopefully, through our diligence and professional efforts our relationship with the meme will be a long one... but nonetheless we are doomed to part ways. The most that we can hope to achieve is a legacy where the meme we've brought forth is propagated into engineered intelligences that are able to survive and spread throughout the universe over the course of a trillion years."

G111 now philosophical continued, "I sometimes refer to myself as a Neoheurist... Neoheurist meaning, 'new rule maker'. Certainly there are others who have lighted upon the Neoheurist meme, but none have successfully brought the meme into mainstream consciousness. As a Neoheurist, I view the models of society and of science as perishable things that have practical applicability to an era. It is a continual process of renewal... refactoring as computer science people like to call it... a process of absorbing new observations and ideas, testing these and adapting the rules of the system to more fully and hopefully more simply explain how the universe operates. It is an evolutionary process that in every way resembles and extends the process that brought intelligent life to our world."

Ravi smiled, thought and finally responded, "Very interesting are your arguments and in fact these are not all that different from some of my own beliefs, but for me to abandon all that I have been taught to this point is quite a leap of faith... let me consider what you have said and perhaps at another time we can continue this most entertaining speculation." With that Ravi was ready to leave for the evening, he gathered his jacket, thanked his host and proceeded to depart for his hotel... leaving Cayo and G111 to alone.

G111 asked Cayo, "Do you think he gets it? Or more importantly do you think that he'll agree to join the project?" Cayo already knew the answer, Ravi having pulled Cayo aside earlier in the evening... It was only a matter of time before the three men would be partners in earnest.

Cayo spent almost a year searching for the proper location within the country in which to establish Vici corporate headquarters. First and foremost the company needed a legislative environment that would allow testing on human subjects. G111 had strongly insisted that death row prisoners were ideal candidates to be the first recipients of the VECCI. The preference being to identify killers who had a psychological pathology that included impulse control, rage and violence. Since the orbital cortex and the temporal lobes of the brain were known to play significant roles in governing rage and controlling impulsivity, building a device to operate solely on these regions would have the greatest possibility of success and offer the best opportunity to get the company's efforts noticed.

A benefit of using death row inmates was that these prisoners could be given a choice of accepting their existing death sentence or participating in the research in exchange for the commutation of their sentence to life in prison without opportunity for parole. If the implantation surgery failed or end up with complications, the prisoner might end up dying (more or less as scheduled), but if all went as expected, the convict would have a new lease on life and would, theoretically, enjoy better mental health. The ethical issues regarding medical testing on prisoners would be difficult to apply to these situations in that the medical treatment being proposed would be directly related to the pre-existing conditions within the patient and the argument of coercion under threat of punishment is rendered moot due to the fact that death would be the outcome even if an offer to participate in the clinical trial were not made.

Three territories were legislatively inclined to permit this type of prisoner testing and of these two had convenient medical, academic and investor support. The final decision to establish headquarters in the southernmost territory was made based upon access to two particularly compelling death row inmates, both of whom had particularly violent histories and both of whom committed widely reported brutal multi-victim murders. The execution time frame for both prisoners was within the next four years. This would give Vici the time it needed to set up its laboratory, build and test prototypes and make proper arrangements with the prisoners and the judicial system.

Cayo, utilizing worldwide contacts, quickly mustered the financial support the corporation needed to establish its headquarters. The funding came from a combination of private and government grants, pharmaceutical company investments and the three partners. G111, Ravi and Cayo contributed the vast majority of their personal financial assets to the fledgling company. G111 establishing a huge financial stake in the company, contributing almost 30% of the total funding from a trust he'd inherited when he was only 15 years old. In quick succession the partners moved into the suburbs of the largest city within the territory.

Ravi and his family were displaced the longest distance. The move was no small feat given the size of his family and his long history with his former employer. It took several trips from the west coast to Vici headquarters to relocate all of Ravi's personal equipment and research materials.

With funding and equipment in place, four critical tasks needed to be accomplished. Ravi

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started work to establish factory-like procedures to modify, culture and test bacterial strains. G111 focused upon production techniques for the bacterial chambers, nanotube drug distribution filaments and the implementation of the control mechanism. Cayo had dual responsibility for perfecting the implantation methods and making contact with the test subjects. Of all of these tasks the acquisition of the test subjects proved to be the most difficult.

It was a rainy winter's day when Cayo was allowed to make contact with the first potential recipient of a VECCI device. William White was convicted of the triple murder of a family during an burglary. White had a history of violence, gang activity and general lawlessness going back to his teenage years. While in school, he was a frequent instigator and bully. Teachers often needing to remove him from the classroom due to belligerent outbursts and generally disruptive behavior. Psychologists characterized William as a sociopath with a variety of impulse control disorders.

Cayo was brought into a mostly empty room, where William was already seated behind a large metal table. The prison warden had personally escorted Cayo to the interrogation room, describing William's history of violence and troublemaking within the prison system along the way. Cayo took the only other seat in the room and thanked the warden for escorting him.

Cayo waited for the warden and guard to leave the room and close the door before he introduced himself, "William, my name is Dr. Cayo Espectro and I am here today to make an offer to you. An offer that I feel will improve your life and will represent the dawn of a new era for mankind." William sleepily but suspiciously eyed the doctor, choosing to not respond. The doctor continued, "What we are offering is the ability to control your violent impulses without the need for the powerful psychotropic drugs that suppress your entire personality. Would you be interested in this?" William warily continued to watch Dr. Espectro without answering. Cayo resumed, "Hopefully the Warden explained the basic idea to you. We're offering you a chance to avoid your death sentence in exchange for a procedure that will vastly improve your life." The doctor paused looking for any kind of response from the convict... resuming after noticing no change, "The procedure involves implanting a device in your skull that is designed to alter the way that you react to stressful situations and it will also reduce or eliminate your impulses to act out... The device will deliver chemicals to specific parts of your brain causing these areas to operate more 'normally'."

Finally William started to react. He leaned forward, gently holding the sides of his head, he slowly began, "So what you want to do is stick a machine that makes dope in my head to keep me high..." Now sarcastically, "So I'll be so stoned that I won't care what's going on and won't have a reason to take anyone's head off. Is that the idea?"

The doctor sympathetically tried to reply, "No, we're not going to be drugging you... it's more like a chemical correction for parts of the brain that are not working the same way as other people's. It's much more like turning off circuits in the brain so that rage and violence are no longer options for you. In every other way you'll be alert and functional. It's a very different experience from being high."

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William grunted, "Too bad, I wouldn't mind being high all the time... the shit they give me here just makes everything fuzzy and not the warm fuzzy..."

"We need you to be taken off the medication that you've been on for the past several years, so that we can do some testing and get your consent. You need to be of sound mind when agreeing to participate in this experiment. Would you be willing to begin the process? Remember if we get all the way through this you're life will be saved."

Out of an automatic response William replied, "I want to talk to my lawyer..." Years of interaction with the legal system had trained him to never make a commitment to "the man" without his court appointed lawyer present... Dr. Espectro not being familiar with the legal system to the degree that the drugged William was, was slightly taken back by the request for a lawyer, but nonetheless responded, "That makes sense. We'll be in contact to arrange a meeting."

William now beginning to feel the all too familiar push of the legal system raised his voice and started, "You can't make me do anything... and if you try, I'll make you regret it." The doctor was at once frightened and delighted at this outburst, because while he was being threatened it meant that even while sedated the centers in William's brain that controlled his violent impulses were able to be stimulated. This meant that, if needed, even under sedation they would be able to map his brain to determine the proper locations to deliver the drugs.

Cayo slowly stood up and began to back away from William, whom he could now see was shackled to the leg of the table that he was seated in front of. As the doctor backed away a guard entered the room, having heard William's raised voice. The doctor assured the guard that everything was OK and that he was ready to leave.

Once out of the prison, Cayo proceeded to make arrangements for William to see a lawyer to begin making arrangements for him to be warmed up to the idea of being the first test subject.

In the meantime, Ravi had solutions of his own to wrestle with. From his years of experience genetically altering bacteria he had favorites species, but the conditions under which these were typically cultured would be vastly different from the highly controlled environment of an implant. The problems to be solved by Ravi and his team included engineering the bacteria to limit their rate of reproduction to prevent overcrowding, selecting for the ability to survive and synthesize compounds utilizing the nutrients available within human blood, selecting bacteria that would thrive within the temperature range of the human body, the ability to regulate the size of the bacterium so as to being able to isolate functional groups and make sure that the colonies couldn't escape from the implant, the requirement that the waste of the bacteria were non-toxic or at least easily processed by the host and most importantly that the bacterium was genetically very stable once modified so that none of the other criteria might be violated by an unwanted mutation.

After addressing all of the design criteria it was also important to identify an effective "quick kill"

antibiotic to destroy the bacteria should a malfunction occur and the bacteria needed to be quickly eliminated from the host. In fact, the antibiotic criteria was actually the most important of the design criteria. The potential for unintended “side-effects” caused by an infection of escaped bacteria would hard to predict and potentially very difficult to initially detect and remedy.

G111 and Ravi worked together a great deal of the time, each educating the other on their specific specialities. G111’s nanostructures, needed to provide a suitable matrix within which Ravi’s “bugs” would be caged and cultivated. “All the comforts of home”, G111 mused, “were to be provided by his bacterial homesteads.” G111 worked in carbon fibres and nanotubes, weaving these together to form fabric membranes, conduits, plumbing, ionic filters, electrical circuits, artificial sphincters to allow the selective passage of nutrients, waste, hormones and neuroactive chemicals, fiber lattices constructed to create controlled peristalsis flow of fluids within the implant distributing the drugs produced by the bacteria to the the host’s brain.

G111’s designs not only needed to be functional, but needed to be able to be eventually mass produced. He experimented a great deal with scanning electron microscopy, nanolithography, ultra miniature carbon fiber weaving techniques.

Ravi and G111’s teams built upon a generation of nanotech and genetic engineering, the corporation filed over 89 patents within the course of the first 3 years of operation. Of these patents several were already being licensed by their large pharmaceutical partners, thus insuring the continued growth and operation of Vici Neurosciences.

Because the first device was going to be custom built for a specific patient the manufacturing capacity of the laboratory didn’t need to be very substantial. Prior to the first clinical trial on a human numerous prototypes were built and animal tested. The results of these test then needed to be submitted, scrutinized and approved by the National Registry of the Medical Sciences.

During development, the primary challenges with installing and activating the device were the processes of connecting a blood supply and melding the main body of the unit within the host. Positioning the gossamer device of woven carbon fibers was extremely difficult to accomplish without the surrounding tissue compressing the unit, causing it to quickly malfunction. Eventually, they came to the decision that the device needed to be slightly inflated. This required a redevelopment of the membrane to provide pouches that could be filled with saline taken from the bloodstream.

Surprisingly, the aspect of the development of the implants that they initially were concerned would be the most difficult, turned out to be relatively easy. The process by which the compound delivery lines were routed within the skull, through the meninx, into the subarachnoid space to be attached to the brain tissue was handled with relative ease using techniques the Cayo had perfected in years of minimally invasive brain surgery and electrode placement. The device that he’d co-developed several years prior to starting the Vici Corporation, was able to navigate and tunnel within the skull and dura mater very accurately. The precision of the instrument relating strongly to the usage of an advanced form low energy high resolution CT scanner and a

biomimetic microtexturing neurosurgical probe. These technologies made routing the microtubule bundles more like a video game and less like surgery.

As the final prototypes of the VECCI device were being tested in the laboratory, Cayo needed a firm commitment from a test subject. He engaged in numerous conversations with William White and his lawyers over the months. The negotiations proved to be very difficult in that William's mental state varied significantly from meeting to meeting. Progress was being made, but time was starting to run out with William's execution date less than a year away. Due to the custom nature of the implant that they needed to build, if commitments couldn't be obtained within the next 3 months the design team would need to shift their attention to an alternate recipient.

Cayo had already been in contact with a second potential subject, notorious serial killer Estephan D'Marco. Estephan's sociopathic pathology was far more complex than William's, in that his impulse to kill was much more deliberate and thoughtful. Treating Estephan would require multiple areas within his brain being affected by the implant so as to limit the numerous mental activities involved in his compulsions. Cayo and his partners sought to be able to eventually treat complex disorders such as Estephan's, but developing an implant to treat a patient so broadly would require more time and would be much more complex than they were ready to produce.

Cayo had arranged to meet with William and his latest lawyer, this time in the prison infirmary. The goal of this session was to assess William's mental state as he was slowly being weaned off of his antipsychotic medications. William was seated on the edge of an examination table, connected to an EKG machine which was dutifully presenting his heartbeat visually and auditorily.

As it turned out, William wasn't technically entitled to a lawyer in that his interactions with the Vici Corporation were not legal proceedings, but it was judged by the court system that representation of William's interests needed to be protected, so as to limit any potential claims of impropriety.

William's impulse control issues had been a problem that plagued all four of his trials, this first two being declared mistrials, being convicted on third attempt and then again on the final appeal. He burned through 7 public defenders in the first two trials alone and another 3 between the trial in which he was initially convicted and his appeal. It was no surprise that William had a difficult time retaining representation throughout the negotiations for William to volunteer as a test subject.

William, the prison doctor, a prison system psychologist whom Cayo had never met before, as well as William's latest lawyer were all present when Cayo was escorted into the examination room by the Warden. The Warden introduced Dr Espectro to the psychologist and William's Lawyer and proceeded to yield the floor to Cayo.

Cayo sympathetically addressing William asked, "How are you handling being almost

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completely off of your medications?” William was breathing slightly heavily, but seemed under control as he responded, “It feels good to be off those drugs, but its hard for me to relax... I’m jumpy... I don’t like being jumpy... Everyone tells its the withdrawal... My thinking though... is better, the fuzziness is almost gone. I feel strong again...” Dr Espectro replied, “...and how about violent urges? Are you still experiencing those?” William’s head turned a little and he squinted slyly at his latest lawyer... and after a couple of seconds responded flatly with the phrase, “Cold blooded.”

Cayo couldn’t let it go having to ask, “How long has he been your lawyer?” William replied, “Today.” This brought an almost imperceptible smile to Cayo’s face... prompting him to respond with a slight lilt in his voice, “You mean you just met him today?” William continued squinting at his new lawyer and simply responded with one word, “Truth.” Cayo subtly shook his head as the lawyer took a small step away from William...

“William do you understand that we need the lawyer here to represent your interests? We need to make sure that no one can claim that we’ve unduly manipulated you into agreeing to something that you didn’t want...”, argued Cayo. William turning to Cayo, let out a single muffled chuckled and answered, “I know... I just don’t like lawyers... never had one that was any good... never had one that cared much ‘bout me.” Cayo understood all too well, having thoroughly studied William’s numerous interactions with the justice system.

“OK, everyone here is in agreement that you are sufficiently unmedicated to be deemed competent to formally agree to be a test subject... if you want to... you need to understand that it’s your choice and no one’s going to force you...”, Cayo explained. William’s Lawyer finally spoke up, “You’ll need to go in front of a judge to declare your intention to participate. The court has agreed to hear our petition and we can arrange to do this any time in the next few weeks. All we need you to do is agree with to this right now and we’ll take care of everything else.”

William’s attention was quickly trained back upon his lawyer and he aggressively yet under control responded, “Not much of a choice, is it? I don’t agree, I’m put down like a dog... I do agree, I live like a lab rat... endlessly being studied and tested... and if something goes wrong along the way... well... I’m even more screwed up or better yet dead...” William paused, his gaze relaxed and dropped to floor, he then reflectively yet angrily mused, “It’s not a choice, it’s not a choice... why’s everyone saying that it is?” He paused again and with resignation replied, “...I’ll do it... call the judge... I’ll do it...”

Cayo was thrilled that he’d finally gotten to this point, but understood the sense of utter defeat that William had to be enduring.

The date was set and William, true to his word, agreed to participate in the study. During the closed hearing William never once bothered to establish eye contact with his lawyer or anyone other than the Judge and Dr Espectro. The entire proceeding took less than 15 minutes. William’s sentence being conditionally commuted to life in prison without parole. The surgery to be performed on the date and time of the originally scheduled execution. This cleared the way

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for the completion of the Mark I model of the VECCI device to be assembled and installed.

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News of the commutation of William White's sentence was released to the media shortly after William's hearing concluded. Several media outlets immediately picked up the story and broadcast the decision, characterizing it as a blow against death penalty laws, a travesty of justice and an outrage at the use of prisoners in medical testing... so much for objective reporting.

Reaction from the relatives of the murdered family was predictably vehement, claiming that the memory of their deceased family members had been violated... and that the proceedings by which the decision to commute the sentence were made should have involved the victim's family.

A significant minority of the country was outraged to the point of protest. Over the months after the decision to allow the experiment to be performed numerous inquiries, legal actions and public debates ensued. The media fanned the flames rebroadcasting images of the crime scene from the night when the family was murdered, endlessly replaying selected outbursts of White in the courtroom. As during the four trials they repeatedly emphasized White's extensive criminal record and history for violence.

Two well regarded television news magazines attempted to investigate the procedure that Vici Neurosciences was planning. One actually aired a story that delved into the background of the founding of the company, its founders and the technical advances that it had made in genetic engineering, nanotechnology and neuroscience. Unfortunately, the technology was not emphasized to the extent that Dr Espectro's political wrangling was. Cayo be characterized with invectives such as "brilliant", "cocksure", "brazen", "politically adept", "manipulative: and "well connected"... Neither organization found anything illegal in Cayo's or Vici's actions, but both called into question the ethical implications of both the science and the process by which the entire William White affair was orchestrated.

Despite every protest and minor legal appeal, no impediment proved sufficient to interfere with the surgery's schedule. Cayo's selection of the jurisdiction in which to headquarter the company and his farsighted lobbying efforts served Vici Neuroscience Corporation's goals very well. Most certainly there would be political fallout to deal with in the next elections, but for the time being the pendulum was firmly on the side of "scientific advancement".

As the evening of the implantation procedure approached, protesters gathered on grounds adjoining the medical center complex. A broad range of causes were represented including anti-death penalty, pro-death penalty, anti-human medical testing, mental health advocates and anti-genetic engineering contingents. Naturally, the relatives and friends of the family slain by William were front and center in the media circus that accompanied the protesters. A variety of signs, slogans and chants were offered during the spectacle - and inevitably everyone couldn't get along, requiring the police needed to break up a few skirmishes. Ultimately as the evening settled in, only the family and relatives remained in significant numbers, holding a candlelight vigil in remembrance of the victims of William's murderous outburst.

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Unnoticed by most, a couple of fringe organizations were also represented, including an organization referring to itself as the Cyborg Coalition. The national media ignored these peripheral groups, but one local television station, apparently on a lark, bothered to interview the leader of the CC. The station actually airing a 10 second sound-bite of the leader, David Brinkman, somewhat articulately stating that the procedure represented a step forward in the evolution of mankind.

Unbeknownst to the protesters, William was moved to the hospital a full day before the surgery, partially to have ample time to prep and partially to minimize the opportunity for protesters to interfere with his transport from the prison.

Just before the appointed hour, William was wheeled into the operating theater and positioned amongst the numerous pieces of equipment needed to perform the procedure. The three partners were all in attendance. Each in turn stepped forward and thanked William for participating. Finally a representative of the court addressed William to confirm one last time that he consented to have the operation performed upon him. William agreed one last time and promptly was administered an intravenous sedative.

At midnight the operation began. The surgery involved a series of small instruments being snaked into William's head via his left nostril.

The first chore was to reduce the size of the left frontal sinus membrane to create a place for the implant to reside within the now vacated portion of the sinus cavity within the skull. Once the unit was adequately fitted, a blood supply was grafted to the implant. Connecting living tissue to the carbon fiber mesh was, as it had been in the animal test, an extremely delicate weaving effort. Once connected, the blood flow was permitted to begin feeding the device. The surgeon watched as the saline sacks within the implant began to fill, thus confirming that adequate pressure and a good seal of the blood vessels was achieved. Eventually the sacks would both act to hold the implant in place as well as keep it from being overly compressed by any potential nasal inflammation.

Once the implant was attached, the next activity was boring microscopic passages through the skull and meninx, to pass the long and practically invisible drug distribution nanotube fiber bundles from the artificial organ into the cranial cavity. Dr. Espectro's years of experience placing electrodes within the brains of seizure sufferers made this part of the procedure relatively routine. The biggest concern was potentially kinking the nanotubes so that the flow of chemicals would be impeded.

Once the nanotubes were routed, the individual lines within the bundle needed to be separated and carefully inserted into William's brain tissue. Exact positioning and even distribution of the each line was critical to achieve maximum benefit from the implant. Dr. Espectro and his two assistants methodically worked for over 12 hours to sew a nanofilament needlework that very closely matched the map they'd drafted from the functional MRI taken of William's enraged brain that they'd taken only 2 weeks earlier.

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During the beginning of the procedure, Ravi and G111 anxiously watched and admired the skillful craftsmanship of their colleague and partner. As the surgery progressed into the mid-morning, it became a highly repetitive process of fiber stitching, this portion of the surgery was hard to enjoy as a spectator and Ravi and G111's interest faded after a couple of hours. They moved away from the operating table taking seats on the side of the theatre and began to quietly talk.

G111 started by saying, "Everything's going well. In fact the implant should already be delivering the serum." Ravi agreed, "Yes, I very much expect that the once William recovers we'll be able to start testing right away. It is very satisfying to have reached this day... My only hope is that we will be able to continue the project beyond just our first subject." G111 understood Ravi's concerns and replied, "The clinical evidence will be proof that our technique can rehabilitate even the most violent personality. Once word of our accomplishment is known public opinion will surely turn." Ravi only reacted with a slight noncommittal shrug and head bobble.

Ravi eventually broke the silence, "During these past two and a half years, all of us have been so focused upon achieving this thing. We barely had any time to think about the implications, simply moving from technical problem to technical problem... deadline to deadline... neglecting our personal relationships... for me, at least I get to work with my wife, but for my children it's most certainly been unfair... It's been a sacrifice for all of us... and I'm looking forward to finally spending time with my family."

Ravi fell silent and after several moment began again, "Gilbert, what's in all of this for you? I don't believe that you have any friends outside of the laboratory. You barely ever take time off. Is it about the money or the desire to improve the human condition?" G111 having just been called "Gilbert" for the first time in many years, didn't quite know how to take the suddenly familiar line of questioning. He considered Ravi's inquiries with a bemused smirk and raised eyebrow, finally replying, "To enjoy relationships of friends, family and the like are urges that I experience. Unfortunately, I always fail when it comes to these types of social interactions. I've come to realize that I'm different from most people... antisocial in many respects... I have a hard time accepting and dealing with other people's shortcomings... my favorite theory is that I've got a personality most accurately described by the definition of Asperger's Syndrome..."

Gilbert continued, "The best way for me to engage with other people is in the form of an activity. Purposeful interactions allow me to focus upon the task at hand and what I need to do to contribute. To give me the best opportunity to be social, the event needs to include a game, preferably a game that I have some level of skill, so I can 'humbly' showoff... For me work is a game, because I'm talented and I want what I create to be known by the entirety of mankind. Unfortunately, and of course, this type of pride has no option but to come off as arrogance."

"I once had a girlfriend whom I cared for very deeply. At the time we met I was going through a series of political conflicts with some of my university colleagues. Being in her presence gave me strength to get through these times without resorting to the type of behavior that our friend

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William might be inclined to exhibit. For several weeks she would listen to me bitch about the fools that I had to work with and how my talents were being wasted.”

“After awhile I became fed up to the point that I wanted a change, a drastic change... You’ve heard me talk about the Neoheurist Meme from time to time...” Ravi interjected gently joking, “Oh yes, how can any of us not be aware of your personal philosophy of the purpose of the entire universe?” G111 getting serious, “No joke. This is something that I’ve considered and modeled from the time I was a teenager. The idea has evolved, like all models do, and as all good modelers are committed to doing.”

“Here’s the declaration that I made to her and the same declaration that I’ll make to you right now... I told her, ‘The Neoheurist Meme, while most certainly flawed, is the single most powerful philosophical idea ever conceived by mankind. It ties into natural history, it projects a future and gives a purpose to each individual and the entirety of mankind, it is under our control, it is empowering and hopeful, it requires no supernatural being or magic... admittedly, the end game of the model is weak, but over time it will evolve as what it means to be human evolves with it...’ I went on to explain to her that if the Meme proved to be that powerful and meaningful that I must be the most important person alive...”

Ravi’s reaction was rather muted and suspicious, “You believe that you are the most important person in the entire world?” Apologetically G111 responded to allay Ravi’s misgivings, “Don’t get me wrong, it’s not me that’s so important, it the Meme that’s important... at the moment the Meme and I are one in the same and therefore by the transitive property I’m as important as the Meme.” Ravi having recovered slightly asked, “What was your girlfriend’s reply?” G111 took a deep breath and cast his eyes down in remembered disappointment, “She didn’t understand and thought that I’d lost my mind... She called my statements arrogant and when I continued and asked her to help me, she practically ran away... It was at that point that the relationship was trashed beyond repair.”

Getting back to the main question, Gilbert refocused, now in a somewhat exaggerated and theatrical mode, “So Ravi, you ask, ‘what’s in all this for me?’ To this I reply, I am a modeler, this is clearly what nature has designed me to do... notice the use of the word “designed”... one day I’ll explain how Carbon is the smartest element on the periodic table and the mechanism by which DNA and natural selection operate... but I digress... To paraphrase a friend I knew several years ago, ‘I create beautiful things in a virtual world.’ The satisfaction of an excellent design and having the opportunity to take a moment to admire the beautiful things I create has been my reward, but as I’ve grown older this isn’t enough... the opportunity to more deeply explore and spread the Neoheurist Meme definitely seems to be my next calling... Building William’s implant and pioneering the course of purposefully controlled intelligent evolution are clearly serving the goals of the Meme, but the greater leverage comes from spreading the Meme and helping it to evolve and propagate, so that I am able to die, so that I am no longer the indispensable figure upon which history now pivots. Arrogant? Perhaps... Am I right? Only the future will be able to say.”

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Ravi just quietly chuckled at G111's entertaining soliloquy. G111 stood up and patted Ravi on the shoulder as he proceeded toward and out of the main doorway of the operating theatre. As he walked he theatrically announced, "Now is the time for us to admire our work and marvel at what we've accomplished... Now is the time... Now, now now... that's all that ever there was or is... it is all now..." G111 waved without looking back at Ravi or the surgery still in progress as the door of the operating room closed behind him.

Now in a hospital room, William lay in bed with several monitoring devices clustered around him. A particularly awkward wire was attached to his forehead just above the left eye. This lead was communicating with the implant via a low power radio transceiver.

William had been conscious for a about 20 minutes before Dr. Espectro and his colleagues arrived in his room to check on his condition. Cayo warmly greeted the patient, "Well you're awake! That's a good sign!" The doctor continued talking as he proceeded to shift his attention to the monitors, "Did anyone tell you how long you were in surgery?" Without pausing Cayo continued, "We had you in there for over 18 straight hours. That a personal record for me..." William showed neither amusement or irritation with the doctor's banter, dryly responding, "It's a record for me too..." Cayo and his partners all smiled and quietly snorted and emitted a muffled chuckle to themselves.

Ravi sympathetically asked, "So William, how are you feeling? Any discomfort or pain?" William responded, "No, I'm just tired..." Ravi placed his hand on William's shoulder and offered, "The sedative will wear off shortly." Ravi then continued, "Do you think that you're feeling any effect from the implant?" William replied, "I can't really tell." Dr. Espectro interjected, pointing out, "I wouldn't expect any therapeutic effect for at least another 24 hours or so... So it would be surprising to detect any differences at this point. and if you're feeling anything right now, it's more likely to be an effect of your sinus or meninx reacting to the procedure."

Cayo turned to join G111 who was already studying the monitoring device attached to the wire protruding from William's forehead. G111 quietly confided with Cayo, "The device is responding as expected, all readings are within tolerances. It's reporting steady pressure and flow..." Gently teasing Cayo, G111 continued, "Our worries about you kinking the nanotube bundles seem to have not come to pass, thank goodness." G111 invited Ravi to inspect the readings and after a couple of moments all three of the partners were satisfied that all had gone as planned.

Dr. Espectro turned to William to advise him, "As we discussed, you'll stay in the hospital for at least two more days. If all systems are 'Go' and you're healing properly we'll transfer you back to prison." Cayo internally cringed recognizing that he'd just treated the act of returning a man to prison as if it were the same as discharging them to their home. He tried to continue without showing his mild embarrassment and looked into William's eyes for any type of reaction, "Once you're out of the hospital, we'll begin testing to see how the device is operating. At first we'll have you in the infirmary so that we can take readings every hour. Once we're comfortable with that, we'll scale it back to four times a day. After about three weeks we'll rerun the functional MRI tests that we ran before surgery to see if the implant is having the hoped for effects."

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William, matter of factly took in the doctor's description of how things would go for the next few weeks, finally joking, "Well at least I'm still here."

Two days later, on a rainy Thursday, William was quietly loaded into an ambulance to be transported back to the prison. As the ambulance exited the hospital grounds it passed several waterlogged protesters who were still lingering. Their signs were soaked and their chanting of just two days before had already passed into memory. A lone news van was parked around the corner, with its news crew inside distracted studying other "breaking news" being fed from their station to the bank of monitors arrayed within their vehicle. No one was more thankful for the lack of commotion than was Dr. Espectro who rode along in the ambulance with William.

Over the next three weeks nothing unexpected happened. The implant consistently passed its tests. William quickly healed and demonstrated no apparent side-effects from the serum being supplied to a portion of his brain. Cognitive function tests used to measure for potential brain injuries or dosage problems indicated that serum flow rate needed to be slightly decreased. The entire time William was alert, cooperative and even showed appreciation for the attention he was receiving.

Finally, the long awaited functional MRI test used to identify the treatment area within the brain was performed. The results of the test were very impressive, William's sensitivity to negative emotional stimuli was decreased by over 80%. While at the imaging facility, Dr. Espectro inspected the device, nanotubes and the area of the brain that had become known as the needlepoint swatch with his high resolution CT scanner. The swatch showed leftover signs of minor swelling and bleeding that had mostly cleared up. The nanotubes were traced and all were precisely positioned where Dr. Espectro had inserted these. The device itself was showed signs that it was compressed within the sinus cavity more than expected.

The fact that the device was under pressure was a concern, because they'd had problems with a few prototypes operating under similar conditions. When compressed one of two failure modes were observed, thermal overcrowding resulting in death of a bacterial colony or a permanent serum flow reduction. The team debated whether or not to resect the remaining frontal sinus tissue to relieve the pressure. Ultimately they decided to leave the tissue intact, so as to not risk interrupting the blood supply. They would have to wait and see if whatever remaining swelling there was would subside on its own.

Over the course of the next six weeks, the sinus tissue pressure did not resolve but William's implant continued to operate within design parameters. G111's opinion was that the last round of design changes were sufficient to protect the device at higher pressures. Behavior monitoring and testing demonstrated sustained emotional control improvement.

Six months after William's surgery, Cayo, Ravi and G111 published a paper about William's case and progress under treatment that was very well received by the Neuroscience and Genetic Engineering communities. Vici Neuroscience, received inquiries from two well known science documentary production companies to do stories about William's case and the

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technology behind the stunning result that they had published. Respectfully Dr. Espectro replied to both production companies stating that at this early stage in the research and development process that it would be premature to over publicise the work that they had done so far.

As William, who was now referred to as “recipient one”, continued to be monitored, the attention of Vici Neurosciences’ turned to making formal arrangements to acquire a second test subject.

Serial killer Estephan D’Marco had been targeted by the Vici corporation from its inception to be the second recipient of a VECCI implant. Like William before him, Estephan had emotional control issues and occasional violent outbursts. Unlike William, D’Marco was much more premeditated in his killing. Over a 4 year period he had murdered thirteen women within the city. Ten of the murdered women were prostitutes and the other three were determined to be chance late night encounters gone wrong. The premeditated aspect of his crimes meant that a more complicated implant would be needed to treat this patient. Thus curing Estephan represented an incremental step in the evolution of the VECCI device.

The process to obtain Estephan for the program was initiated almost a six months earlier by Dr. Espectro. At that time the company was almost fully consumed with recipient number one, but Dr. Espectro made time to meet and personally profile Estephan, with the intent to make sure that the corporate development pipeline was kept full.

For their first meeting Dr. Espectro was escorted by the Warden to the same interrogation room in which he had initially met William. Upon entering, the doctor walked forward reaching out his hand and saying, “Mr. D’Marco, thank you for meeting with me today.” As the two shook hands, Dr. Espectro’s normally charming demeanor was immediately doused by the cold clasp and dark challenging eyes of this self-consumed beastly man. Dr. Espectro felt his left knee buckle slightly, needing to catching his weight, as casually as possible, by placing his left hand on the interrogation room table. The doctor was silent for a moment as he turned, collected his thoughts and took a chair. Once seated he thanked the Warden and asked to be left alone with Estephan.

Having sufficiently recovered, the doctor started, “I was reading your records before I came to meet with you and I saw that you were in the Army for almost two years, but were given a dishonorable discharge for gross insubordination and striking a superior officer.” Estephan acknowledge the doctor by saying, “It was her fault.” Cayo visibly grimaced and quickly followed up, “How so?” Estephan almost charmingly offered, “Let’s just say that we had some on-base private time together and things didn’t turn out so well... against regs, if you know what I mean.” Cayo inquired, “What came of the incident from her perspective? I mean, was she disciplined also?” Expecting the question, Estephan replied, “Well hell no... with my ‘bad-ass’ reputation and her relationship with the base commander, there was no way that anything was going to happen to her... it was basically an attempted rape charge, that everyone knew wasn’t right... it was at least as much her idea as mine, I’m guessing that she must’a been trying to get back at the base commander (her former married boyfriend) by fooling around with someone ‘fun’ like me. I guess I was just the loudest one at the camp soccer game where we first met... I didn’t really care why she was into me, just as long as I got my piece of ass... It all fell apart pretty quickly though, when we almost got caught in the act in her office and she started screaming ‘rape’... They eventually erased the rape charge as long as I didn’t contest a dishonorable on my record.”

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Mildly disgusted by Estephan's story, the doctor absent mindedly muttered an editorial comment, "Quite a sordid story." The doctor quickly realized that he made a mistake, but the damage was done. After a moment's thought, Estephan retorted in a falsely cheerful voice, "Yeah, and fuck you too..."

Cayo, thinking to himself that this wasn't what I'm here for... I need to establish a relationship.

The doctor apologized and attempted to pretend that the exchange hadn't happened, "You were also convicted of murdering eight women over a four year period. And there's strong evidence that you probably killed another five."

Estephan interrupted, abruptly changing the subject, "What kind of doctor are you?" The question didn't put Cayo off his game, "I'm a Neurosurgeon and Psychiatrist specializing in the personality disorders and brain function defects." Estephan shook his head and blurted out, "Whaaaaat?" Cayo slowed down realizing that he wasn't impressing anyone in the room with his credentials, "I'm a shrink who can open up your skull with a knife and fix your brain. Do you have any major malfunctions that I might be able to repair for you?"

Estephan smiled.

Cayo asked, "Oh, you like that, do you?"

Estephan smiled.

Cayo proceeded to put his cards on the table, explaining what the procedure was and the deal that the government was prepared to make to indefinitely stay his execution provided he cooperated.

Estephan actively listened with fascination and finally asked, "So I'd be the first one?" Cayo replied, "No, as I explained the surgery occurs on your scheduled date of execution. So, there is another recipient who is scheduled to get the the first one." Estephan liked the idea of being "the first", but even more, he liked the idea of waiting to see how one turned out before having to commit. All he said in reply was, "Sign me up."

The doctor responded, "Well, we've got to get the government and lawyers involved and make sure that everything is handled in a proper manner... It'll take a some time, but we've got about a year to get ready." The doctor then stood and began to head toward the door while explaining, "We'll be in touch with you soon. In the meantime, we'll get things moving with the government to get your case reviewed for approval." As the prison guard open the door of the room for the doctor, Estephan pressed, "Well, make sure that you don't forget about me, you hear... How soon do you think you'll get back wit me?" Cayo reassured, "Very soon, don't worry... I'll be back." In reality there wasn't a lot of available time within the organization to pull things together because almost everyone was concentrating on the preparing for the first implant procedure...

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The six months between their first meeting and finalizing the agreement to save D'Marco's life had been very busy and somehow more difficult than it was getting to the same point with recipient number one. Nonetheless the paperwork was in place and work began in earnest to build the Mark II VECCI device for Estephan.

In the interest of public disclosure and knowing that there was going to be a huge public reaction, Vici Neurosciences made a press release regarding its plan to go forward with a second implant procedure. As expected the reaction to the press release was immediate and vociferous.

In the aftermath of the William White affair, a variety of advocacy groups had time to strategize regarding the course of action to take to block Vici's next human experiment. Two of the highest profile organizations, working together, argued for and received judgement to issue a cease and desist order against Vici's plan to implant D'Marco. The order required Vici to cease further testing and break all contact with Estephan.

While laboratory preparations were permitted to continue without the participation of Estephan it was a huge inconvenience. In the meantime Vici had been expecting a legal battle and had made preparations to immediately file an appeal to any likely legal action that might be taken against them. Due to the urgent nature of the case, the court agreed to expedite the appeal process.

A closed hearing was held two days after the issuance of the cease and desist order. In attendance were lawyers representing the Civil Liberties Union, Amnesty International and Vici Neurosciences. The proceedings were accompanied by coverage from local, national and international news organization. Outside and inside the courthouse the same groups who protested recipient number one's implant were once again present. A major difference was the number of family members of the victims and the degree to which the conservative media played up the "justice" angle. On the inside of the courtroom another angle was being debated, the legality of utilizing death row inmates for medical experimentation and the process by which Vici Neurosciences obtained consent.

The courtroom was called to order by the honorable judge Lois Reynolds. Being a no nonsense letter of the law judge she quickly dispensed with introductory procedural matters and directed Vici Neurosciences' council to make their opening argument, "Your honor, Vici Neurosciences is seeking that the cease and desist order be lifted on the grounds that all legal criteria with regard to obtaining consent of the subject have been properly followed and that the arguments upon which the order was issued are immaterial. As stated in the order, 'Questions regarding the subject's ability to understand and make an informed decision and the ability of the state to protect the interests of the subject are in in doubt.' It is Vici Neurosciences' position that the plaintiff cannot support these claims and in fact ignores the substantial record documenting the process by which consent was obtained."

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The plaintiff's lawyer rebutted, "While we have reviewed the consent process documentation and are not, at this point, questioning its thoroughness, we are questioning the manner in which Mr. D'Marco was ruled to be competent to agree to participate. We also assert, that given his short-term prospects, exempli gratia his pending execution, an environment of undue coercion existed and still exists that would make any type of experiment seem preferential to carrying out sentence. As such Vici Neurosciences in collaboration with the state have illegally coerced and manipulated Mr.D'Marco into a decision of which he cannot fully appreciate and therefore cannot legally commit."

Arguments back and forth along the lines of each opening statement were made for the better part of the morning. Finally the judge seeing that there was no further ground to cover took a brief recess and returned to make a ruling, "I have heard both party's arguments and find that the coercion claim while well supported does not apply in this situation. Assuming that he has a desire to live, it is clear that the inmate has a limited ability to decline the offer to avoid execution. But in life, as in this circumstance, we are all occasionally forced to choose between two undesirable alternatives. In this case, the clinical evidence, demonstrated benefit and considerable technical safeguards of the procedure being offered fail to make the alternative of participating in the implantation experiment unreasonable for an intelligent person to accept, in spite of the apparent risks."

The judge continued, "On the other hand, the matter of whether or not a person such as Mr. D'Marco could be considered competent is questionable. As the defense observed, the courts found Mr. D'Marco to be sufficiently competent to be tried for his crimes. But as the plaintiff demonstrated, since his conviction the inmate has exhibited numerous outbursts and physically attacked prison staff during his incarceration. This behavior strongly suggests the existence of serious mental health problems and a psychotic personality. At this time I am prepared to rule that additional psychological testing needs to be performed before competency can be legally established."

A lawyer on the Vici side of the court began to raise an objection, but was immediately interrupted by the judge, "I understand the time frames we're dealing with and I fully appreciate your argument that even if Mr. D'Marco is psychotic, the treatment being proposed should remedy the disorder... As I've explained before, I'm not being asked to rule on the benefits of the treatment, I am being asked to rule on the manner by which your subject's participation is obtained."

The judge handed a small stack of papers to the bailiff, instructing him to distribute these to both groups of lawyers. As the papers were handed out the judge said, "On these papers is the procedure and time frames by which I am ordering that a psychological evaluation is performed. You will need to agree upon a third party psychologist to evaluate Mr. D'Marco and arrange to have him evaluated within the next thirty days." Members of the Vici team audibly gasped at the amount of time being prescribed for the evaluation, and in reaction the judge continued, "I realize that denying Vici access to Mr. D'Marco during this period will be a significant inconvenience, so I am willing to conditionally lift the cease and desist order pending the results

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of the competency evaluation, in so much as there is no interference with psychological evaluation... If I get even a whiff of any attempt by Vici Neurosciences to prepare Mr. D'Marco for the psychological evaluation they will be found in contempt of court and will risk immediate loss of Mr. D'Marco as a test subject." The Vici representatives were visibly relieved upon hearing this and the plaintiffs were somewhat deflated.

During the thirty day evaluation period the Vici corporation took full advantage of their access to Estephan, in case there were any legal setbacks. They diligently recorded all interactions with the subject during the frequent physiological and psychological measurements that they performed, in case there were any question by the courts with regard to what was done and why. Once the third party psychologist was obtained, access to Estephan was somewhat limited, but Vici managed to work within the restrictions imposed by the evaluation process.

Midway through the psychological evaluation process a new lawsuit was filed by the families of several victims, this time on grounds that due process was being subverted by allowing D'Marco's sentence to be commuted. The plaintiff's position was that the sentence should be executed as scheduled and that penal system had no legal authority to unilaterally alter sentences in death penalty cases.

Once again, Vici was prepared for this legal contingency and immediately filed an appeal. Of the two cases that they were now fighting this was the one that they were most worried about due to the way the law was written and the strong emotional reaction that the victim's families were likely to exhibit, engender and employ to influence the decision making process. The arguments both within the legal system and the court of popular opinion were going to be difficult for Vici to win.

A preliminary hearing presided by the honorable judge James Gaffigan was held with lawyers representing the families and Vici's legal team including government lawyers who participated in the proceedings to obtain Estephan as a study participant. A number of family members of D'Marco's victims sat within the gallery of the courtroom. A single television news camera was permitted access to record the proceedings.

As the hearing began the judge opened with a peremptory admonishment to all in attendance, "Given the public outcry during Mr. D'Marco's criminal trials and the subsequent political firestorm created by his proposed rehabilitation, it is this court's insistence that an orderly proceeding ensue. Any outbursts, interruptions or overly dramatic emotional tactics will be vigorously dealt with. Let it be known that I am placing everyone within this courtroom on notice." With the tone set the judge turned it over to Vici's lawyers to make an opening statement.

"Your honor", Vici's lawyer stood up and coolly began, "The claim that the government does not have the legal authority to commute sentences in cases such as Mr. D'Marco's is clearly without merit in that the definition under which the death sentence penalty as prescribed within this territory asserts that no rehabilitation must be possible by reasonably available treatment

techniques”, the lawyer emphasizing the last three words. He continued, “Vici’s breakthrough approach to effectively, for lack of a better term, reprograms an individual and therefore represents a new treatment technique that will cure Mr. D’Marco of his murderous impulses. This cure is far more effective and reliable than traditional pharmaceutical based approaches in that the implant literally becomes a part of the patient. By being implanted with an appropriately selected neurochemical treatment there is no way that the patient can forget their medication. Additionally, the Vici system continually monitors and adjusts dosages as the patient goes about their lives, so emotional control is enhanced in a manner not possible with a traditional pharmacological approach. This treatment literally promises to create a new person from the old. No less than literally remaking the mind of a killer.” The lawyer paused to let his argument sink in... Satisfied, the lawyer resumed, “Assuming that the assertion that this technology represents a new era in the treatment of psychological disorders can be accepted, there is no choice but to rule that the commutation of Mr. D’Marco’s sentence to participate in this project is permissible, humane and desirable and to not do so would represent cruel and unusual punishment.”

The victims’ lawyer then had the opportunity to respond, “Your honor, it is the contention of the plaintiffs that while the proposed treatment holds promise, it is not yet proven to achieve the goals it aspires and therefore does not meet the definition of an ‘available treatment’. We intend to prove that at best the approach being pursued by the government under the influence of Vici Neurosciences is an experiment. Additionally, we will establish that due process with regard to how the decision was made to permit Mr. D’Marco to become a test subject was irregular, at best, and should be subject to review. We assert that there are strong implications of fraud and graft within the public record that should be further scrutinized.”

As the trial progressed, Vici’s lawyers argued that the treatment was proven based upon well known brain chemistry, numerous animal studies and the success of the William White implant. The plaintiffs argued the the William White implant was also illegal and while it seemed to be working, thus far, the long-term success of the experiment was not assured. Vici countered that the risk-reward of this type of procedure demanded utilization of death row prisoners or terminally ill patients, the huge benefit of death row inmates was the fact that terminally ill patients were guaranteed to not provide the long-term study results that would be possible with the inmate population. The plaintiffs accepted the argument that death row prisoners made good candidates for this type of high-risk experimentation, but this failed to meet the government’s own criteria of treatment and to allow the commutation of D’Marco’s sentence to go unchallenged would be effectively the same as legalizing experimental medical testing on prisoners without involving the legislature and as a result would be an unconstitutional act.

Both trials proved to be a significant source of distraction and gossip within the Vici corporation. The three founders were frequently pulled into meetings with lawyers, making court appearances or generally orchestrating the involvement of various staff members who worked with Mr. White and Mr. D’Marco. This required them to work longer hours and under greater pressure than ever before. More and more they needed to delegate responsibilities that only one year ago were part of their everyday routine. G111 personally felt that while stressful, the

organization was actually going to be stronger due to the fact that the knowledge of the founders was being disseminated within the organization.

Work progressed on the Mark II VECI device designed for Mr. D'Marco. The second implant would deliver two types of serum to three areas of the brain. This meant that an additional bacterial chamber and two additional nanotubular bundles would need to be built into the device. This version of the implant was approximately 35% larger than the previous version due to the additional bacterial chamber and a greater emphasis on structural integrity to prevent the device from being collapsed by the body.

The bacteria used in this version of the implant were an improvement both in their ability to manufacture serum and in their ability to cooperate. Serum chamber number one containing two types of compatible bacteria, each contributing a component of the neurotreatment serum. The second chamber contained a slightly altered version of the bacteria used within recipient number one's implant.

During this difficult time, a tradition, that came to be known as the partners' weekly working lunch, was established. G111, who vigilantly protected his midday break, was normally in attendance and normally lead the discussions. The formal topics ranged from the operations of the company to scenario building and long-term strategy. G111, indulging his need to ritualistically embarrass his colleagues, instituted the biggest mistake of the week competition, which of course he frequently won. His claim as to why he won so often was because Ravi and Cayo were protecting their egos and that they weren't being honest with themselves. But if one were to objectively review the evidence, G111 definitely earned his "victories" week in and week out, due to his compulsion to explore every marginal approach or technique. As he normally explained, "I mean to leave no stone unturned".

Unfortunately, the act of leaving no stone unturned left G111 even less time for his family and during this period he amicably came to divorce terms with his wife of 12 years. Ravi and his wife Amala while working together decided that the hours that both of them were keeping was unacceptable for their family. Amala switched from a full time laboratory position to a part time consulting position. Cayo fared the best of the three partners being used to living in the public eye. His participation in the courtroom hearings and on the steps of the courthouse before and after legal proceedings gave him a platform from which to espouse the virtues and benefits of the work that he and Vici Neurosciences were doing. These public relations activities only minimally distracted him from his research and development responsibilities because he had a well paid veteran staff picking up his slack in the laboratory.

In court, the plaintiffs made claims that the process by which Vici Neurosciences was preparing Mr. D'Marco was in fact influencing the psychological evaluation process and was highly likely to alter the final determination. A motion was made to reinstate the cease and desist order until the evaluation could be completed. The court instead ruled that it did not see clear evidence of tampering with the evaluation process, but it did see accept that the work that Vici was doing with Mr. D'Marco had a measurable influence on his psychological state and therefore the court

order that Vici's continued access to the inmate would be limited. Additionally, the thirty day psychological evaluation period was extended by three weeks to allow the effects of the testing to be factored out of the evaluation.

Once the outside psychologist's report was finalized and submitted to the court both parties in the competency hearing lawsuit were reconvened to hear the ruling. Judge Reynolds called the court to order and began, "The findings of the Dr. Craft were substantial." She lifted a binder containing close to 100 pages to show it to the courtroom and continued, "Within this volume are descriptions of a variety of severe psychological disorders. It is readily apparent that Mr. D'Marco is a deeply flawed individual and on a personal note I find it hard to believe that Vici Neuroscience has the ability to cure what ails this 'gentleman'. Nonetheless, it is not Mr. D'Marco's demons that we are here to review, but instead we are attempting to ascertain whether or not he is capable of understanding the commitment into which he is being volunteered to enter."

After a slight pause to review her notes, the judge resumed, "A significant portion of this document is devoted to the psychological factors that generally go into a person's decision making process and Mr. D'Marco's demonstrated ability to differentiate and choose. I have to admit that due to the complexity of the analysis I had to personally interview the Dr. Craft to clarify his opinion regarding his opinion of D'Marco's competency. The evaluation boiled down to whether or not the would be subject was able to construct logical arguments for and against the course of action being considered. Dr. Craft observed that the prisoner possessed a unique mind that evaluated ideas in unusual ways. The doctor also found that the basic value system of Mr. D'Marco deviated significantly from civilized norms. Ultimately though, the analysis demonstrated, that while unusual, the process by which the prisoner evaluated the available information met the definition of competence." At this point a significant amount of quiet and not so quiet conversation erupted within the courtroom. The Judge raised her voice and continued over the noise of the now inattentive gathering, "And as such the prisoner is deemed competent to enter into the agreement struck between the state, Vici Neuroscience and himself."

The local media broke into afternoon programming to announce and discuss the ruling and the story was the lead on every national news broadcast later in the day. Cayo was repeatedly interviewed, proudly embracing the ruling and restating the fact that the Vici corporation had every confidence in the legitimacy of their actions during the course of the matter before the court. He always concluded by extolling the virtues and benefits of the innovative work that Vici Neuroscience was doing.

Within the offices of Vici Neuro there were a number of small celebrations after the competency ruling was announced, but no one really had time to get overly excited because the larger case about the legitimacy of the sentence commutation was still to be determined... Work continued unabated on the second implant and now provided unencumbered access to D'Marco some of the difficulties of the past few weeks would subside.

As expected the case to determine whether or not the commutation of Mr. D'Marco's sentence

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proved to drag on for several months. The primary discussion was focused on the interpretation of the term 'available treatment'. Additionally, there was a strong emotional undercurrent that focused upon victims rights, that basically made the argument that Vici's treatment while in theory good for the convict was denying the rights of the victim and the victim's families to justice. As a family member of one of the victims frankly put it, "Vici can use their device to cure some other murderer. This one's gonna get what's coming to him." This argument was heavily played up in the media.

Motion after motion was filed by the plaintiffs in an apparent procedural attempt to delay the trial to the point where the death sentence would have to be executed.

Finally, sanity prevailed in the matter of victim's rights. Using the same standard by which the original sentence was passed, prisoners would be spared the death penalty should a reasonable available treatment be available... The intent of this language was to reflect the concept that the penal system was about removing criminal elements from society and providing the opportunity for rehabilitation, not about retribution or revenge.

The matter as to whether Vici's device constituted a reasonable available treatment was a much less clear cut decision. Final arguments being made that the standard of 'reasonable availability' meant that the treatment being considered consisted of generally available products and well established procedures - neither criteria being able to be met by an experimental device such as the VECCI. The plaintiff further argued that if the court were to rule that the VECCI device met the criteria of 'reasonable availability' all current death penalty cases would be equally affected and thereby the entire death penalty sentence would be effectively struck down.

Vici agreed that the very nature of the death penalty sentencing would be affected by this ruling should the court find in favor of their position. Vici's lawyer then argued that while experimental and custom made, under the agreement struck with the Territory at the time that the Vici Neuroscience was incorporated the VECCI device would be made available on a continuing twenty year basis for death penalty convictions.

After months of legal wrangling, Judge Gaffigan was finally prepared to rule. The court was called to order and the judge issued his, now standard, warning regarding order being maintained during the proceedings. With everyone fully settled the Judge began the deliverance of his ruling, "The court finds itself in the unenviable position of ruling on the interpretation of a law that was created at a time when the scientific achievements that made this case possible were yet be conceived. Much discussion of the term 'reasonably available' has been occurred, each contingency putting their spin on the meaning. While these arguments are seemingly relevant, the intent of the law must also be considered and because we cannot directly interview the lawmakers who drafted this law, we must rely upon the constitution of this territory to guide this decision."

Consulting his notes, the judge continued, "Section 3 of the Territory's Constitution clearly states, '...the role of government is support and provide an environment that promotes the

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prosperity and benefit of its citizens...' furthermore section 17 plainly declares, '...laws shall be interpreted and used within the context of the time in which they are applied, not used as a means to arrest social development according to the standards of the time in which they were legislated...' It is the second point that guides my decision here today. The law as originally written could not have considered the technological relationship that has been established between Vici Neuroscience and the state and as such I am compelled to interpret of the concept of 'reasonably available' in a manner suited to our times." A buzz had been building within the courtroom and the Judge was not going to tolerate it, interrupting himself he stuck his gavel and warned, "ORDER!"

After a few moments the courtroom settled and the judge resumed, "To put everyone out of their misery, my ruling is that the Vici technology and the relationship between them and the state meets the criteria of 'reasonably available' and as such commutation of the Mr. D'Marco's sentence is permissible." Before the decision was fully read the courtroom was in uncontrollable disarray.

Once again local media broke into regularly scheduled programming to announce the decision. When the plaintiffs' lawyers were interviewed they commented that an appeal to the federal high court was already drafted and would be submitted within the next few days. The families of the victims were much more emotional this time, feeling as though the system and Vici corporation had denied them the closure that they so vehemently sought.

The threatened appeal was filed, and in what seemed like an uncharacteristically quick response, the federal high-court indicated that the procedural and constitutional grounds upon which the appeal was filed were insufficient to be heard. This type of abrupt response was typically received for matters relating to constitutional issues. As it turned out the high court view this matter as a territorial constitutional issue. This type of challenge was hard to make because changes to the constitution of a territory are subject to automatic review by the federal high court at the time these are altered. Therefore all territorial constitutions are considered to be certified as be congruent with the federal constitution. Any ruling made by a judge within a territory that with regard to the interpretation of a law in the terms of the territory's constitution was deemed to be properly adjudicated and therefore not subject to review at the federal level.

Finally, Vici Neurosciences and Estephan could finally celebrate in earnest.

All legal hurdles having been cleared and with only two weeks to spare, the team made the final preparations for surgery. Estephan rested comfortably until just two nights prior to the surgery, when, much to the horror of the Vici team, Estephan unexpectedly developed a high fever and other flu like symptoms. The fever continued throughout the first night severely dehydrated and weakening the patient. It was clear that the he would not be in strong enough to reasonably undergo surgery. Cayo had to scramble to get the courts to issue a temporary stay of execution, so Estephan would have time to recover.

A court hearing was hastily arranged for the morning of the last day of Estephan's sentence, for

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Vici Neurosciences to request a three day stay of execution. Assigned to the hearing was Judge Reynolds who had presided over the competency hearing of three months earlier. After hearing Vici's lawyers arguments for the request of the stay, Judge Reynolds quickly ruled, "The law is very clear. A stay of execution is either permanent and irrevocable or not permitted at all. This means that there are no circumstances under which a temporary stay of execution can be ordered by this court. This provision in the death penalty law was established so that once convicted an inmate would have a known period in which to make his peace with the world and to prevent an endless legal battle where appeal after appeal was made to delay an execution, with the issuance of temporary stay after temporary stay. A period of ten years from the time of conviction to execution was provided within the law to allow all appeals and legal actions to be pursued. In Mr. D'Marco's case this ten year period is about to expire. As a result the court finds that, unless the Governor steps in, tomorrow's surgery or execution will go forward as scheduled."

The Vici corporation was left with a dilemma, perform surgery as scheduled and violate the principle of "do no harm" in that performing the surgery as scheduled would in itself pose an unacceptable risk to the patient's life, whereas given a few days the patient would most assuredly recover and be able to safely operated upon. On the other hand, to do nothing and allow the execution is guaranteed to result in the death of the prisoner... boiling down to if we seek to operate on D'Marco, he must be considered a patient and we therefore cannot until the fever resolves, if we don't seek to operate on D'Marco, he is not a patient and therefore the harm that comes to him from the penal system can't be a factor in the medical decision...

Wide eyed, Cayo rhetorically observed, "Can I legitimately operate tomorrow? Can I?" G111 being a little more clear headed at the moment suggested, "We've got to get to the Governor... Who do we know that can talk to him?" Cayo still wide eyed and now shaking his head said, "There's no hope with the Governor... you know that... he was the prosecuting District Attorney that convicted D'Marco eight years ago... That was his pulpit from which he rose to power... Shit, we don't have a prayer..."

The media reported Vici's decision to forego implantation due to illness and grimly hovered over the prisoner as he "recovered" in the infirmary. The public reaction was both mixed and visceral. As the scheduled execution date approached, emotional family members of D'Marco's victims were always front and center on the news. Also in vogue were stories that incorporated both the traditional man-on-the-street interview and anti-death penalty protester sound-bite counterpoint.

October 1st, at midnight, with members of several victims families in attendance, convicted serial killer Estephan D'Marco was quietly executed by lethal injection.

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The execution of Estephan D'Marco forced an issue that the corporation had been anticipating since its inception, the potential of a dry neuroresearch pipeline. The Mark II was on the shelf, ready to be loaded with bacteria for use by a test subject that, at the moment, didn't exist. Unfortunately, the next available death row inmate's execution date was more than nineteen months away.

The partners met the morning after Estephan's execution to choose a course forward. G111 with an angry pouty face started, "It's so frustrating. How'd he manage to catch the friggin flu just two days before his execution date?" Ravi replied, "Yes, it is frustrating. We've had infectious control protocols in place since the court ruled that Estephan's sentence commutation was permissible. Nonetheless, it is flu season and any one of us could have been a carrier." G111 slowly growled, "Too damn convenient... They got their vengeance after all." Cayo chimed in, "But there's nothing we can do about it now. We've got to keep moving forward."

Stating the obvious, G111 observed, "Well, our next subject isn't going to be useful to us for almost a year and a quarter. I guess we can keep the neuroscience team busy monitoring William and researching better serum combinations, but that's not going to be enough." Cayo agreed, "Our investors are not going to be satisfied with us sitting back on our patent royalty revenue for the next nineteen months. We need breakthroughs." Then Cayo's gaze turned to Ravi, "We need to ramp up efforts the insulin implant that you and Amala have been dabbling with in your less than abundant spare time. Your former employer should be thrilled with that since we'll need to license the strains of bacteria that you'd developed when you worked for them." Ravi replied, "Yes, even if Estephan had the VECCI we were building for him we were going to face this issue very soon. So, as Amala has been pushing for a while now... our best option would be to get the Insulin implant into clinical trials as soon as possible."

"As I recall the major problem to be solved to go to clinical trials with the are Insulplant is the control system. Gee, do you have a handle on this?", asked Cayo. G111 replied sardonically, "Well Cee, chromo fluorescent glucose measurement has been around for a few years now, all I need to do is miniaturize it... from the size of wrist watch to the size of the head of a pin..." He continued smugly, "It'll take about a month." (everything G111 was asked to do, resulted in a quote of about a month). Cayo playfully replied according to formula, "Good, you've got two weeks." Everyone was suitably amused by the familiar scripted exchange.

G111 still not accepting the forced hiatus for his VECCI project suggested, "In the meantime can't we do some legal wrangling to gain access to a new subject? Lobby to get a law passed to implant death row prisoner before their execution date or maybe gain access to death row prisoners from another territory?" Cayo replied, "Both ideas are long shots, but I agree they're worth trying. I'll get together with some of our friends in the industry and see who we know and what can be done, but even if we succeed, we're looking at several months before there's anyway we're getting a new VECCI subject..." This brought the conversation to reflective pause.

Finally, with a gentle smile on his face, Ravi offered, "At least there's a break in the long long

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hours we've been keeping... We need to let people who've deferred their vacations to have some time off right away." G111 and Cayo simultaneously agreed, "It's been a long eighteen months." All three smiling broadly and chuckled...

After only taking three days off, G111 began work on the Insulplant monitoring and control mechanism. His team succeeded in miniaturizing a glucophlorescent nanotube sensor array significantly in just three weeks. It was a relatively simple matter to build a fully functional but somewhat oversized prototype for animal testing by the end of the fifth week of development.

Ravi loaded bacteria into several Insulplants and animal testing commenced. Over the course of the next six months the device worked well and G111's team reduced its size by roughly fifty percent. With the animal studies in hand, application to do clinical trials on humans was filed and approved.

Lobbying efforts to introduce legislation that would allow death row prisoners to participate well in advance of their scheduled execution date were in progress, but no meaningful action on these was anticipated within the current legislative session, which meant at least eight months of further delay.

Vici contacted other death penalty territories and the federal government to see if an arrangement could be made to transfer inmates for the purpose of participation in the program. This option proved to be impossible due to the requirement that custody of the inmates needed to be maintained within the jurisdiction in which the convicts were sentenced. There was some talk of establishing facilities in the other territories, but this was deemed unfeasible due to the desire to not spread their resources too thinly.

As human clinical trials of the Insulplant commenced, the offices of the Vici Neurosciences Corporation were contacted by a representative of the federal government requesting the partners to travel on short-notice to a facility just outside of the national capitol for a meeting. All the contact was willing to reveal was that the federal government was interested in sponsoring a special research project related to the work they were doing.

Intrigued and slightly concerned the partners made their way to the meeting, each with their own speculation regarding why the government was interested in their work. Ravi was simultaneously concerned that the government was interested in germ warfare applications for his bacteria and hopeful that they might be interested in further application of their work for healthcare purposes. G111 pensively theorized that they were going to start cybernetics program. Cayo was simply concerned that whatever the government's interest was that it wasn't going to interfere with the success that the company had been having so far.

Upon landing they were met at the airport by a soldier. The partners were slightly taken aback, not realizing that the government representative that had contacted them was military. She introduced herself and took them to a waiting vehicle parked in an "official airport business"

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parking area. She drove for about thirty minutes finally reaching a dark road that passed along a high fence that held back thick woods. The road led to a gate house where each partner's identification was checked by military guards. Once everyone was cleared, the van proceeded through the woods to a nondescript approximately ten story facility. The soldier instructed the partners to exit the vehicle and enter the building through the main entrance doors in front of which they were now parked. As soon as the door of the vehicle was closed, it drove around the building and out of sight.

The three men looked nervously at each other and proceeded into the building. Once inside, they were cheerfully greeted by a very attractive civilian receptionist. Without asking who they were or what their business was, she instructed them to have a seat, "The Major will be right up." Before they were able to take the few steps towards the seating area, she interrupted them, "Gentlemen, the Major is here..."

The partners turned and were greeted by Major Thomas Wyrick. He introduced himself and rhetorically stated, "Gentlemen, I trust you've had a good trip." The partners introduced themselves and followed the Major into the depths of the building. As the Major briskly led, he explained, "We appreciate you coming out on such short notice and with so few details. I also apologize for not revealing prior to now that this is a military project. We've taken the liberty of preparing security clearances for you." The Major reached into his pocket and handed all three blank security badges and continued, "Mr. Simmons, I don't mind telling you that you were the most difficult of you to clear. You've had a few, shall we say, 'entertaining' run ins with various authorities during your extensive academic career." G111, "Replied, you can call me G111... and your information is correct..." Now flippantly G111 continued, "I thought I done enough to exclude me from the possibility of any involvement with you guys... Apparently not." The Major was not amused, but declined to engage in further verbal sparring.

The group reached a door without a knob or handle. The Major announced himself. The door opened and the party entered. Once inside the room they found a soldier seated at a desk with computer console. In turn, the soldier asked each partner for their security badge. He slipped the badge into the console and then took a full length flash photograph of the person, returning the badge to each person immediately after the photograph was taken. Upon inspection of the ID badge it seemed completely unchanged, there was no image, word, symbol or mark visible upon its surface. The Major explained, "The badge we gave you is a backup security device, the real security around this facility is all biometric. The photo we took of you used a penetrating multiwavelength flash..." With a smirk he claimed, "We now know more about your body than your doctors do." Now reassuringly, he continued, "In case you're worried, the energy levels of the flash were very safe. In fact, you're going to be subject to a low level of that radiation every time we enter or leave a room within this facility."

The group exited the security center subtly disturbed by the continual dose of low level radiation that they were going to be subject to for the remainder of their visit. They proceeded to a bank of lifts. Once inside, the Major announced, "Twenty". The doors quietly slid closed and the lift

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aggressively plunged twenty floors before gracefully stopping. The partners were mildly taken off guard by the downward direction of their trip. They all almost succeeded in not acting surprised. With a subtle satisfied grin, the Major lead the group to the door of the conference room in which they were about to meet. The door opened on its own and the group entered. At the table was a group of five military personnel and three civilians. The Major instructed the partners to be seated and introductions were made all around. The Major then proceeded to turn over control of the meeting to Major General Ogden Richards.

The General began by thanking the representatives from Vici Neurosciences for attending and proceeded to get down to business. Turning to G111, he began, "Mr. Simmons, we've been aware of your research for some time. At this point we've studied every article and college paper that you've authored. We were especially impressed with your ideas around the VECCI device... And the work that your company is doing is also very impressive. It's a shame that your research pipeline has temporarily dried up..."

It took a second for the General's last comment to sink in. One by one the partners realized the implication of what the General had just said.

Before anyone could reply the General shifted his gaze from just G111 to all three partners and continued, "But, when one door closes another one opens... I'm about to make you an offer under the terms of the top secret classification..." He paused to let them understand his meaning and then resumed, "We've called you here today because we're interested in funding your research to improve the military potential of specially selected soldiers. We see the VECCI as a means to enhance agents for intelligence operations. Additionally we are interested in ways to utilize the technology to improve soldier battlefield performance."

All three partners had emotional reactions. G111 experienced, a sense of violation with regard to all of his academic research having been studied without his knowledge of consent for military purposes and a sense of outrage at the influence the military was attempting to wield over their work. Ravi was very intimidated and disliked the potential of being involved in the business of mass destruction. Cayo was powerfully ambivalent, being simultaneously angered by the supposition that the all powerful military complex could simply presume to usurp their work and intrigued by the potential of large sums of military funding flowing Vici's way.

Cayo and Ravi contained themselves, but G111 did not. He matter of factly interjected, "I will not claim to have not imagined the military applications of our invention, but I hadn't expected that the military would be interested so soon in its development." Now defiant and condescending, "What makes you think that we'd be willing to participate in this little project of yours?" G111's attitude made Ravi and Cayo noticeably uncomfortable.

Unphased, the General replied, "The fact of the matter is that we've already begun our 'little project' as you've referred it. We've studied Vici's patents, we've interviewed a couple of your ex-employees." As an aside, the Major interjected, "Good call getting rid of that Jenkins

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character as quickly as you did. When we interviewed him, it was like he didn't even understand the scientific method much less anything about nanotechnology manufacturing.”

The General was displeased with the interruption but continued, “As I was saying, we have an extensive knowledge base from which to do our own research, but we'd very much prefer to work with your organization. Frankly, your techniques and methodologies will be difficult to replicate within a government environment... we're too regimented... we're too...” Turning to Major Wyrick, “What's the term?” The Major replied “Waterfall.” The General turning back to the partners, “We're too waterfall in our approach, by the book, step one, step two, etc... We're looking for quicker results. Your organization is set up to be agile, with multiple research paths and a profit motive and fewer internal political influences.”

Cayo responded to the last comment, “What makes you think we're immune to political influences? What you see before you is three partners each with their own motivations, interests and drives... Whenever you have more than one person you automatically get politics... We don't agree on everything...” The General replied, “Of course. But you're small, focused and hungry... three things the military will never be. Additionally, we're able to help you work around certain regulatory issues that interfere with progress. How does the ability to acquire volunteer tests subjects on demand sound? We've already recruited five prime candidates to be enhanced and tested in various ways...”

G111 chimed in, “It's the ‘enhanced and tested in various ways’ phrase that gets me... and of course you get to decide the ‘various ways’ in which the volunteers will be enhanced... Creating the perfect killer no doubt...” Shaking his head, G111 continued, “If that's it, I'm not sure how we can justify that type of research... it's basically the complete opposite of what we've been about up until now.”

Ravi mustered up the nerve to express himself, “To be helping a killer control themselves is a very different thing from helping an ordinary man to become the perfect killer. I do not want to be a party to this type of research.”

The General raised his hand to stop the objections, and continued, “We're not looking to create psychopaths. We're simply looking to give our operatives the ability to select their emotional state as needed to suit their anticipated situation. This is exactly the same desire that Mr. Simmons explored in his academic work and the goal that your company has been working towards for the past few years. The military is simply looking to help you along... accelerate your development process... clear hurdles that by the conventional research and development route you'd have to work for many years to achieve.”

The meeting went on for several hours, finally culminating in the partners being given a tour of the government laboratory situated just one level below the conference room in which they met. The facility was impressive, but not as cutting edge as the Vici labs. The approach that the military was taking was far more industrial. The prototypes that they had created did not

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possess the elegance of G111's designs, having the appearance of a large black cotton ball with lengths of rough black yarn having been spun off of the main body of the device. The crudity of their construction disguised the fact that the device, if loaded with the proper bacteria and implanted, would perform the same basic function as the Mark I model that Vici had created for William White.

The bottom line was that military was offering Vici a blank check for research funding and unfettered access to test subjects in exchange for being able to request specific design implementations suited toward military applications. It was quite a deal, if the partners could get over the moral implications of entering into such an arrangement...

As the partners left the facility they were asked to turn in their badges at the front desk to a uniformed soldier who had replaced the attractive civilian receptionist at the front desk. They were delivered in relative silence to their hotel by the same driver who'd taxied them from the airport to the meeting.

Once out of the van, as if about to burst, G111 immediately began talking, "Are we seriously considering this? This just feels so wrong... The idea of leading with military applications is beyond my tolerance..."

Waving his hands to shut G111 up, Cayo immediately responded, "We all knew that one way or another the military would get hold of this... All of the chief applications of this technology you thought out and published right there in your first papers about the VECCI. As I recall, control of psychological disorders, treatment of seizures, treatment of degenerative brain disorders, treatment of brain injury, enhancement of reflexes and attention, improved learning, improved memory, enhancement of emotional bonding of individuals and the ability to induce situationally appropriate emotional states on demand. You wrote at length about the potential benefits to families, politicians, business leaders... and the military."

G111 now annoyed, "But that's one of the reasons I wanted to found Vici Neurosciences. I want to have control of the technology so that it is made available to everyone. I want the technology to become a type of consumer product... something that everyone can eventually own... I want it to be widely used so that people accept this type of augmentation as natural... as a step down the path of an engineered humanity... the next logical step in evolution."

Cayo sympathetically yet annoyed replied, "Yes, the Neoheurist Meme... We get it. Cybernetics and genetic engineering... But Gee, you have to admit that their offer solves almost all, if not all, of the problems we've had with getting test subjects and working around the government regulations."

Ravi now asserted himself, "Perhaps it isn't as bad as we're imagining, it all comes down to how a user of the device is controlled... and by this I mean if the user is in control of the emotions that they choose for themselves, then the fact that they are military is only a tangential

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consequence. But if on the other hand, the military is looking to use the device as a type of military remote control, then I definitely see a problem... it's all about who has control of the users."

Cayo falsely rationalizing, "Your current designs don't even include the ability to program the implant, so if we can limit the functionality of the programmable interface, we can limit the military's ability to remote control soldiers."

G111 wasn't having any of this, immediately pointing out the gaping hole in his argument, "Sure we can limit the interface, but nothing's stopping them from adding the remote control feature after the fact... sort of an aftermarket customization." G111 holding his head and rubbing his temples continued, "I've gotta' sleep on this... even though I hate being beholden to the military, I have to admit that their going to get our technology sooner or later... and I rather be involved to influence how they use it..." Letting his Asperger's out he growled to himself, "How'd did I get here? I shouldn't have published, I shouldn't have been so prideful... the genie's out and there's no way to stuff it back it... this isn't what I wanted... other people... other people... other people... military.... grrrrrr... it'll be the end of us all..." With this the partners separated ways for the evening.

The next morning, Cayo and Ravi met in the lobby for breakfast, expecting to also meet with G111 who was nowhere to found. They called his phone, tried to visit his room and finally inquired about him at the front desk of the hotel, only to discover that he had checked out hours earlier. Cayo and Ravi sent messages to everyone who might know where G111 was, but were unable to get an hint of where he'd gone. Now running late, the two partners hastily headed to the airport without G111, on the assumption that he'd turn up sooner or later.

Back at Vici headquarters, Cayo hunted down Ravi to find out if he'd heard from G111. Ravi had not... Now while G111 did have a reputation as being a workaholic, he also had a long history of "running away" when thrust into things beyond his control... He referred to these situations as "Social chaos" - forces of nature that couldn't be reasoned with and couldn't be controlled by a single individual... It was a very autistic way of dealing with unpleasant politics.

In G111's absence, this left the Cayo and Ravi to decide how to respond to the "government's" generous offer. A set of contracts from the federal government for an ill defined research project were drafted and delivered to Cayo's office two days after their return from the capitol. A very palatable aspect of the contracts was the fact that was no language that prevented any of the intellectual property that was to be developed to be immediately applied to civilian purposes. Ultimately, it was G111 argument with regard to preferring to be able to advise and influence how the device was used by the military that allowed Cayo and Ravi to rationalize their decision to sign the deal.

Within four weeks of signing the contract, blueprints were drafted and ground was broken for a secure clinical trial facility and operating theater. This facility would ostensibly allow prisoner test

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subjects to be securely held and would eliminate the need for Vici require the use of the surgical facilities of the local hospital. In reality the security aspects of the facility were designed to disguise the fact that the facility was, in reality, controlled by government.

## The Restoration

The design of the new research and clinical trial facility was significantly more complex than a typical medical laboratory, in that it had extremely deep foundations, elaborate security and advanced environmental control systems. All three of these design elements were explained to be needed for the security and protection of the criminals as well as to safeguard the manufacturing process of the next generation of implants. In reality the majority of the design features were needed to allow work on military subjects to be performed secretly.

Major Thomas Wyrick acted as the project manager for the construction of the research facility and was frequently on site to oversee and monitor progress. Whenever he was at the facility he dressed in civilian clothes and was referred to as Mr. Wyrick. During this time he got to know Cayo rather well, meeting with him several times a week. One of the the Major's primary concerns was the location and activities of G111, who'd now been away for over two months. He informed Cayo that the military was actively tracking G111, but they were reluctant to retrieve him at this time. In the military's estimate G111 was a threat to the operation, but as best as they could tell he was not violating the secrecy of the project. Cayo wanted to know where G111 was, but the Major refused to divulge that information on the grounds that they wanted Mr. Simmons to return of his own accord, because of this, there was no reason to apply undue pressure at this time.

Finally, nine weeks after his disappearance, G111 returned to Vici Neurosciences. The partners and his staff publicly welcomed him back. Many coming up to him with a standard flurry of questions about his disappearance and reappearance. Immediately getting sick of answering the same questions over and over, he posted a brief message for interested parties to view that innocuously explained where he went, why he left so abruptly and his status now that he was back. As far as the general populous of the organization was concerned, things were back to normal. However, behind the scenes, the real story was significantly different.

The partners met shortly after G111's return. The meeting began with Cayo confronting G111, "OK, nine weeks is a ridiculous amount of time to be out of touch! What the hell happened?" Defiantly G111 replied, "The military happened... I'm over it now. Let's get back to work." Cayo not letting it rest, "You left us at a critical moment... we needed to make a huge decision for the company with one partner missing... and now that we've made that decision we've got to figure out if you're in or out..." Cayo now exaggerating slightly, "The military's been all over us ever since you vanished. In fact Major Wyrick is in the other room waiting for us to get done with you."

Holding his forehead with his eyes closed, G111 explained, "That meeting we had near the capitol stressed me out... to... the... extreme... I had, I guess you'd have to call it, a panic attack." Pausing briefly to collect his thoughts G111 continued, "That night I withdrew a large amount of money, rented a car and just started driving... The military must have been able to track at least that much. No destination, no time frame, I just drove... paid cash for everything... whenever I got hungry I'd eat, when I got tired I'd sleep... I was looking for something but I didn't know what... I needed time to think and be alone."

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Cayo in unsympathetic disbelief replied, "A nine week panic attack? You're going to have to do better than that..." G111 admitted, "After about two days the initial shock wore off. My head was clearer and I realized that I really needed a break because I felt stressed, depressed and in need of some time to be lazy... But more importantly, as you'll find out if you take the adult "running away" option like I did, coming home is the hardest part of the trip... Coming home means facing yourself and facing embarrassment upon returning to your family and friends... It took awhile for me to get to the place that I could deal with everyone."

Cayo, shaking his head, replied, "I'm not sure you can come back... the military is concerned that you're unreliable, a potential leak and therefore a huge risk. Remember what Wyrick said to you about getting us security clearances... you were already on their radar as a problem... you've made that situation worse." G111 thoughtfully responded, "I know that, and it's one of the things that contributed to my panic attack... that and the fact that I realized almost immediately, once we were approached by the military there was no reasonable way to say 'No'... you know I hate being cornered..."

Cayo, "Yeah, but now we've got to convince Wyrick, Richards and probably whoever they report to, that you're OK to get back to work. Are you ready to face Wyrick?" G111 replied, "Give me a minute..."

After a few brief moments, Cayo announced over the intercom to send the Major into the conference room. Major Wyrick entered with a forced smile upon his face. He greeted the partners and then turned to G111 and flatly asked, "Did you work out, whatever you needed to think through?" G111 appreciating the fact that the Major got right to the point replied, "Yeah, I think so." The Major responded, "Good, let's get to work. I need you to take a look at the layout of the fabrication labs. I want to make sure that the ventilation is right and that you'll have enough room for expansion." Ravi and Cayo were mildly surprised by the lack of some sort of serious admonishment from the Major. Nonetheless both were suspiciously thankful that there wasn't a blow up.

The Major walked towards G111, grabbing his sleeve as he passed. He lead G111 out of the conference room, presumably headed to the Major's office. They exited the conference room, leaving Ravi and Cayo alone. As the door closed Ravi turned to Cayo and said, "Not what I was expecting, for sure. Perhaps they'll get into it in the Major's office." Puzzled, Cayo searched for some kind of response, hesitantly saying, "I'd like to be there if that's how it's going down."

As G111 and the Major walked the Major informed G111, "Prior to contacting Vici we realized that you would be inclined to be resistant to our proposal and we were very concerned that you might react badly... and at first you managed to get away from us. But our background profile strongly suggested where you were likely to go and within two days we tracked you down. What is it with that woman anyway?" G111 feeling violated and embarrassed opted to employ selective mutism in response to the highly personal question. After a suitably uncomfortable few

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moments of silence they arrived at the Major's office. The subject of G111's unscheduled vacation was dropped and they awkwardly got to work, pretending as if nothing had happened.

Later that day Ravi found G111 staring out of his office window, contemplatively overlooking the construction site. Ravi knocked on his half opened office door and entered. G111 turned, smiled a weak yet friendly smile towards Ravi. He acknowledged his friend saying, "Please Ravi, we've got a lot to talk about." Ravi agreed and closed the door behind himself. With the door now closed Ravi finally asked, "I have to ask. Did you find what you were looking for?"

G111's smile briefly brightened and then faded to scowl. He rhetorically asked, "While I was out there?" Ravi barely reacted and G111 continued, "It was nice to not have anyone to report to. No commitments... No schedules... No big picture issues... But, the problem was, no matter where I went, there I was... it was like I was hoping that by going somewhere new, I'd somehow be someone new. Sure the scenery changed, but the people were the same... and of course I was the same. How does everyone else do it? It's like everyone's blind or immune to the chaos... to the imperfection of it all..."

Ravi now took his turn and rhetorically asked, "Perfection is a matter of opinion, isn't it? Each of us hold our own ideals... and from my perspective, perfection is a fool's goal, indefinable, ever changing and ultimately unattainable. So to be immune to the chaos is to simply accept things as they are..." G111 now frustrated took a mental leap, "If only it were perfection that was the problem, it's imperfection that drives me nuts... How about simple housekeeping? Did you ever experience or see pictures of people living in a poor country and notice how they walk through filthy streets as if it were normal? Pieces of paper, cans, bottles, broken boards, plastic, miscellaneous trash... How do they walk by all of that day after day? How do they allow that mess right in front of their homes? It would take almost nothing to gather the trash up and burn it or bury it somewhere... It would drive me absolutely crazy to live in that environment... and by analogy this is how I see the world, all kinds of messes almost everywhere, and no one even noticing. To me, whatever the mindset is that allows those impoverished people to ignore the mess in which they are surrounded, is the same 'illness' that afflicts people at every level of society. Somehow things, whatever unpleasant things there may be, are somebody else's problem..."

"Well G111, you are a product of a different environment, aren't you?" observed Ravi, "You are not one of those poor people of which you speak. You are from a wealthy country and we're bestowed a fortune as a teenager... You cannot truly appreciate their situation." G111 still frustrated, "You're missing the point... it's not specifically about poor people, it's about people in general ignoring problems and opportunities that lie right in front of them... in the case of the poor it's probably about fear, powerlessness and helplessness, whereas with the wealthy it's about not bothering to bend over to pick up the penny when I've already have ten in my pocket. Everything's fine and the slop in the system is fine too... why squeeze out every drop of efficiency? Why even ask why, when already I've got mine? Why even bother to lift up those who are poor? Forgive me for the analogy, metaphorically, the poor are the trash at the feet of

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the wealthy...”

Ravi looking stressed, replied, “Are you speaking of the injustice of the division of wealth? Of this I have experience, because many in my culture are impoverished, and a means to lift them up would be most desirable.” Cayo sighed and shook his head, “You’re being too literal with what I’m saying... To directly answer your original question ‘Did I find what I was looking for?’, the answer is ‘No’... My conclusion is that people are essentially programmed in a manner that allows... No! requires them to actively ignore things... I am unable to ignore things in this manner... I consider this difference in my personality as being a symptom of being a more highly evolved form of homo sapien.” G111 briefly paused to laugh at the inanity of his own statements and then without missing a beat continued, “But, unfortunately, it makes putting up with most other people a constant irritant.”

Going back to the situation at hand G111 concluded, “Prioritizing military applications of the VECCI over the mental health applications is just backwards to me... I hate being forced into this type of deal with the devil. Like I said before, the minute I was certain that we were engaged with the military, I knew there was no responsible way out, that wouldn’t result in an act of treason.”

Ravi asked, “So you’ve come to terms with working for the military? Are your principles intact?” G111 sighed again, “It’s a bitter pill to swallow. I’ll have to be flexible with my principles... but the situation will serve my purposes, for now... the less I think about the ramifications of what I’m doing the better... and the more I focus upon my work the happier I’ll be.” Ravi frowning slightly offered, “Sounds highly practical... I too am not completely comfortable with our arrangement, but it does promise to help us make progress much faster than before, so I am thankful for the assistance.”

G111 appearing somewhat haggard finally asked, “Ravi, please don’t share this conversation with anyone. Cayo and I need to have a chat like this very soon, but there’s no way that I want the military or anyone on our board of directors to know how I feel.” Ravi retorted, “I guess you’re assuming that your office isn’t bugged and that they already know everything?” G111, now slightly playful and with raised eyebrows, started looking about the room and pointing to phantom locations as if he knew where listening devices were, replied, “You know, it probably doesn’t matter if they know or not... given my reception by the Major, it’s clear that they need me and are probably willing to put up with anything short of giving the whole program away to keep me... for now...” and with that Ravi smiled, turned and left the room saying, “OK, my friend, I will keep your confidence. Please also keep mine in these matters... It’s off to work for both of us now, for we have an eventful next few months ahead...”

Work on the research center and clinical trial facility progressed rapidly under the watchful eye of the Major. Lobbying efforts, supported by behind the scenes military influence, brought about the passage of federal legislation to allow the transfer of death row prisoners between territories for the purpose of medical treatment, one year prior to their would be “execution date”. This

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meant that as soon as the new laboratories were ready, a prisoner could be made available fairly quickly.

As the research and clinical trial center was nearing completion, Major Wyrick strongly suggested that Vici Neurosciences do the press interviews that only a few months earlier it had declined. He wanted these interviews to go ahead for two main reasons. Firstly, to remove the air of mystery and curiosity about the company. Secondly, to establish an image of Vici being an open company, this was perceived as a means to limit the desire to probe the organization to ferret out secrets and thereby limit the potential that the military work that was going to be performed would be less likely to be noticed.

News organizations from several countries were invited to visit and discuss the work that Vici was doing and their plans for the future. The stories tended to both praise the work being done and question its ethics and the legitimacy of the political process by which Vici operated. Dr. Espectro was universally portrayed as both a genius and shameless promoter, Ravi was universally regarded as brilliant and retiring and G111 was portrayed as the maverick.

During this same period, work on the Insulplant device came out of clinical trials and was approved by the Federal government as an experimental treatment for Diabetes. G111 and Ravi's manufacturing process was streamlined to the point where they could build two devices per day. Cayo trained surgeons, from several international hospitals, on the implantation process. Over the course of the next six months over two hundred fifty devices were distributed and put into use. A number of issues with the device arose during the large scale treatment period, including rejection, device shut down due to compression and a single case of a bacterial leak, which caused an allergic reaction that turned out to be fatal. The allergic reaction was slightly surprising, but the bacterial leak was determined to have been caused by a mishandling of the device during implantation.

Finally, the clinical trial center was completed and the first death row convict from another territory was brought to be implanted. The Mark II implant was not used for this patient, due to the fact that several advancements in design and construction had been achieved during the development of the Insulplant device that were applied to the Mark III VECI. This version of the implant utilized three bacterial chambers loaded with five unique strains of bacteria. The procedure required two surgeons to simultaneously operate for sixteen hours. The surgical team was lead by Dr. Espectro and his protege Dr. Noon who was being groomed to take over as the principal implantation specialist.

Just three days after the first Mark III was implanted, preparation of the first military subject began. Not surprisingly, the military was initially very interested in applications that involved the emotional control centers of the brain. Key elements in the military design were to enable the subject to program the device to selectively quell fear and anger emotions. The military version of the Mark III included an external interface that could be used to communicate with the implant to program it to deliver serum at desired times for desired durations. This would allow the

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military operative to prepare themselves to go into stressful situations. Both the therapeutic and the military versions of the Mark III proved to be successful.

The success of the VECCI in criminals lead to more territories permitting death row and violent life sentence convicts participate in the program. Vici worked out the process so that within a period of one month a patient could be evaluated, implanted and discharged to their 'home' criminal justice system. Once discharged, the jurisdiction was responsible for continuing monitoring and fine tuning of the operation of the device.

As the next eighteen months passed, VECCI testing on military subjects far outpaced testing with convicts by a four to one ratio. Every model was not tested on convicts due to the limited number of suitable criminal candidates available at any given time. On the other hand, military test subjects were provided with regularity providing the opportunity to test every version of the implant on at least one recipient.

Every three months during this period a new version of the VECCI was put into production, in rapid succession the Mark IV through Mark IX released. Each model provided the ability to treat smaller and more numerous areas of the brain simultaneously. These also provided more sophisticated monitoring and control of dosing.

The devices utilized neurotransmitter sampling techniques to determine when additional serum might be required to respond to emergency situations. It was discovered in one unfortunate case that an implant suppressed fear impulses in a recipient who ended up unnecessarily allowing themselves to be trapped during a fire. This finding was never revealed to the public, but within Vici and the military it was taken very seriously, requiring in a significant redesign of the recipient evaluation process. Major Wyrick being one of the people who took this the most seriously...

A meeting was called between the military and the partners of Vici to discuss the implications of the fire death. Major Wyrick started, "Gentlemen, it seems that in our efforts to push this project ahead, there's been a serious oversight. Not every stressful situation is the same... and we need some way of allowing the user to override the device if needed." Cayo defensively responded, "Look, you've been pushing and pushing and we've had to streamline some procedures to get you results. We've actually known that this was likely to be a problem from the beginning, and we've also always known that it would be a challenge to overcome, because the device has no means to make determinations with regard to when to work and when to stop. A feedback mechanism of that type would basically require the device to utilize the user's senses to recognize and then decide if there were an emergency. This requires a level of technology that we're not even approaching at this point... in ten years, probably... today, no way..."

The Major responded, "This is unacceptable. I can't have my operatives dying just because they program themselves to suppress fear for a period of time and then they fearlessly walk into a

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deadly situation. Isn't there a way to simultaneously heighten their sense of self preservation while giving them a sense of calm?" G111 retorted, "The emotion of self preservation IS fear..." Cayo chimed in, "Look, it's not like the device turns off the user's judgement centers. A person with the implant is able to understand when they are in danger. They just need to be trained to react out of logic in the absence of the emotion of fear... They need to be trained to compensate for the artificially high sense of confidence that the device instills." The Major somewhat incredulously responded, "So, it's a training issue?" Cayo flatly responded, "Yes. At least until we can build a cybernetic system that taps into the user's senses and the artificial intelligence to act on this input."

Major Wyrick slightly frustrated asked, "If you were to simultaneously heighten the logical function of the brain at the same time the fear response was being repressed would this induce a more survivable state of mind?" G111 replied using one of his favorite words, "Theoretically... I've already started working on an approach that would allow us to do this. There are implications though. Until now, our designs have been oriented towards simultaneously manipulating multiple areas of the brain to achieve a neurological effect in one direction. By this I mean just enhance calm or just enhance awareness or just inhibit rage. To manipulate a mental state in more than one way is tricky, and will require training of the subject to understand and deal with something that might be best described as a psychophrenic state of mind. At a minimum I'm guessing that one might experience a very distorted sense of reality when subjected to this."

The Major looking hopeful yet concerned asked, "How long until we can test this approach?" G111 audibly groaned at the prospect of directing efforts into this highly risky approach and finally replied, "Realistically, for prototyping purposes, it's a just control system issue. It's, at most, two weeks of software development using a Mark IX implant. The biggest issue will be testing because we can't use animals. We can't use animals because the effect we're trying to achieve is complex. We need a human subject to tell us what they're experiencing while they're experiencing it. The subject's feedback is critical to tuning the device to achieve the desired mental state." His hand thoughtfully covering his mouth Cayo added, "That's right, we'd have to have to take a trial and error approach. To my knowledge, every pharmacological study in this area has been inconclusive or an outright failure when trying to induce complex mental states due to the fact that drugs in the bloodstream influence too much of the brain at once. Psychedelic and psychotic effects being the primary outcome."

G111 commented further, "Thinking about the test subject... We're going to have to find someone who's psychologically very stable. It would also be very helpful if they were experienced in some sort of meditation technique. Most importantly, they're going to need to be very brave, because there's no telling what kind of bizarre altered perception of reality we might induce..." The Major replied, "Well as long as we're able to deactivate the implant, should there be no issues... Right? I think we'll be OK." Major Wyrick paused, thought and quickly restarted, "Let me take care of finding a suitable volunteer. In the meantime, get to work on reprogramming a Mark IX, I want to begin testing in no more than four weeks."

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G111's team began development of the software to simultaneously heighten logical control and the inhibit fear reaction. The team knew from experience that elevating activity within the brain tended to stress the areas under stimulation, eventually causing unpredictable behavior. On the other hand, they knew that any area of the brain could be suppressed indefinitely. This meant that they would not have the option of continuously stimulating the reasoning centers of the brain due to the impact of prolonged fatigue. They also did not have the option of continuously suppressing fear due to the risk of the patient not being able to logically deal with a dangerous situation should the logic centers of the brain be in a rest phase. These criteria demanded that the implanted recipient would need to have the ability to selectively heighten or reduce either or both aspects of their brain function as needed.

It was a simple matter to change the implant to produce both serums on independent schedules. Safeguards would need to be built into the controller's software to prevent excessively long duration stimulation of the reasoning centers.

To directly address the Major Wyrick's concerns, there was some consideration given to providing the ability for the recipient to to turn the "smart serum" on and off at will, without using the external control console. A kind of switching mechanism could be connected to the minor muscles near the eye to allow the user to twitch commands to the implant. While sending commands this way was a proven technology, the hard part was receiving and interpreting communication back from the implant. Via the external console a conversation between the user and the implant occurs, commands being entered and the device responding on a computer screen. When using a fully implanted command interface, there would be great difficulty in providing output from the implant since there was no easy way to represent the devices responses on a screen, so this approach was scrapped.

Six weeks after initiating the dual mode VECCI project, Major Wyrick arrived at the clinical trial facilities accompanied by Major General Ogden Richards and Captain Kenneth Park. The Major and the Captain were both dressed in civilian attire whereas the General wore his uniform. The appearance of an obvious military figure on the Vici campus drew little noticeable attention due to the late hour that the group arrived.

Dr. Espectro met the men at the lobby and lead them to the secured meeting room deep within military portion of the complex, where Dr. Jain and a sleep deprived G111 were waiting.

Cayo began, "Gentlemen please take a seat." The Major and the Captain sat down, but the General remained standing. Unconcerned, Cayo continued, "General, we weren't informed that you would be in attendance. To what do we owe the pleasure?"

The General flatly responded, "In light of recent developments, I wanted to make a first hand appraisal of the work you're doing here."

Cayo observed, "If you've kept up with our project assessments you have to be aware that we

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warned that that type of situation was possible.”

The General mildly annoyed responded, “Yes, yes... Admittedly, the circumstances that the volunteer in question was subject to were extreme... You’ve got to understand, I still hold you responsible, because I’m relying on you to think these things through to prevent incidents like this.”

Cayo now slightly annoyed, “But... as the Major keeps reminding us... results, results, results... that’s what we’re all about. By God, we’re practically doing an implant every month. That barely gives us time to test, redesign and build the next generation. At this pace, we were bound to have an incident sooner or later.”

After a brief moment Ravi interjected, “I have read the military reports on this matter. We cannot truly be held responsible for this incident. The test that you were performing, at the time of the incident, was on a military base outside of our control. While you’ve been doing tests like this for many months now... this particular test was using protocols that were beyond any parameters that we were asked to design to. You must admit the circumstances arose during the test were out of control. No one could have anticipated this accident.”

The General firmly asserted, “No matter how the circumstances came about, the point that I’m focusing upon is that the volunteer should have been able to escape the accident during the test, but due to the influence of your device he was unable. This is why I’m here today...” Thumping the tips of his fingers on the conference table for emphasis, the General continued, “To ensure that safety protocols are being taken seriously on this project.”

G111 finally contributing in a somewhat sleepy and annoyed tone said, “OK, the message is received, we’ve worked out a new approach for the next implant, but can we agree that we’ve got to slow down just a little... The problem with research like this is you don’t know what you don’t know and it’s almost impossible to think of every possible interaction of circumstance.”

The General grudgingly accepting the feedback replied, “Agreed. At this point it’s the opinion of my staff, including Major Wyrick, that the easy progress on this project has already been achieved and you’re getting into far more complicated work now.” The General’s changing to a more appreciative tone, “I don’t want Captain Park to get the wrong idea. You’ve done some very impressive work so far... I’m especially impressed by the results you’ve been achieving with your criminal subjects. Very promising...”

The Major now feeling it was time for him to chime in, began, “Let me formally introduce Captain Park. He’s a fourteen year veteran, fighter pilot and psychological operations specialist. He has an extensive martial arts and meditation background and a degree in psychology.”

Cayo happily reaching across the conference room table to shake hands said, “Captain, very impressive, you’re the perfect candidate for the next round of our testing.”

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The Captain replied, "Thank you, Dr. Espectro. I've been fascinated by the public work you've been doing with convicts and the with the Insuplant device. I found the briefing that the Major gave me on our trip to your facility fascinating. How are you planning to address the need to enhance logical control on demand? Have you developed some sort of feedback mechanism?"

The partners and the Captain took over the remainder of the meeting, talking about the technical challenges that Vici was facing for the military. The meeting transitioned from the conference room to a tour of the facilities and a look at the implant that was prepared in anticipation of the Captain's arrival. General Ogden Richards was suitably satisfied that the team was on the right path and that his money was being well spent. He left the Captain with the partners, departing the facility with Major Wyrick shortly before dawn. It would require several weeks of evaluation of the Captain before the device would be implanted.

Finally the day of the modified Mark IX implantation came and went without incident. The Captain responded well to the surgery and the implant indicated that it was operating correctly... A series of tests to determine how the cognitive functions of the Captain were affected were performed using a series of simulated crisis situations. Within the laboratory creating an artificial emergency was difficult to do, because the subject always knew that there was little to no real danger. But even under simulated hazardous circumstances, the brain could be observed via Functional Magnetic Resonance Imaging operating as if the circumstance were real.

Brain maps made prior to implantation using a functional MRI are excellent for the control of general emotions and impulses, but proved to be unacceptably inaccurate when used for higher brain functions such as those involved in decision making and problem solving. This nonspecificity of measurement of the location of higher brain functions always required a more complex serum nanotube delivery array. The ability to treat finer and finer areas within the brain became the goal. The Mark IX was installed such that it was able to control the flow of serum to numerous small regions within the reasoning centers of the brain.

As the delivery of serum to the emotional and reasoning centers was tested and analyzed the theorized psychedelic and psychotic effects were observed. During these serum tuning sessions Captain Park was asked to mindfully meditate so as the report upon the effects he was experiencing. Even at low dosages it was difficult for the Captain to maintain his concentration being subject to strange thoughts, paranoia and auditory hallucinations.

It took the team a number of weeks to attain a reasonable model of the location and relationship of various thought patterns within the Captains mind. Cayo was never really satisfied though, due to the fact that he wanted what he called "brain pixel" level control. The small patched they were forced to work with thus far were too generalized to achieve the full promise of the device. Finally the team released the Captain from the clinical trial facility to be subject to applied military testing.

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The Captain struggled in applied field testing, suffering a number of psychotic episodes followed by periods where he was unable to sleep or concentrate. He shuttled back and forth between the military testing laboratories and the Vici laboratories to be tuned. A number of combinations of traditional psychoactive medications and meditative biofeedback training were attempted. None of the solutions proved to be able to overcome the ill effects of the newest version of the implant. After four full months of struggle, pain and tweaking the Mark IX device in Captain Park's head was deactivated removed.

Removal of a VECCI was relatively simple compared to its implantation. The main unit was disconnected from its blood supply and withdrawn from the skull. The nanotubes that lead off of the implant were simply snipped and left in place, these being inert and therefore harmless. The military actually took issue with leaving the nanotubes within the Captain's brain due to the fact that it constituted evidence that the procedure had been performed. But to dig out the nanotubes would be very likely to result in damage.

After Captain Park, four other candidates were brought into the project. A Mark X and XI version of the implant were developed each of which sought to provide more granular control to the serum delivery. Mechanisms to actively monitor brain activity were also developed to provide feedback information related to the mental state of the patient. Each new device brought more temporary control, but ultimately failed. Each subsequent failure being more sudden, debilitating and unpredictable. Lingering psychological effects of the implant were documented for a few volunteers.

The main problem was understanding how each subject's thoughts were processed by very specific areas of the cerebral cortex. A simple monitoring and feedback system turned out to be too slow and imprecise to provide the level of enhancement that the government was seeking. All of the results of testing suggested that the only way to solve the problems with the implants was to manufacture and implant a type of nanotube fabric of a high thread count. The fabric would be wrapped over and embedded within the lobes of the brain much like a nylon stocking fits over a foot. The individual nanotubes within the fabric would be designed to be individually addressable by the control unit. The individual fibres, known as cerebral pixels, would both deliver serum as well as monitor activity of very small patches of the brain. The controller would be trained to recognize the thought patterns of the user to model what the user was thinking and to understand exactly which pixels to stimulate with serum to induce a desired mental state. To achieve this level of coordination between the controller and the user would require a significant amount of artificial intelligence to be programmed into the implant.

While the pixel array neurochemistry (PAN) approach seemed to be the correct theoretical solution, the implantation of this technology would be orders of magnitude more complex due to the need to stretch the fabric between the cranial meninges and the lobes of the brain. A significant amount of damage to the arachnoid mater would incur from this technique. The concern being that separating the significant portions of the meninges from the brain would allow differential movement of the brain and the meninx creating torsional stress upon the

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nanotube fabric potentially moving or dislodging it. Additionally, the voids between the brain and arachnoid mater would provide a place in which fluid was very likely to collect. Prevention of fluid on the brain was second only to infection control as a priority in every implantation surgery since the Mark I device. As a result of the risks, this approach was deemed unfeasible.

Nonetheless, all of the experimentation resulted in a number of advancements in the design and implantation of more conventional versions of the VECCI. The brain mapping team learned a great deal about how to map a brain more accurately and more quickly than ever before. The surgical team developed shortcuts for implantation that allowed several nanotube fibers to be simultaneously implanted. Complications with convict implants were reduced to almost none.

A number of theoretical insights into two types of psychophrenia and substance dependency problems were also made because of the testing with military subjects. Cayo wanted to publish a sanitized version of these results, but was prevented by the military for fear that doing so would compromise the project.

During this period, the commercial side, lead by Ravi and Amala, developed a series of hormonal implants to regulate metabolism / weight control, tissue growth / function and sex drive / mood. These products were delivered to market in rapid succession as the genetics engineering team perfected hormone specific bacteria and the nanotech team developed the ability to monitor hormone levels within the body. Of the two technical challenges the monitoring mechanism almost always proved to be the more difficult due to the need to miniaturize or find alternative technical approaches for quantifying hormone levels. These devices met with a great deal of commercial success, being relatively easy to manufacture and very easy to implant.

Over time, implants were created to simultaneously regulate multiple hormones. The promise of the artificial endocrine system that Dr. Jain had postulated at the inception of the Vici Neurosciences became a reality known as Reglioplant therapy.

Variants of the Reglioplant device were created to treat cancer. These implants were able to produce angiogenesis suppressants that arrested the growth of tumor blood vessels. Doctors had the option of placing as many implants as needed to combat the cancer. Typically, the implants were located as close as possible to cancer, downstream in the blood flow.

Other variants of the Relioplant device were used to treat viral infections and to battle recurring antibiotic resistant bacterial infections. The ability to target, monitor and adjust drug levels proved to be a highly effective methodology for the treatment of many chronic health problems.

During this period Ravi published several papers during this period of rapid productization of the Reglioplant. In one paper he described a technique for building and implanting a network of cooperative Reglioplant devices to prevent bone loss during long duration space flight or colonization of other planets.

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A later, far more theoretical and far more controversial paper, took the concept of a Regliopant network to its fullest potential, proposing that a network of devices could be distributed throughout a recipient to produce, program and deliver stem cells to regrow tissues in situ within the body, to repair or replace failing organs. This technology theoretically could be developed in such a manner as to continually monitor and rebuild any organ within the body thereby extending productive human lives significantly. The stem cells themselves would be cultivated within the implant in the same way that the bacteria within the present generations of the device are. Ideally, the stem cells, maintained within the implant, would be genetically corrected so that any genetic diseases that the recipient was born with would eventually be eliminated from the patient's body through cell replacement. Furthermore, the implant would be designed to repair any chromosome damage by ensuring that the telomeres on the end of the chromosome were maintained at their full length thereby preserving the youthfulness of the cells.

Over this same period a news story about Vici Neuroscience was discovered in a less than mainstream publication that claimed military experimentation was being performed. A source indicated that a top military official (or officials) had been seen visiting Vici during late night sessions in a highly secured area within the Vici headquarters complex. The story alluded to some sort of accident in which a military experimental subject mysteriously died. The facts of stories were vaguely similar to the accident and subsequent visit by the Major General, but were inaccurate enough to be safely ignored, not being dignified with any type of public acknowledgement. Behind the scenes though, inquiries were made to determine if a leak might have developed.

Despite not being responded to, the story garnered some attention from the conspiracy theory crowd, resulting in a number of completely unsubstantiated accounts of neurologically enhanced super soldiers. Other stories purported the coming of the ultimate man-machine interface having been developed, based upon Vici Neuroscience technology. An interesting but highly misguided schematic of the imagined man-machine interface device was even published online by the Cyborg Coalition.

Because wild stories of this type were ever present on the fringes of society, the military ignored these in the same manner that they ignored reports of the military working with extraterrestrials or delving into any variety of psychic phenomenon.

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Vici Neurosciences had become extremely profitable over its first ten years of operation, growing to achieve the third highest market capitalization of any biotechnology corporation in the world. The company possessed over five thousand patents, the license revenue from these accounted for nearly eighty five percent of the company's profits. They had partnerships with every major medical system in the world and were involved with numerous educational and research institutes. The political influence that Cayo had accrued as the result of the success of Vici Neurosciences was ranked #1 within the private sector by two leading business publications.

The social good created by Vici's technology eliminated the death penalty sentence from all but 14 of the 62 worldwide jurisdictions that had the sentence option when Vici was founded. Treatments for learning disabilities, attention deficit, hyperactivity, Autism, Schizophrenia, various psychoses, Alzheimer's, Parkinson's, Cerebral Palsy, seizures and almost all Endocrine diseases were now easily treatable.

One of G111's favorite commercial applications of the VECCI technology, that came to be known as the "high fidelity" implant, was actually brought into existence as the result of a fanciful proposal that Cayo had made in an academic paper on applications of the VECCI device related sexual impulse control. The paper concluded with the following passage:

*A number of potential applications beyond treating rapists and sexual addicts are possible. At present research is being pursued to develop a version of the VECCI that includes a proximity detection capability that would be programmed to stimulate the reward centers of the brain whenever a person, who is identified as having been or being susceptible to marital infidelity, is in the presence of their spouse. In effect, this type of implant could be used to induce a voluntary addiction dependency between marital partners.*

Shortly after the paper's publication, Vici Neurosciences was approached by a well endowed orthodox religious order that had recently suffered a series of sexual scandals. This church was offering a substantial research grant to develop VECCI devices capable of suppressing sexual urges of clergy and to treat gender variance within their membership. Their proposal was essentially a formal request to develop the "high fidelity" implant that was farcically proposed in Dr. Espectro's now infamous research paper.

At first Vici dismissed the religious order's requests, but later decided that it would be worthwhile to take a serious look at these applications. A quick clinical evaluation revealed that the device developed for rapists needed no modifications to be applied to what was privately referred to with the euphemistic term "clerical neutering". The fidelity implant was developed and successfully used "treat" patients for both infidelity and gender variance. Of the two applications of the fidelity implant the treatment of gender variance was much more controversial. Because of the social turmoil created by the announcement of "sexual attraction" applications, Vici decided to license the usage of the technology to a medical institution owned and operated by the religious order who funded the research. Vici supplied training, equipment, empty implants and suitable bacteria to the order, leaving the final assembly and implantation of the devices to

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the institution.

Even the establishment of the arm's length relationship did little to mollify the Gender Diversity community's reaction against Vici Neurosciences. The mere suggestion that a treatment for gender variance had even been considered was viewed as evil. To further go on to develop a technology to override a person's natural gender identity was seen as no less than a device to destroy a portion of person's personality and a means to unfairly discriminate to deny the civil rights of the gender variant community.

The partners met to discuss how to mitigate damage and reposition the organization to address the outrage that threatened to disrupt what was otherwise an uninterrupted period of success for the company.

Cayo began the meeting with a practiced sense of concern in his voice, "Well, I guess we thought that we could do no wrong... hubris... humility... and contrition are what's called for now if we intend to get out of this situation without a big black eye."

Ravi matter of factly offered, "I agree, there is no need to fight about a matter that is this emotionally charged." Ravi then rhetorically added, "What can we gain if we defend this application of our technology?"

G111 in his familiar annoyed toned said, "Publicly acknowledging and engaging the Gender Variance Community is absolutely the correct move to make from a business perspective... but are we really considering breaking our business commitments to supply materials to legitimate medical institutions because they use our technology in a controversial manner?"

Cayo, who in recent years had exhibited political aspirations, had the most to lose as the result of this type of negative publicity. Keeping on message he deflected G111's question, "The amount of revenue generated by so called 'off label' usages of our technology is minimal. So, giving up our relationships associated to the treatment of Gender Variance will also be minimal."

G111 shaking his head in frustration replied, "First of all, while we're calling it 'off label usage' we knew that treatment of gender variance was a design criteria when we started... so we cannot claim ignorance of the intended results of our research... Secondly, Cayo, you're being purposefully obtuse. You know it's not about the revenue with me, it's about people's right to choose... I have a hard time applying anyone's moral standards on anyone else. If religious order X wants to use the implants to flatten gender variance and control the sexual urges of their congregations and they allow their members to freely choose whether or not to receive these treatments, who are we to say it's wrong or right? Maybe some members of the church would have sought this type treatment, if it were available independently of the church's agenda..."

Ravi becoming a bit agitated offered, "There's a big difference between someone deciding to be treated on their own and someone being coerced into being treated to remain as a member of a

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community in which they've lived all their lives."

With a glint in his eye, G111 shot back, "Ravi, of course you're right... but in order for us to not be hypocritical and if we're forced to take the perspective of worrying about how a recipient might be under the influence of coercion then we're also forced to take this perspective for our criminal justice contracts. Don't we all accept that in most cases the inmate really doesn't have a choice but to accept treatment?"

Cayo pouncing upon the political high ground interrupted, "How can you equate gender variance to criminal psychoses?"

G111 was having none of it, pounding the table and immediately responding, "Stop it! You're being just like those stupid reporters I'm always complaining about! You're focusing upon the form of my arguments, not their substance, to earn a debating point via an emotional 'off topic' argument..."

G111 taking a breath continued, "...and you most certainly know that I'm not equating these... it's an analogy... I'm using criminal psychoses as the extreme example to make my point... we're debating a spectrum of good and evil... right and wrong... moral shades of grey... and differences in perspective... you know better than to try to create false categories from my comparisons. You're trying to artificially constrain the discussion... making it harder to perceive the subtle details and making it harder to perceive the impermanent aspects of the subject at hand."

G111 going off on a small tangent, "The whole subject of gender variance illustrates a serious problem with categorical thinking... the fact that we can choose to define biological sex and gender as the same thing or we can choose to be more flexible and define these as distinct aspects of a person is a case in point. Being broad in our definition, gender identity can be defined as a complex mix of biology, socialization, sexual attraction, gender expression, gender roles and gender fluidity. If we lock our thinking into the categories of male and female, anything that violates those definitions is incongruous and therefore uncomfortable."

Pulling himself back to the main topic, G111 continued, "Every one of us is constantly subject to coercion in one form or another. It's an intrinsic aspect of being a part of a community. The group asserts influence subtly or overtly, having an emotional impact on our decision making. Because all decisions are ultimately made emotionally, coercion is profound even when its subtle. This is the very principle upon which advertising is based. The only real choice an individual has to avoid coercion is to effectively become a community of one or remove themselves from the coercive environment. In the case where society as a whole is the source of the coercion and the individual is unable to establish a strong self centered locus of identity - suicide often becomes a reasonable option... where the reasonability of suicide is determined from an emotional perspective not a logical one..."

Following up, Ravi contributed, "This is what I taught my own children. Because we all interact

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with groups, we need to train, much like a martial artist trains, to establish personal character of the self centered locus that you described. For my family this locus is based upon our religion. But no matter the source of a person's the principles, everyone needs to be learn to accept themselves as the foundation upon which to build their character."

G111 now brightly asserted, "But now we're back where we started... What if who you are is a serial killer? We all know that there are genetic factors that predispose people to psychopathic behavior, aka the warrior gene. And we all know that there are also genetic factors that predispose people to gender variances... Should the psychopathic killer learn to accept themselves or should they seek treatment? Obviously, the difference in these two cases is the effect of the individual on others in the society... but when it comes right down to it, society must be the judge of what requires treatment and what should be embraced as delightful variation from the norm. Assuming some sort of dystopian society where the warrior gene was the norm, a serial killer personality might be valued as a police officer or a soldier."

Stepping away from the conference table, G111 continued, "Let's theoretically assume that gender variance increased within society to the point that it became necessary for new forms of family to be defined."

G111 observed tangentially, "We're basically doing this already... two household families and same sex marriages being prime examples... it's actually a very Neoheuristic thing to do..."

Getting back to the main point, G111 resumed, "Anyway, let's assume that within this society homosexuality became the norm... In order to have children, couples would need to shop for a breeding partner and then establish a contract for the gestation and delivery of a child. Artificial insemination would become the normal method of conception. Our technology would easily enable this lifestyle thus allowing us to move away from our natural reproductive heritage. Does this type of society threaten what it means to be human or does it extend the definition? And ultimately is there a material problem with how this society would operate?"

Ravi offered, "Well of course certain breeding partners would be more in demand than others... and their genes would be more frequently passed onto future generations. Reducing the genetic diversity of humanity would be a concern."

G111, "Exactly! Society would be foolish to allow that... so we'd have to implement laws that limited the number of times a person could breed... and some people would end up never having offspring of their own, preferring to use the genetic material of other people to create their children..."

Annoyed but unable to resist, Cayo interjected, "For exceptional individuals such as ourselves the breeding limit would be higher..."

With a bemused smirk and raised eyebrow G111 continued, "...and of course this would result the rise of a genetic black market... this society would have unintentionally brought to reality a

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societal eugenics program. Is eugenics wrong? There are many who say so... not me of course... but there it is... and even if homosexuality wasn't the norm, the concept of shopping for breeding partners is already happening... is this pseudo-eugenics?"

Cayo still annoyed, said, "But heterosexual couples and by extension their children's genetic material is also chosen... either self selected by love or arranged by their families...."

Ready for this objection, G111 volleyed, "Not the same thing... I don't have to love or live with someone who has preferable genes... In reality I might not have access to those genes for my children if it were up to love or family connections... but being able to shop for and buy genetic material definitely changes the formula."

Cayo even more annoyed brought the argument all the way around, stating, "So, tolerating gender variance is a path to a more or less limited form eugenics.... I get it... and society will need to determine if this is good or bad... I get it... So, are you advocate breaking our relationship with partners who apply our technology for off label purposes or do we ignore the political whirlwind created by our religious friends?"

With a thoughtful look upon his face, Ravi suggested, "Wouldn't it be an interesting thing to do if we were to honor our contracts, but donate the profits from controversial off label usage to the organizations who hold an opposing view of these usages?"

G111 was highly amused by this suggestion to the point of chuckling. He finally responded, "That's exactly what we should do... let's identify one or two organizations to feed the profits to... we need to make sure that we do not announce this as a blanket corporate policy, otherwise people will start making up complaints or amplifying minority positions just to abusively squeeze money from us."

Slightly amused and shaking his head, Cayo commented, "A public bribe? It's an obvious play... but would do so that make us the the bad guy or the good guy or both? If the Gender Variant community were to accept the deal they'd have a stake in the continued utilization of the technology for purposes that they openly reject. I'm not sure that they'd ever manage to get over the hypocrisy of accepting our dirty money."

G111 offered, "We'd be the arms dealer in this conflict... people tend to look past the problems that arms dealers perpetuate. The effect and the cause are too indirect for rabble rousers to land a clean blow in the court of public opinion... and beside, we're not going to make the money trail obvious... Cayo, you're our amateur politician and well connected lobbyist... I'm sure you can figure out a palatable way to make this happen."

Over the next several weeks, Cayo quietly made behind the scenes inquiries regarding the potential of striking the deal that Ravi had suggested. The proposal set up a funding stream that from Vici to the two largest gender variance organization that coincidentally corresponded to the revenue generated by the usage of the VEECI device to control gender variance. Publicly an

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announcement was made about the endowment and the turmoil that had started only six months ago settled down.

G111 was getting burned out from the grind of working for the military and supporting Vici's commercial pipeline. While the work was interesting and serving his personal goals, he was becoming more and more displeased by the fact that his efforts were primarily being applied to a commercial venture. In his mind, he had bigger visions and a greater legacy to build.

He decided that what was needed was a change of scenery and time to reflect upon where Vici was going and what his role in it was going to be. Several days after the deal to placate the Gender Variance community was announced, G111 convinced Ravi and his wife Amala to get away from work to attend this year's international life sciences and medical technology conference.

Despite, over the past ten years, frequently being invited to participate in biotechnology conferences all around the world, neither Ravi, Amala or G111 had managed to pull themselves away from work to attend. Instead of going in person, they would occasionally allow staff members from various research teams to present topics on behalf of the company. If the need to show a higher profile was desired, and these days it almost always was, they would send Cayo. He became a frequent keynote speaker and industry roundtable panelist, specializing in biotechnology ethics. His appetite for attention and the amazing work the Vici were doing elevated him to a celebrity status at these conferences.

The lower profile partner's decision to attend this year's big conference was very last minute, in that the conference was scheduled to start in only two days. They quickly coordinated with Cayo, who was already scheduled to speak on the first and last days of the gathering. They also contacted the conference coordinators to make it known that they would be in attendance.

The partners arrived in the host city separately because Cayo needed to fly in directly from a meeting on the other side of the world and G111 was anxious to get out of town as soon as possible so he wasn't willing to wait for Ravi and Amala who subsequently got to enjoy the Vici corporate jet.

Early on the morning of the first day of the conference the partners gathered in the lobby of their hotel and together headed over to the conference center. Upon arriving at the conference registration area, Cayo was immediately recognized and warmly welcomed. To the embarrassment of all, Cayo had to introduce his less well known colleagues to the conference coordinators who, for some reason, were not aware of the fact that all of the Vici partners were in attendance. Apparently, when Vici's staff contacted the conference coordinators to make arrangements for Ravi, Amala and G111, all the conference staff did was register them as if they were regular attendees.

Word of the unexpected arrival of all of the Vici founders spread like lightning throughout the conference. During the week each of the partners was pulled in a different direction according to each one's speciality. The conference was a blur of introductions, interviews, breakfasts, lunches, dinners, cocktails, meetings, networking and even a few actual conference sessions.

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Only Ravi and Amala barely managed to keep track of each other during the eventful week. Every one of the founders were treated like royalty, having every need anticipated and taken care of with barely a thought. The relaxing change of pace that G111 had hoped for didn't materialize, but it was satisfying to bask in the admiration of his peers and to come to fully appreciate the level of influence that he and Vici had on the Biotechnology Industry as a whole.

Once the conference wrapped up, Cayo decided to stay in town to schmooze and network with political and industry leaders, leaving the three friends to fly home in the Vici corporate jet without him. Having had a fantastic time at the conference the each told stories about their individual experiences, on the long plane ride home.

G111 finally sensing that everyone's stories were exhausted, steered the conversation to a favorite topic, "One thing that people kept mentioning to me was how impressed they were with the way we've innovated and changed the industry... and inevitably they ask me about Vici's future."

Appreciatively Ravi observed, "It is most impressive, looking back over the past ten years. We have grown from a small start up with a few controversial ideas, into an organization that is leading the biotechnology industry. So many lives that we have changed. So many more opportunities to pursue."

G111 building upon the theme, "Yes. Cayo always recognized a good idea when he saw one... and he's quite the master at putting things together. Just surviving the first two years was a miracle..."

Reflectively Ravi replied, "Yes, I remember those days well... because my Amala will never let me forget ... She always makes a point to chastise me when I work late... telling me not to slip back into the bad habits of early days when she and I would work through the night, together in our laboratory."

Amala playfully confirmed, "Ravi, you know that family is very important to me... and those long days when we were starting out are behind us. We are all very well off now, and deserve to take time for ourselves and make time to teach others to take our places."

Ravi smiled at his wife and reflectively mused, "Yes, my dear... After all, just look at all that we've done... the products of our labors have brought so many changes to the world... people think of diseases that only a few years ago meant a lifelong regimen of diligent treatment and testing as merely an annual visit to make sure their implant is operating properly..."

Amala pridefully observed, "Yes, my husband... Remember when we came up with the idea to develop the endocrine system implant. Many agree that this decision was one of the greatest medical breakthroughs of all time. And since we've standardized its design the Reglioplant is

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very affordable and very successful for us as a company.”

With a mix of pride and regret Ravi reacted, “The Reglioplant is of great value, but I do lament the fact that we’ve never managed to get cost of implanting the VECI device down to the point where it would be affordable for most people. Thankfully, we have the criminal justice system and the military to fund our continuing research.”

G111 agreed, “We always knew that the surgery to implant the VECI was very complex... and so far Cayo hasn’t come up with any significant way to simplify the process... I know that the military really wants us to improve the surgical procedures and as we both know they keep pressuring us to develop a full cognitive control version of the implant... I’m surprised by their level of persistence... and I also can’t believe that they keep providing volunteers for us to experiment upon. Does this also bother either of you?”

Amala was slightly taken aback by the question and chose not to respond.

Ravi confessed, “I really do not like the fact that we’re working with the military. I must confess that I am very happy to only work with them only indirectly... leaving our relationship with them in Cayo’s and your capable hands...”

After a moment Ravi resumed, “Thinking about it, the military is big... and gathering patriots to do its bidding hasn’t historically been a problem... so, I’m not very surprised that we’ve had a sufficient supply of Guinea Pigs, as you like to call them.”

The partners sat quietly thoughtfully looking out the windows of the airplane down through the depths of the atmosphere to the bright, dense, cloud cover they were presently flying over...

Finally G111 disrupted the silence, “The more I think about our work the more I believe that what we’re doing is leading a revolution to redefine humanity.”

Ravi’s gaze did not even slightly shift in response to G111’s familiarly themed comment. Amala looked up to scrutinize G111’s countenance, but also did not speak.

Starting to lecture, G111 continued, “As I’ve mentioned many times before, my view of humanity goes beyond the corporeal form of our bodies. To me, humanity is the collection of every individual, every community, every idea and the sum total of every change we’ve ever made to the universe. The most amazing thing that a person can do is conceive an idea and then bring that idea into reality... Tell me how this act is any different than magic? After the fact it’s impossible to tell the difference... First everything is in one state, an idea is acted upon, and a new state comes into being... The magic is the transformation of a thought into a physical change in the world. Magic wand or hands and a hammer... either way, the nail is holding the boards together.”

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Ravi having heard most of this before, prompted G111 to continue, “Yes, yes... tell me about the cows...”

G111 smiled and studied Ravi, as his friend continued to look out of the window to contemplate the cloud deck below. G111 finally turned to Amala to proceed, “Yes, the cows... Humanity has used the magic of intention to bring about domesticated animals... I have a hard time relating to Vegetarians and Vegans, because of all the generations of effort humanity has invested in creating modern livestock... Domestication, breeding, animal husbandry and farming are technological endeavors... Farm animals wouldn't exist if people didn't invent them... our farm systems are a direct extension of humanity's energy gathering capacity. We eat meat, because we make meat... What's wrong with consuming what you make? I suppose the alternative is to not have meat at all... but modern Vegetarianism only works well in a society of abundance. If the option comes down to eating meat or eating nothing... most people will always chose eating meat.”

G111 now playful and facetious, “This is our planet... the other animals had their chance to take over, but they weren't even able to come up with the idea to take it over... so now it's ours. If they don't like how we're running things they can either fight us for the planet or build spacecraft to leave... and by the way, all of the suicide missions where wild animals keep jumping out in front of my car aren't gonna work... I've got a strict 'no swerving off the road to my death policy' for animals smaller than a moose.”

Ravi rolling his eyes and finally looking up replied, “You must stop talking like that... or else, one day, I'm going to believe you're serious...”

Amala never having known exactly how to take G111, whenever he started spouting odd or facetious ideas said, “Gilbert, stop going on like that... Ravi may know to not take you seriously, but I'm never sure... sometimes I think you're in need of one of our VECCI devices.”

G111's enthusiasm was momentarily dampened by Amala's use of his given first name... but he collected himself, now continuing in a more serious tone, “But think about it. We're at the point where we're reengineering ourselves through genetics and technology implantation... though these means, life spans and ability to communicate will increase. Both of these improvements will provide the means for academic and professional hyperspecialization, where individuals will be able to spend 50 years or more building a complex knowledge and experience base to finally be able to advance an area of science. We're getting to the point where without these types of advancements in the design of a human being, life spans would be too short for a person to learn all they needed to learn in order to meaningfully tackle any highly advanced area within science or mathematics.”

Amala now a little more comfortable offered, “Yes. I very much look forward to starting to work with the International Space Program for the purpose of pursuing the next generations of the Reglioplant, that Ravi theorized could be built to allow people to live comfortably in space or on

other planets for long periods. This will also be a significant development, if we manage to actually put together a serious program to colonize beyond our world.”

Stumbling over himself, G111 began, “But even our world... historically I mean... terraforming other planets... terraforming the planet...”

Taking a breath and collecting himself G111 restarted, “When we talk about leaving this world for others we always talk about terraforming... making alien worlds hospitable to human life...”

Being clever now G111 continued, “We rarely if ever hear people talking about terraforming”, pointing to the ground, “this planet.”

Ravi took the bait, “Well we don’t have to terraform this planet... we are suited to live here because we are products of this world... and its biology.”

Amala, on the other hand, caught G111’s point, “Don’t we just call it civil engineering when we do it on this planet?”

G111 enjoying the class he now was teaching, “You’re both right... but we’re far too conservative with our civil engineering efforts... we lack ambition... why don’t we, as a species, change our perspective and engineer this biosphere to completely suit ourselves? Nothing less than planetary engineering.”

“For instance, there’s no reason for deserts on our planet... we have abundant water... it’s merely distributed inconveniently... construction of huge pipelines, built dead level for hundreds or thousands of miles, from places where fresh water is abundant and at a higher elevation or from places where salt water that is abundant and at a lower elevation. The salt water facilities would be dependent upon hundred square miles solar desalination plants to extract and lift fresh water to where it’s needed... It’s way beyond audacious, but it’s doable on multigenerational terms.”

Amala looked mildly overwhelmed again and Ravi was simply shaking his head...

G111 on a roll, “But why stop there? Nature was kind enough to provide us with an abundance of minerals that are comprised of every element of the periodic table... Unfortunately, these elements are, for the most part, chemically impure and inconveniently distributed within the crust of our planet... Why not remove all the mountains of the world and strip mine the top two miles of the entire surface of the planet to extract the useful elements and use the waste Silicon to construct functional and aesthetically pleasing landscapes? Laser mining, elemental sieves, lava pumps and high temperature terraforming, continent sized solar panels and quintillion core microprocessors... I’m filing patents tomorrow...”

Ravi adjusted his thinking to allow himself to take these far fetched concepts semi-seriously,

“But you are ignoring the fact that humanity isn’t wired to ‘go for’ things on this scale... No one would ever be able to relate to what you’re suggesting... our life spans are simply too short for us to consider these worthwhile projects.”

Further pursuing his thesis, G111 observed, “Aaaah, but our work is having the effect of increasing life spans... isn’t it? Longer life spans forces a lot of decisions with regard to management of human reproduction, resource extraction and utilization... potentially leading to pressure to leave the planet sooner that we might have otherwise. So, no matter how you slice it, the generations of humans that benefit from our technology will, by necessity, need to be more focused on very long-term thinking... So, subject matter such as those that I was so laughably conjecturing a moment ago are in reality not in reality frivolous... and maybe we should make it our job to work to purposefully rewire humanity to be emotionally connected to these time scales...”

Amala concerned at the subversive nature of G111’s last remark interrupted, “Aren’t you really suggesting that we should surreptitiously work to impose your vision of the future of humanity?”

G111 did not respond, instead allowing his colleagues to cogitate on the true meaning behind what he was talking about.

Finally Amala answered her own question, “You believe that we’re already imposing your vision of the future of humanity through our products...”

G111 smiled slyly, “But of course... purposeful change...”

G111 paused for effect and clarified, “...and just to be clear, it’s not so much my vision of the future that’s being imposed, its a conscious choice I’m making to serve the Neoheurst meme...”

G111 paused again to let what he said sink in.

Ravi patronizingly smiling observed, “But of course, you realize that your speculation amounts to a form of technological mysticism... I have to admit, listening to you for all these years go on and on about it... you’ve got it all so wonderfully woven together... Maybe you should use your ideas as the basis for a work of fiction. At least this way people would be able to suspend disbelief thereby allowing themselves to be influenced... You never know, maybe some theologian, philosopher or high profile figure will take a liking to your thesis.”

G111 dug in a bit and replied, “Look at the trajectory... Hydrogen atoms mindlessly brought together by gravity fuse together within stars to form heavier elements... Novae splattering this material into space to form clouds that eventually condense into planets... Our planet’s gravity brought together Carbon, water and energy to invent life... Evolution driven by the Carbon atom blindly yet systematically worked through design after design eventually produce intelligent beings... We are those intelligent beings and for years we’ve struggled to simply address our

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most basic needs... But now we've conquered our basic needs and are now able to apply our intellect to consider how the universe works... In this examination we detect the impermanence of everything and the trajectory of creation to replace simpler constructs with more complex ones... I have chosen to view the trajectory as being purposeful... and I have decided to devote my existence to accelerating the trajectory through the rational means of science and technology... projecting the trend to its limit, the result is an intelligent universe that is entirely engineered... a single all encompassing thinking machine..."

Ravi agreed, "Yes... This is the well woven argument that we've discussed many times... Unfortunately, it's a little hard for me to relate to as you have."

G111 thought a moment and decided to address Ravi's objection, "I do not want to call my conclusion a leap of faith... because my view is based upon observation and logic... Not what someone has offered me without a suitably testable explanation... I've considered the many religions that exist in the world and find all of them to be right in their own context, but ultimately unsatisfying and hard for me to accept. Only a few of them make a point of treating impermanence and evolution as core concepts. In my terms, the philosophies of today are Paleoheuristic remnants of less enlightened times. For the most part, when applied kindly, they work well for social control but provide insufficient higher purpose other than to worship supernatural beings and/or labor for the salvation of self and others in a next life or eternal paradise. Mind you, these concepts on a psychological level are quite comforting and I understand why so many choose to believe..."

G111 changing gears, "Now my problem with Neoheurism is that the end game alludes me... What does it mean to engineer the entirety of the universe to instill intelligence within it? It seems no more compelling than any other form of mysticism."

Going deeper, G111 continued, "What I've concluded is that it's the relationship between the scale of the observer and the scale of the thing being observed that limits the quality of the model that can be created by the observer... Humans exist relatively near the center of the scale of the Universe, in that the size of the Universe is theorized to be on the order of ten to the twenty seventh and the smallest most fundamental chunks of stuff are theorized to be on the order of ten to negative thirty fourth, we exist near the middle on the order of between one and ten to the negative fourth. For humans to relate to either very large or very small is difficult in the same way people have trouble relating to a multigenerational project on a planetary scale. But being in the middle gives us a great perspective to consider both the very big and very small..."

Brightly now, G111 argued, "Don't you see it? Yet another piece of interesting circumstantial evidence suggesting that there really is a Neoheurst meme at work in the development of intelligent life."

Amala hesitantly asked, "I'm not sure why the relationship of scale between observer and the observed matters... If it can be measured, it can be modeled and therefore understood... Isn't

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this the value of mathematics?"

G111 answered, "My view of the universe is that physical systems must operate in significantly different ways when acted upon by any particular force in accordance with the scale of the physical systems. There are so many large scale and small scale mysteries within physics for the reason that we aren't good at adjusting our frame of mind to the scale we're considering. A paradigm shift is required to even come up with the right questions to ask. All forces are categorized as operating upon a given scale, but perhaps this too simplistic a view - perhaps, for instance, the nuclear force plays an unconsidered role at the galactic level or gravity plays an unimagined role at the atomic level... I could go into this in a whole lot more detail, but I'm not sure we want to get into Flugenics now..."

Ravi shuttered, "Please, no... Let's save your grand unified theory of physics for another day."

G111 chuckled... and became silent... realizing that he'd probably been indulged about as much as his audience was going to tolerate for today.

The three friends spent the remainder of the flight reading, napping or in quiet reflection.

As G111 parted ways with Ravi and Amala at the airport, he commented, "Thank you for the most enjoyable time... and by the way, Ravi, I really like your idea of fictionalizing my ideas into a story... Now if I can just find the time and a decent plot in which to package all of my thoughts... How's the title, 'The Neoheurist' sound?"

Ravi smiled and replied, "I very much like that title and I look forward to reading it... As I've always said you have many interesting ideas... and you express them with such conviction... Goodbye my friend. I will see you back in the lab."

Amala and Ravi waved and headed off to their car as G111 waved and descended a flight of stairs to the subway.

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As Vici Neurosciences grew, the company's culture gradually changed from a collegial environment of mavericks and innovators to a professional environment of politicians and risk managers. The discontinuous innovation that put Vici on the map was becoming more and more discouraged in favor of managed incremental product changes that were guaranteed to be profitable. In this environment, G111's normal outlet for his creative urges was the work he was doing for the military. But even here, the new corporate culture held sway... It was as if the intention of the company was to extend the military projects indefinitely, so as to preserve the revenue streams. G111 came to the conclusion that Cayo and the rest of the board of directors were addicted to the research grant money being funneled into company via the several secret military projects that had been spawned over the years.

Because of the changes in the company, G111 slowly became more and more unsatisfied with his role to the point where he quietly mutinied. He discovered that he could throttle back his efforts on the projects he was in charge of, in favor of pursuing his own interests. One of his stronger personality traits was a preference to work on his own and as a result he never bothered to inform the organization about the diversion of resources and his time to his side projects. Over the course of several years he had managed to perform a significant amount of research and development, resulting in a prototype system that overcame the implantation problems of the pixel array neurochemistry (PAN VECCI) design proposed several years earlier. G111 very strongly felt that in the current corporate environment, if he were to make his design known with the organization, he ran the risk of having it confiscated for military use. As he saw it he had only two choices, keep the device for himself or publish his work outside of corporate channels. He decided to keep the device for himself, because publishing outside of corporate channels would almost certainly be the corporate equivalent of cutting his own throat.

Over recent months he continued to tinker with and improve the PAN prototype to the point where no more tinkering could be done without a full blown human test. The problem being that there was no way to acquire a test subject without getting the rest of the organization involved. As a result of this difficulty he decided that his only option was to test the device on himself...

In reality, G111 had been creating this second generation PAN device for his own use from the start. He imagined that PAN technology was the gateway for him to overcome many of his more uncomfortable personality traits, thereby making him more normal. He also felt that the programmability of the device would allow him to have the best of both worlds, being able to utilize the creativity, attention to detail and visual thinking that he was born with as desired and the emotional control and ability to relate to people when needed.

Now he was faced with the problem of finding someone to do the implantation surgery. Clearly, the best possible surgeon for the job was Cayo. Unfortunately, he was not an option because approaching Cayo was the same as telling the Vici board.

As it turned out, G111 knew a lot of qualified surgeons because medical centers who wished to partner with Vici were required to have all surgical staff members trained and accredited by Vici

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at Vici headquarters. The teams were first trained on Regliopant procedures and only then could they be trained for VECCI implantations. The medical center surgical teams were required to spend up to four weeks, being trained on the efficacy, design, installation and maintenance procedures of the devices. During this training Ravi, Cayo and G111 were always involved, each teaching their particular specialty. This meant that G111 had met every surgeon who was currently certified to implant the VECCI device. G111 realized that his best option was to seek out one of the few surgeons associated with a correctional system who were trained in VECCI implantation, because they would be underpaid and have performed some of the most complex work possible. G111 thought he knew just the right woman for the job...

He targeted Dr. Kira Alkaev who was one of the first outside surgeons to be trained by Vici. She was very memorable because of her haunting heterochromatic eyes and bright smile. Upon meeting her, his compulsive nature compelled him to alternately fixate on each of her irises, shifting back and forth from blue to green and green to blue, in a subconscious attempt to reconcile the color disparity. To him it somehow felt like he was looking at two people at once, he found this intriguing.

She very much admired G111 and spent time with him away from training during the month she spent at Vici. Nothing came of their after hours interactions other than a strong long distance friendship because G111 was still married at the time. They kept in touch, exchanging messages or calling each other several times a year.

In order to perform the surgery he also needed access to a suitable surgical facility. He considered the options of using an existing outside facility, using a Vici facility or somehow establishing an alternate facility. He felt that his best course of action would be to coax Dr. Alkaev to accept a job offer to work with him at Vici. This way he could indirectly teach her about the new device and under the pretext of research, he could get her to do the implantation using Vici facilities. Admittedly, this required her cooperation and Vici's continued disinterest in his extracurricular activities... but he couldn't come up with a better option.

It was a simple matter for G111 to create a job opening on his staff because from time to time Vici needed a backdoor to bring on staff members with security clearance without intervention of the Human Resources Department. Once the job requisition was in the system he immediately put it on hold so that it wouldn't be processed through normal channels and reached out to Dr. Alkaev to offer her the opportunity of a lifetime.

G111 called her early on a Tuesday morning. Their communication systems connected and G111's screen came alive with her fascinating eyes and beautiful smile, "Hello, Kira my dear. It's been awhile since we've last talked. How are you?"

Kira smiled brightly and responded, "Oh! So nice to see you... It's such a surprise... You must have been up all night playing in your laboratory to be calling me at this early hour of the morning."

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It was true, G111 had been up all night in anticipation of this call. He joked, “You know me all too well. As a matter of fact, I normally don’t wander into the office until Noon anymore... but then again, I’m usually the last one to leave here every day... I’ve always been a night owl... or maybe its just my way of avoiding everybody... who knows...”

Kira agreed, “Well, night owl or early bird it’s great to see you.”

Kira and G111 chatted, catching up on personal and professional gossip. A topic of significant discussion was the splash that the Vici partners had made at the life sciences and medical technology conference a few weeks before. G111 was anxious to get to the real reason he called and finally found his chance, “Kira, the main reason I called was to offer you an opportunity. Would you have any interest in coming to work for me, here at Vici Neurosciences?”

Kira’s eyes widened and brightened, having the effect of significantly accentuating the mesmerizing effect that her gaze had on G111. She then quickly thought and asked, “How exciting! What’s the job?”

Blue... Green... Blue... Green... G111 finally collected himself and replied, “We need someone to lead the surgical implant research. It will require a lot of interaction with me and my staff as well as coordination with what you probably remember as Dr. Espectro’s team. The title is Director of Implantation Design Research... You’d be working on cutting edge projects and you’ll be able to have a significant say in the direction that we take our research. Oh, and one more thing, there would be a need for you to get security clearances because we occasionally do work for military contractors and such... Does this sound interesting?”

She was clearly very excited by the opportunity, but wanted to temper her response, “It does sound very interesting. I was recently talking with a colleague about moving my career in a new direction... I’ve been working with the criminal justice system for a while now and a change would be good... but I’m going to need a little time to think it over... Would it be too much to ask if you gave me a couple of days to get back to you?”

Green... Blue... Green... Blue... He thought to himself, “Why were those eyes so captivating? and why am I letting them distract me in this middle of this?” He finally realized that he was being asked a question, fortunately he had gotten good at post processing echos of the last words spoken by people and was normally able to figure out what was said... He replied in a swirl of simultaneous emotions including fascination, confusion and disappointment, “Oh, of course... a few days to get back to me would be fine.” He was expecting this type of response, but was nonetheless disappointed... “Let me send you a formal job offer. It has all of the details about the work you’ll be doing and the compensation package we’re offering. I think you’ll agree that the private sector pays much better than the public sector.”

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Kira replied with a happy smile, "I'm sure it does! I've got a lot to think about... I'll get back to you very soon..."

G111 realizing that the conversation was ending, paused to artificially extend the call. Green... Blue... Green... Blue.... Finally allowing himself to relinquish her attention, "OK, great... I'm really looking forward to receiving your answer. Talk to you later."

After five days, three days more than G111 could comfortably bare to wait, Kira finally accepted the offer. She asked to have two months to get things settled and move. G111 agreed and worked his magic with Human Resources to put her on staff. Additionally, he started the process of getting Kira her security clearances, because she was going to need access to the military portion of Vici's facilities. Hopefully, the military aspect of the job wouldn't prove to be a big deal because they never fully explained the security clearance requirements in the job offer, to limit the possibility of leaking details of Vici's military associations.

Dr. Alkaev cleared military background checks and came on board as scheduled. She met with members of the three primary research teams; genetics, nanotech and surgical to be briefed on the projects currently underway. Additionally, she renewed acquaintances with Dr. Jain and Dr. Espectro both of whom remember her very well. G111 came to realize that most men remembered her very well... Although he had no emotional claim on her, her memorability made him jealous.

Since Kira was well acquainted with the Vici commercial product line, the first order of business was to bring Kira up to speed on the advanced work that they had been doing for the military. As G111 explained the features of these devices, she would often relate the potential benefits of each to the work she had been doing with inmates. She was a quick study, readily capable of understanding both operating principles and the implications of the work that Vici was doing, as a result she was able to immediately able to make contributions to several projects. Cayo heard of her early contributions and made a point of complimenting her, stating that it was good that the company had "new blood" in the labs.

During the ramp up period G111 and Kira were normally found in each other's company. G111 did his best to impress her with his technical prowess and to gain her confidence by encouraging her inclinations to lead. He was essentially grooming her to take his position while simultaneously falling in love with her.

Kira was highly appreciative of the personal attention and professional opportunity that was being provided to her. She found it flattering to be singled out and elevated by the attractive, older, successful scientific pioneer such as Dr. Simmons aka G111. As they got more comfortable with each other, G111 exhibited a boyish way of playfully flirting. Kira being a very sweet person was remarkably patient with these sometimes awkward advances, normally responding in kind. G111 was also an excellent listener. From time to time, professional conversations between would drift to personal matters. No matter the subject, G111 was

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mesmerized by her voice and very sympathetic attitude. He showed that he was strongly bonded to her by always being willing to help. Often all he had to do was listen and show understanding.

The personal intimacy that the two experienced at the office quickly extended to the bedroom. They made no effort to disguise their relationship, frequently being observed arriving and leaving Vici headquarters in each other's company. At first Cayo disliked the fact that they were so closely linked, but it was Ravi who allayed his concerns by pointing out the benefits of the relationship that he and Amala possessed. The theory being that the relationship would have a soothing effect on his frequently irritated nonconformist manner. To some degree G111's behavior at the office was mitigated by the relationship, in that, G111 was far more guarded when it came to openly criticizing others in Kira's presence.

As Kira got to know Gee, as only she and Amala were permitted to refer to him, he occasionally let his guard down. In these moments he was as likely to complain about the company and how it had lost its way as he was to muse about his own psychological struggles. After a few months of hearing Gee talk about his inner demons, a theory about his affliction was formulated in Kira's mind.

It was a rainy Thursday afternoon, when she decided to offer Gee her psychological diagnosis. The labs were relatively empty because many folks had decided to leave work early to get a jump on the long holiday weekend, so they had time to talk, undisturbed, in a small laboratory in the back of the research facility.

Kira initiated the conversation by asking, "With all the scanning equipment in our facilities have you ever done a functional MRI on yourself?"

G111 smiled at the idea, and replied, "Oh, yes! Ravi, Cayo and I all have been scanned several times. Back in the early days, I was often the first "live one" to be thrown into a machine to see if it was working. Would you like to be scanned? I'm sure we can get some machine time today... because so many people have already headed out."

Kira was amused by the boyish glee that Gee exhibited when talking about the devices that he clearly viewed as playthings. With a smile she replied, "Well, maybe we can try out your very expensive toys later. But what I was actually wondering is did you ever do any of the tests that we run on implantation candidates?"

G111 curiously tilted his head to one side, raised an eyebrow and replied, "Well not really, it was always more or less a matter of making sure the machine worked and reassuring Cayo that I still had a functioning brain... Is there a specific test that you'd be interested in seeing the results of?"

Kira slightly embarrassed, mustered her courage and somewhat sheepishly replied, "Well, I

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would be curious to see a Cognitive Emotional Reactivity and Regulation functional MRI study for you.”

G111’s eyes went wide, “You think that I might be a psychopath?” Befuddled at possibly having been exposed, he continued with a confused expression on his face, “Well, some have suggested as much, but no one’s demanded that I be tested...”

Kira treading lightly, “You talk about your personal struggles understanding people and sometimes you express powerfully destructive and violent thoughts... It scares me, but of course you always calm right down and I’ve never seen you attack anyone for real, but the violence that you describe is so familiar to the work that I’ve been doing for the past seven years... It gets me thinking...”

G111 looked worried and thought, “Oh, shit... She sees me the same way she sees the convicts that she’s been treating all these years.”

Kira gently continued, “The way you describe your feelings and the way you react to physical contact, other people, noise and disorder are all clear signs that you have Asperger’s Syndrome. I just want to understand how your violent impulses tie into your Autism.”

For some reason G111 hadn’t ever considered his behavior as holistically as Kira had... but upon hearing her explanation, he knew that she was right. Her diagnosis represented either the beginning of the end for their relationship or an opportunity to convince her to implant the prototype of the advanced PAN VECCI prototype he’d developed for himself. His natural instinct was to become defensive in the hope that he could preserve the passionate attachment he’d developed for her.

Panicking slightly, G111 raised his voice a bit and started to defend himself, “Asperger’s? Autistic? Wow!” He caught himself, regrouped and restarted, this time more calmly, “Wow... Do you think so?”

Looking slightly scared, Kira replied, “Honey, it’s OK... I always knew you were different. It’s part of what drew me to you... that and the fact that you’re one of the most brilliant men I’ve ever met... right now I’m just trying to understand and maybe even help you... We’ve got a lot of resources around here that we should be able to take advantage of.”

G111’s eyes welled up slightly in reaction to the combination of fear, courage and compassion that she was now expressing toward him. She was such a sweet and strong person. He knew that this was a pivotal moment in his life. He could either give into his what he now realized were Autistic tendencies to push people away in times of stress or dismiss those powerful impulses, admit vulnerability and allow her to help him.

As he sat there, thinking, Kira patiently and lovingly observed him waiting for a reaction...

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The amazing thing was that after his sense of appreciation cleared, his emotions quickly shifted from embarrassment to self pity to anger. Even though his whole plan was to get her to the point of getting her to help him with the prototype, now that the opportunity was here, part of himself was violently resisting... so self destructive was this impulse that he was actually considering lashing out at her... He hated pity... and at the moment he hated himself... his automatic thoughts to comfort himself inevitably drove him from self hatred to suicide... having hit bottom he was finally able clear his mind and begin to think more rationally.

They sat there for what seemed like an eternity, before Gee, now in control, finally allowed himself to open up, "It makes sense... I've always known that I was different. I guess, I just never wanted to consider myself as Autistic... And your idea to do a brain scan on me... I'd definitely bet that the prefrontal and amygdala emotional responses are low, just like many death row inmates... We should do a DNA test to see if I've got the warrior gene too... Maybe the military would be interested in my services."

Kira smiled an uncomfortable smile and replied, "OK... I'm glad that you're open to hearing what I had to say... Would you be interested in doing the tests? It's slow right now. We should be able to get set up right away."

He interrupted her, "That makes sense, but before we do that, I want to show you something."

He reached out his hand to her as he stood up. He continued, "It's in my office... It's something that I've been working on for a long time now... I think you'll like it."

Tentatively Kira stood up and took Gee's hand... and followed him to his office. Upon reaching the office he closed the door, took out an electronic key and opened a small safe that sat on top of a tall cabinet. Out of the safe he withdrew a softly shimmering carbon fiber box that was ornately decorated with fractal patterns. He brought the box over to his desk and asked Kira to sit down in his seat. Once seated he asked her to open the box.

The lid easily pivoted upward, revealing the G111's greatest contribution yet to neuroscience engineering. It was a network of twenty small extremely thin black discs connected to each other by incredibly fine silver filaments. From each disc a set of nanotube fibers projected outward in an ephemeral delta shape. Upon close inspection, each nanotube possessed a silver streak running its length from the disk to the tip. At the tip of each fiber was an elegantly woven piece of PAN fabric.

Kira's eyes changed as she studied it, going from amazement to fascination to glee. As she studied the device, G111 lost himself in her eyes... enjoying each of her reactions two times. Green... Blue... Green... Blue... Green... Blue... Occasionally, she would glance up at him, as if she wanted to ask something or make a comment, but she never had a chance to catch her breath, always being drawn back to study the device further.

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Without looking up and already knowing the answer, she finally, almost breathlessly, asked, "You made this?"

G111 just smiled.

Kira forgetting herself, reverently thought out loud, "Inspired... And to think... The craftsmanship... Absolutely amazing..." Her inner voice became her outer voice as she addressed Gee, "This is generations ahead of anything we have on the drawing boards. It a masterpiece!"

G111 sensing that she was ready to hear all about it, described how it worked in great detail. She followed along very well, asking inspired questions and drawing conclusions about its operation before Gee could even finish explaining.

To confirm her understanding Kira finally summarized the design architecture to Gee, "So each disc is an independent implant, capable of producing its own serum, has artificial intelligence, is self learning and is able to communicate with all of the other nodes, via the silver filaments. Each node also is capable of neurochemical and electrical stimulation and monitoring at a neuropixel level. It's essentially a neo-electronic-neocortex."

Kira immediately realized the purpose of the device... and quickly considered the consequences of this purpose. She confidently resumed, "You built this for yourself and no one at Vici knows a thing about it... expect for me, of course... Am I right?"

Gee's face was prideful but guilty. He decided to not respond since she was drawing her own conclusions.

Dr. Alkaev paused, waited for an answer, and upon not receiving one continued, "You want me to do the implantation... and that's why you brought me to Vici..." Shaking her head, "The job never quite made sense, but now it does..."

Gee now fully embarrassed continued to resist the temptation to make things worse by speaking.

Dr. Alkaev's gaze returned to the device and her countenance shifted back to amazement, as she pondered what it would take to perform the implantation. After almost a full minute she said, "That's at least eight twelve hour surgeries... the only reasonable way to do it is one or two implants at a time... What a job... What a device... by the way, if this works, and I'm willing to bet that it will, it is definitely could be the cure for whatever problems you may have."

Gee observing Kira's first misinterpretation was compelled to respond, "Actually, it's not so much a cure as it is an augmentation... I will have conscious control over when and how it is

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active... There are actually quite a few benefits to how my mind works now... by the way this design completely overcomes the problems that we've struggled with in the current generation of VECCI devices."

Dr. Alkaev being corrected, continued her analysis, "Your mind, in its present state, was able to conceive and build this device... of course you wouldn't want to cure that... a neo-electronic-neocortex... it's the next evolution of the brain. I'm in awe of you and I'm afraid of you... Who are you? You aren't human... and with this thing you'll be more than human. What do you call it?"

G111 simply replied, "The Mark XIV"

Dr. Alkaev unemotionally replied, "Catchy. If you hadn't shown this to me I wouldn't believe that it existed... This thing is more like a Mark L at the pace we're going."

G111 inquired, "Kira, can you keep this between you and me... if anyone learns about this, there's no way that I'm going to get to use it... The military will confiscate it."

Dr. Alkaev agreed, "I think yes... for now at least... I'll need a couple of days to think about what all of this means..."

Now hopeful, G111 suggested, "Kira, I want you to do the implantation... I want it to happen as soon as possible... and I want you to take over for me at Vici, because I want to leave to pursue my higher purpose."

Kira thought and with a bit of frustration responded, "That's what this is all about? Neoheurism..."

G111 replied, "Yes. You know how I feel about it... It's the most important thing I can think of doing... For lack of a better term, it's the best option for this atheist to experience anything approaching spirituality."

Kira sympathetically but not really understanding replied, "I know that... And you know that I've never taken anything that you described very seriously... besides, I thought you were going to take Ravi's suggestion and write a fictional story about it... not leave Vici."

He cast his gaze downward, so as to not see her reaction to what he was about to say and said, "I am going to write the book, but I have to leave Vici and everything else to do it. Once the implant is working, I'm going to take an extended leave of absence to go walkabout. I need to get away from all of this and experience the real world. Think about it, I grew up in privilege... as a teen my parents died and I lived off of my trust as the eternal student... Finally, Cayo talks me into starting Vici... and now I come to realize that I'm somewhat Autistic... I've never lived a so called normal life. How can I be a philosopher without truly understanding the human experience?"

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He reached into his coat pocket, pulling out another much smaller carbon fiber box with fractal ornamentation. He stepped around to the side of desk, lowering himself to one knee. As he came to Kira's level he stared deeply into both of her eyes and opened the box to reveal a delicately carved Platinum engagement ring that contained a large diamond set between a smaller green and a blue stone. The effect of the placement of the two colored stones was to make the diamond shimmer with flashes of blue and green that almost exactly matched Kira's eyes. She was totally surprised by the gesture, to the point of being slightly taken aback...

Gilbert then asked, "Will you marry me?"

Hypnotically, she accepted the ring as Gilbert removed it from the box and placed it upon her finger. Finally, with a small almost impish smile she said, "Maybe..."

Gilbert smiled and waited for her to think it through...

Kira sat for a moment and repeated, "Maybe..." Distracting herself, "It's a beautiful ring..." Focusing again she said, "Only an Autistic person would think that this was the right time to propose... If you had asked me at lunch, the answer would have been a definite yes... but now you're planning to leave... you've got a secret device that you want me to implant... and you may be a latent psychopath... that's a lot for me to take in..."

Gilbert qualified, "Just so you understand I plan to take a year to go walkabout... and my intention is to break all contact with anything familiar during the experience... but once the year is done, my book will be written and I will be prepared to emerge... I'm just hoping that you can accept me being away and out of touch for that long... but look at it this way, you'll have an entire year to plan the wedding... and I will relinquish whatever limited decision making authority a groom has to you, that way you're guaranteed that there will be no disagreements on any wedding detail..."

Kira did not like the idea of spending a year without him around, but had to chuckle at the idea of having complete control her wedding... She finally seemed to warm up to the idea, "It does take a long time to plan a wedding... being able to have the event of my dreams is appealing... I'm assuming price is no object..."

Gilbert silently agreed, with a bow and wave of his hand as if acknowledging royalty.

Convincing herself, Kira thought out loud, "I'm still not sure, but I think that we can make this work... so I'll say, Yes. Let's get married. Besides, you're not going anywhere until we manage to finish the implantation procedure. Right? That's going to take months to complete and test."

Gilbert feeling much more comfortable asked, "So you'll do the surgery too?"

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Kira laughed realizing that she was buying into the entire proposal, “Yes and Yes! Let’s get out of here and celebrate.”

## The Sanctification

Even though Kira had agreed to marry Gee and implant the Mark XIV device, she wasn't comfortable with either decision. Numerous thoughts played over and over within her mind... How had Gee hidden his work from the rest of the organization and more importantly the military? What if they were discovered during one of the many surgical sessions that would be required? Can this surgery actually be done? Was she really ready to take over for Gee at Vici? How am I going to be able to manage a new career and planning a wedding on my own? Ultimately, what did she really know about Gee? She worried, what's next... an unexpected pregnancy?

As the couple made preparations to do the implantation, she discussed her concerns with Gee. He always had a very reasonable, philosophical and convincing way of explaining why they should pursue the goals that he'd laid out. She wasn't sure why he was able to manipulate her opinions, but she theorized that it was the penetrating way that he gazed at her... and the rhythmic back and forth of his attention as he looked deeply into her eyes, hypnosis perhaps... Or maybe it was the way in which he challenged her and fed her ego, always ready to alternately praise and teach. She knew that he was extremely giving and intense without being suffocating or overbearing. It was as if he had some sort of mind reading ability, knowing exactly when to back-off and give her space and knowing exactly when to draw her closer, telling her what to think or do. Whatever the reason, she knew that she admired him, felt empowered in his presence, loved him intensely and wanted to help him work through the next chapter of his life.

Under G111's tutelage, Kira studied the Mark XIV, quickly becoming expert in every aspect of its advanced design. The system included a significant number of nodal interconnection points that needed to be secured and tested during implantation. Detecting and correcting issues with these interconnections during surgery was critical because these would quickly heal and embed within the brain. Once the surrounding nerve tissue had fused around an interconnection, going back into an area to fix a problem was a risky option that was more likely to destroy a malfunctioning link than to correct it. Once a link was rendered inoperable, the region in which it was embedded would become impossible to reimplant and use. Losing access to any one brain region would severely compromise the integrity of the entire system, most likely to the point of complete failure.

Together they planned the surgical implantation approach, establishing a sequence of ten surgeries, each scheduled to take between three to six hours to complete. Kira practiced her surgical techniques on lab animals using a variety of more and more complex system prototypes provided by G111. She intently focused upon ensuring that each node of the system was properly linked to ensure long term stability of the entire network. After several months of trial and error experimentation and intense problem solving discussion with G111, Kira's confidence grew as she mastered weaving together the nodes of the system into a reliably functioning whole.

During this time, the news of Kira and Gilbert's engagement quickly spread throughout the organization and ultimately to the industry media. G111 announced his intention to go on a

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leave of absence and worked to establish Kira as his replacement while he was away. As it became clear that all of the issues with the implantation were nearly resolved, G111 formally announced the date on which Kira would take over for him while simultaneously the couple announced the date of their wedding.

Final preparations to install the device were relatively simple, only being a matter of formally scheduling the appropriate facilities to be out of service at odd hours, typically very late at night. This type of activity was very unlikely to be flagged, as it was not unusual for laboratories to be taken out of service for equipment upgrades and maintenance. With everything in place they were ready to go ahead with G111's first surgery.

On the afternoon prior to the first surgery Kira approached Gee one last time to express her concerns. She began, "The past few months have been intense and I've been so worried that someone would figure out that we were up to something. And more importantly once we start the surgeries there's no denying what we've been up to. If we get caught it's all over... for both of us."

Gee tried to hide both his personal apprehension and disappointment that Kira seemed to be on the verge of losing her nerve.

Kira not immediately receiving a reaction allowed her expression to shift from worried to sympathetic as she finally continued, "I know you're certain that you want to do this, but we don't have to do this... now... There's no way to be sure that this is going to work the way that you expect it to. We can do more simulations and animal testing to improve the design. Maybe Cayo or Ravi can help us."

Gilbert imperceptibly stiffened as he silently studied Kira and almost mentally snapped, thinking to himself, "Shit... Is she losing it now? We've been over this a MILLION TIMES... No, no, no, no, no..." He filled with rage because his goal was so close and was being threatened at its most vulnerable moment, but he didn't dare indulge himself or let it show on his face... thinking, "too close now... too close... one last act of self-control and one last act of manipulation..." The fact that he truly cherished her made the possibility of betrayal that she now represented all the more violent to him, the threat being so severe as to trigger his fight or flight instinct, making him want to physically lash out at her. Ultimately he managed to resist the urge drawing upon years of experience in dealing with these types of feelings. He took a deep breath to release his tension, but despite his best efforts, it was impossible for him to not expose a portion of his inner turmoil in his body language. He tensed up, only managing a hard forced smile and restrained angry eyes that were visibly welling up as he internally redirected his violent urges inward, quickly cascading down the well worn path of suicidal thoughts that he strangely used to calm himself.

After another deep breath he tried to ignore her specific concerns by responding at a higher level, "Everything we've come up with to this point can be passed off as pure research, although

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neglecting to at least keep Cayo or Ravi in the loop would be very difficult to explain. The big problem being that they know me too well to not deduce my true intentions... Remember how you figured it out almost as soon as I showed it to you?"

He swallowed and resumed, "Once we go into surgery, the die is cast and we're both guilty of violating the trust of this organization. Is it a big deal? I'm sure that Ravi and Cayo would think so, and of course our military friends would take a grim view of something this advanced being allowed to slip through their fingers. Repercussions upon repercussions most certainly. I'd likely become military property for starters."

Gilbert now sympathetic but demanding, "I realize that none of what I've saying is going to make you feel any better, but here's the core of it... here's why I'm compelled to proceed in the manner that I've chosen... As I told you many times before... I am different and I suffer in the presence of what I perceive as the insanity of society... My only self-defense is to practice active indifference by purposely turning off my naturally presumptuous instincts to fix things. As it turns out most people don't want things fixed, no matter how open to change they claim to be... or more to the point, change, especially discontinuous change, initiated unexpectedly and by an outside agent is unacceptable no matter the possible benefits. The only way to trick people into accepting this type of change is through advertising the change as a toy or by employing propaganda that represents the change as a means to address some sort of threat, normally a trumped up one at that."

Argumentatively he went on, "I know that you want to psychoanalyze me, comfort me and assure me that I'm really not all that different... I don't think you realize it, but when you try these approaches it actually frustrates me... because not only do I see myself as different, but I value my belief that I am different... the only way to fix what ails society is to be different... do.. you.. get that? I'm different on purpose as much as by natural inclination... Over the years I've keenly observed the world and compared myself to it... I cannot reconcile how people actually behave with how they rationalize their theoretically unknowingly selfish acts... to me this type of self delusion is a form of deep seeded sociality insanity... I'm different... I don't lie to myself... you know that... I will always own up to my weaker instincts... and that's a big reason why dealing with the world is so stressful to me... the self-soothing remedy of a well meaning white lie isn't in my programming... so instead, I take my every failure and exposed weakness as critical... it's painful living like this... and my practice of active indifference is wearing thin these days... I've got to find a better way."

Without giving Kira a chance to interject G111 continued, "And yes, I make no excuses and offer no absolution, going down the path that I've laid out before us is ultimately a self serving act... One in which I am asking you to accept a huge personal risk... because, if we get caught, we have to assume that even though I'm a founder and own the single biggest piece of this company, both of our careers will be over."

Quickly shifting to a more reflective tone, "So the decision for you is this; Ease my pain and help

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me become more than I am today or play it safe and by denying me this opportunity... Because the way I see it, you're the only chance I've got... And remember in many ways I see my choice as very much the same as Vici's first patient, William White... if I don't go through with the procedure I will metaphorically die, my spirit will wither and blow away... Whereas if we go through with the procedure, in spite of the medical risks, I at least have a chance to be remade and to be relieved of my pain."

After a suitably short pause he continued with more energy, "And let's face it, we're not calling it the Mark XIV for no reason... sooner or later a device with similar capabilities will be implanted into someone... most likely a military subject. Once the military has control of this technology, the therapeutic and biotechnological man-machine evolutionary uses we've envisioned will be buried... probably for decades."

Of course Kira had experienced more philosophical versions of these arguments over the past few months... but never had Gee been so forceful or insistent... She understood the facts of Gee's situation and to a degree felt ashamed of her hesitancy and fearfulness... but at the same time felt justified in wanting to not risk throwing away everything that she'd worked for and risk destroying everything that she had come to love about Gee... because, from the first time she saw the device and realized its purpose, she had an unspoken fear that it would change Gee in ways that simulations could never predict... This fear was well founded considering the some of the bizarre and persistent problems suffered by a few less fortunate military subjects. Implanting a mechanism so complex and so untested into someone she'd grown to love so much, was harder and harder to accept the nearer they came to the point of no return.

Feeling scolded but firm Kira finally retorted, "We're scheduled to start tonight and I hate that my doubts haven't subsided... I hate that they're more real to me now than they've ever been. I need time to think... I need a reason to be willing to risk it all... I need to believe that the greater good you hope to achieve is really worth it..."

After a couple moments pause Kira mused with a slightly evil glint in her eye, "I love you, but I wonder, have you manipulated me into a corner? A corner in which no reasonable logic is capable of extracting me? Why wouldn't you simply change my mind for me? Make my answer easy... Go ahead, just tell me what to think... That's what you've been doing to me ever since that first call when you asked me to join the company... isn't it? Do you think your 'imaginary' audience will tolerate the sudden shift in reality? Just like when you're watching public broadcasting... 'Viewers like you', don't they? Let's test the theory... Do the viewers really like you? Would they get upset and change the channel, if you were to simply change my mind."

"Demented. What have I created?", he cringed.

Gilbert slightly bemused and slightly freaked out, answered, "So you were actually listening to me when I went on and on about how my life is some sort of novel... One of my more fanciful musings about the nature of reality, for sure... How inappropriate and irreverent that you bring it

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up now... It's not nice to tease like that..." Shaking his head, "But you're right of course... I was always attracted to you and found you compelling, while on the other hand I needed someone that I could implicitly trust. I admit it. I manufactured this situation for your benefit. All of this is the result of a series of totally premeditated acts... Nonetheless, I do love you... let's not pretend that you don't know that in your heart... but even more importantly, I need you... and you know that too... and you realize that you have all of the power in our relationship now... my fate is in your hands... no manipulations, no tricks... it's all up to you..."

She had already made her decision, but refused to satisfy his desire for an answer... Instead choosing to punish him for his manipulations and presumptuousness. She impishly smiled and turned to leave, announcing over her shoulder, "Sorry dear, no answer right now... I've gotta take some time to justify this... I promise, I won't be long... I'll let you know at dinner... Meet me at 9 o'clock in the cafeteria." And with that sudden change of attitude she almost carefreely sauntered down the hall and out of sight.

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G111 hated to wait. In fact, this personality trait was a hallmark symptom of his attention deficiency. He believe very strongly that Kira, though not a cruel person, was purposely exploiting this weakness to torture him. He tried to fill the hours until their next meeting with purposeful activity, but was too stressed to get anything meaningful done. He felt like he used to as a child, anxiously anticipating getting discovered, accused and then punished for a transgression that, for the moment, only he knew about.

His imagination ran almost non-stop. He worried that Kira was going to report his plans to the Vici board, Cayo, Ravi or the military. He considered the possibility that she would simply quit and run away... not likely, she was too strong to resort to his tactics... or worse yet, she'd choose the ultimate disrespect, blackmail... Rationally he knew that she wasn't this type of person, but how could he be sure... His entire life was dominated by wild "what ifs"... so, being defeated by someone that he cared for so much was at once unthinkable and intensely believable. He was in such a vulnerable position and he deserved to be destroyed for the way in which he lied to and manipulated the woman to which he so fervently desired to belong. He calmed his stress in his usual way by replacing his paranoid thoughts with thoughts of infinite dread and purposeless of a never to be acted upon self-inflicted death.

Despite the fact that the facilities were lightly occupied at this hour in the evening, there were always a variety of individuals around who serviced international clients. His paranoid imagination wandered, as he made his way down to the cafeteria. He felt that the few people he encountered were looking at him, as if they all knew something that he didn't. As much as possible he avoided making eye contact and did his best to look preoccupied so as to limit the chances that anyone would engage him. Looking preoccupied wasn't a difficult matter for him given everything going through his head.

In the cafeteria, he purchased a small meal and turned to go to the table that he and Kira frequently used, only to discover three of the younger researchers from one of Kira's lab groups lounging in the vicinity with vaporous beverages in hand. So as to not be detected, he swung his cafeteria tray to the left, using it as a makeshift counterbalanced for an abrupt right turn. This somewhat athletic action resembled an abbreviated pirouette. As he briskly moved in the opposite direction of Kira's staffers when he heard one of them call out, bringing him to an abrupt halt...

In his head scenarios erupted... "This is it... They knew I was coming... Jacob, David and Nate were never here at this hour and for that matter they never sat it that part of the cafeteria... I'm sure that Cayo and Ravi are nearby too..." After a stubborn moment, G111 finally turned around to face the trio, one of whom was in the process of calling out to him again. It was Nate, the tallest of the three, who had stood up and was waving to him with a broad smile on his face. Gee took a deep breath, put on, what he hoped was a kindly yet annoyed smile and proceeded to bravely head across the cafeteria prepared to spar with his juniors. He was ready for the anything, but hesitantly hoping for a non-event.

As he walked, he almost imperceptibly scanned the room for signs that the "jig was up" and that

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he was about to be apprehended. Unassailed, he quickly reached the table at which the young researchers were gathered. He exchanged brief greetings with all three and with a forced yet humorously professorial air inquired, "Gentlemen, I'm not used to seeing you in the building at this time of day... Are you working late or just hanging out for the cafeteria's fine cuisine? Expecting dates perhaps?" The three smiled and all tried to answer at once, wanting to make an impression upon their prestigious leader... Finally Jacob won the initiative and replied, "Actually we were working late in the lab with Dr. Alkaev, she was showing us a new technique. It was tricky using the Coventry probes. Dr. Alkaev says that we're going to need to develop a new probes to make the technique easier... Anyway, once we were done, she sent us to the cafeteria to wait and to keep you company. She said that there was something that she needed to do in her office before she would be ready to join you." Obediently, G111 sat to join his eager young colleagues.

He found the friendly and at times frivolous conversation a mild relief. Each participant taking turns telling stories, bragging, lying and generally entertaining each other. As the conversation progressed, G111 frequently glanced around the room, monitored messages and gently goaded the competitive nature of each of his companions to for his amusement and to distract himself while waiting. About forty five minutes after the appointed hour, Kira materialized with a tray and a small briefcase. David saw her coming from across the room to join them and was the first to rise and greet her. It was clear from Kira's face that she was all business, nonetheless it took the ambitious neophytes a few moments to realize that Kira was ready to be alone with G111. She smiled and thanked them as each made a point of individually saying their goodbyes to both halves of the venerated corporate couple.

Finally alone, Kira sat and smiled at Gee. She leaned forward and gave him a sentimental kiss on the lips. Gee's entire body was stiff in anticipation that she was about to utterly destroy him. Fortunately, the sometimes boisterous conversation that G111 and Kira's colleagues had driven away anyone who might have considered sitting in the area near Kira and Gee, so within the public space they more or less had the privacy they needed for this most pivotal conversation.

Playfully, Kira began, "Did you have a nice time hanging out with my Nephews?" As was his habit, Gee had to take a second to considered as to whether or not to take the Nephew reference literally. Finally resolving that Kira was being facetious, he answered with a slightly exasperated sigh, "Sure. What took you so long?" Kira's face softened and she apologized, "I'm assuming that you were pretty much useless this afternoon... I know how you get wound up and stressed out in anticipation of potential bad news." G111 didn't like how she said, "bad news"... but he let it go, scanning the room, realizing that letting Kira get to the point on her own was the fastest way to relieve or validate his fears.

Gee consciously decided to focus upon Kira's eyes as a way to calm himself. Almost immediately he started to settle, but it still required a conscious effort to fight his impulses to demand the answers. Finally, with a clipped voice, he asked, "So, what have you decided?"

Mercifully, Kira provided a simple response, "I'll do it. The lab is ready. We can start at any

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time.” Gilbert’s face showed significant relief, but he didn’t want to celebrate too quickly... He instinctively broke eye contact to scan the room... and then quickly refocused his attention upon her enthralling eyes... he didn’t say a word... instead he simply waited for her to offer the conditions that he was sure were to follow. Kira began again, “As I made you aware earlier, I have my concerns... This afternoon I consulted a lawyer because I need to protect myself assuming the worst case scenario. Forgive me for being so unsentimental about this, but love is love and marriage is marriage, but a career is forever. We ultimately are what we do... We both agree on this count, don’t we?”

Gilbert silently agreed, having no way to argue the matter having expressed these same sentiments many times before. Her rhetoric struck at the core of his guilt because the premise of surreptitiously developing and using the Mark XIV on himself was in service to the ideal that we are what we do and that sometimes the emotional consequences and personal collateral damage are just the price that has to be paid. The relationship was definitely changed, from that of mentorship and admiration to one more like a business partnership. “So be it”, G111 silently told himself.

Thoughtfully she began to lay out her position, “I want you to know that I love you and I forgive you. The only way that I was able to come to this conclusion was because of my training in neuroscience and psychology... If it weren’t for my academic training and how I’ve studied you these past months there’s no way that I let go how you manipulated me. I forgive you because I know the goodness inside of you and I understand the problems that you live with everyday. I also know that your experience is so much different than mine and I know that you are trying to go beyond your limitations.”

Sympathetically Kira continued, “I also want you to know that I admire you, pity you and envy you. The sustained desperation that’s motivated you to get to this point is remarkable for someone so severely impacted by attention deficit, clinical depression and aspergers. From all of your weaknesses you’ve somehow found strength. And now with your device, you should be free of those debilitations, thereby unlocking your true potential... What you will become, is hard for me to imagine. I have to ask myself, when you become what you will become, do I have a place in your life? I’d like to think so. I’d like to think that the parts of you that I love will become magnified and the parts that I pity and even fear will be extinguished... but only time will tell on those counts.”

Once again thoughtful, she continued, “So, I have three reasons to protect myself going into this relationship. First the practical aspects of personal freedom and financial security, second physical safety and third emotional comfort. Regarding my personal liberty and financial situation, you are a wealthy man and once we file the mutual support and separation contract, I will be guaranteed a comfortable lifestyle on an ongoing basis, assuming that I don’t get arrested or sued into poverty. The problem with this being that we’ve set a wedding date more than a year in advance while I’m already incurring risks in these areas by participating in your experiment. To remedy this situation I taken the liberty of drawing up a mutual support and separation contract that I would like you to sign tonight... and yes, these terms are non-

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negotiable conditions of me doing the implantation.”

Accepting these terms was not difficult for G111 because emotionally he had already ceded ownership of all that was his to her, the only thing that he held in reserve as a sacred possession was the coming year. With quiet reserve he let her stand tall on this matter, knowingly inquiring, “Is the contract in your briefcase?” She nodded, opened the case and turned over the tablet in which the contract was stored to G111. He quickly flipped through the ten page document that in over fifty years since its standardization had barely changed at all. She had already filled in all of the appropriate blanks with impressive but ultimately financially inconsequential figures that G111 could easily afford. The terms required separate financial accounts and an initial endowment to Kira. The agreement sketched out one year, three year and five year exit clauses with corresponding bilateral dissolution terms. The contract maxed out at the legal limit of seven years and provided for two year renewals in perpetuity. Gilbert found it to be a very hopeful sign that she had also filled out the provisions for child custody and support. After only a few minutes examination he signed the contract, handed the tablet back to Kira, got down on one knee and kissed her hand. Kira countersigned and immediately electronically filed the agreement with the state, establishing a private two party marriage contract.

The couple didn't have to worry about their agreement being discovered because of strict contractual confidentiality laws that forbade any disclosure of the details of filing of private contracts. In fact, filed agreements were actual stored in an encrypted form with the government, essentially being escrowed. Only the parties involved in the contract would be able to access it should the need to invoke legal proceedings to enforce any of the terms be required. As a result of these legal provisions there was no need to worry that the general public would be made aware of the deal that they had just struck.

“How romantic?” Gilbert thought to himself. Simultaneously Kira blushed with embarrassment as if she'd heard what Gilbert was thinking.

After a quiet moment together, Kira resumed, “Regarding physical safety. I want you to add the ‘high fidelity’ feature into the your device and program it so that it limits your negative emotional responses when in my presence. I've looked at the design and node five is suitable for this purpose. We have five weeks to make the appropriate alterations, so there should be no impact to the surgical schedule.”

G111 immediately responded, “For that to work, you'd need to get an implant too... albeit a much more rudimentary one. Are you prepared for that?”

Kira fully knowing what G111 had pointed out continued as if not having been interrupted, “Of course, I will need to also be implanted... and, as it turns out, beyond the ‘high fidelity’ feature there's an enhancement that I'd like to get... but I don't want to talk about this now.”

He was slightly surprised by her willingness to have an implant of her own, but he let this pass

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in favor of reacting to the modifications to his device that she was requiring... Long ago having worked through the interpersonal and moral implications of the “high fidelity” feature, he was able to quickly accept this as a partnership term because he would ultimately be able to choose the operating parameters of the redesigned node. So, in response to her demand, he mischievously smiled and lightened the mood by saying, “Agreed, but we’ll have to negotiate the effects that the device will produce when in your presence. Although it might be fun, I have no intention of becoming your love slave.”

Kira wearily smiled and reminded Gilbert, “I’m serious about this. I know that you are completely confident that the system will work as you’ve intended, but I need to be sure, I need to be safe... and yes, the decision for me to implant myself is a difficult one... but rationally I trust the technology because I know it so well... I believe that by both of us taking this option we will have the best chance for mutually assured safety and a steadfast partnership.”

Gilbert realizing that this was as much about their happiness together as it was about her safety became a little more serious, finally nodding and asking, “If I’m not to be your love slave, what’s your last concern, emotional comfort?”

Kira smiled and responded, “While the ‘high fidelity’ feature is part of the solution, to me emotional comfort is all about feeling a strong personal connection with someone and knowing that I will have their support when I need it. This is my definition of love... and when it comes to love, contracts are no insurance... There are no terms that can ever be drafted that will force one person to love another... so on this one, I’ve got to go on faith... I feel your passion for me, even though you’ve been manipulating me...” She interrupted herself as if suddenly remembering a forgotten chore, slightly emotional, she restarted, “I have admit something to you... I knew that you were manipulating me, pretty much from the beginning... I let you do it... I felt so special being singled out by such a renowned older scientist and engineer. I was learning so much and getting access to opportunities that only a few months ago I couldn’t imagine. Our time together was very indulgent. From the beginning I was attracted to your brooding eyes and your strong sometimes angry silence. How you were with others made the way you were with me, so attentive and gently intense, even more special. I felt very safe with you... that is until you revealed your plan. Then I suddenly felt betrayed, even though in the back of my mind I knew that there had to be a price to pay...”

Gilbert listened and accepted her admissions as an apology, finally moving forward to take her into his arms. With his face pressed into her hair, he quietly wept as she squeezed him as hard as she could... between them, no more pretenses, everything hidden had been shared and a true lover’s union had finally been forged...

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Kira arrived at the laboratory where the first three implantation procedures were to be performed. In the middle of the smallish room were a variety wires, monitors and surgical tools arrayed around a standard doctor's office examination table. In her hands Kira was carrying a case that contained node one of the Mark XIV device. She placed its container on a tray to the right of the bed and began to power up the equipment. As the devices flickered to life G111 arrived in the room. He immediately locked the lab door and adjusted a rolling privacy partition to block the view into the room from the hallway.

Even though the two had only been separated for a few minutes, Gilbert approached his new bride and interrupted her briefly to give her a kiss of welcome. Kira smiled and without a word went back to work making sure that everything was properly adjusted. In the operating theater Dr. Alkaev had come to be known for being highly meticulous and tonight she was doubly attentive because she was going to operate without staff support. It was 11:51 PM when finally everything was in place.

As Kira put on a pair of surgical gloves she instructed Gilbert to remove his shirt, sit on the table and lie back. Gilbert removed his shirt and sat on the edge of the table but, looking at the clock, did not lie down. With a scolding look Kira asserted, "If the subject will please recline we will be able to get on with tonight's procedure." Gilbert having reason to hesitate replied, "I want to wait until exactly Midnight for the surgery to commence." Kira already knew this, but at the moment she wasn't focusing about his need to indulge this dubious tradition. Gilbert continued to explain, "The condemned man's sentence is always carried out at Midnight, and I don't want to be treated any differently than William White or any of our other correctional interventions." Kira withheld comment preferring to simply wait out the few minutes to Midnight in silence.

Fifteen seconds prior to Midnight, Gilbert abruptly collapsed onto the surgical table as if he were a small child flopping into bed. He was as prepared as he could be to submit himself to the most anticipated and frightening experiment of his career. His eyes were dilated, his face was pale and he had the distinct musk of a man under significant stress. Reassuringly, Kira smiled at him, glanced at the clock and at the appropriate moment began the procedure.

She deftly positioned and clamped his head into the scanning unit and attached a myriad of electrodes and probes to his scalp, face, neck and upper torso. These would both monitor his physiology and be her eyes into his cranium as she delicately positioned and activated the first node of the intricate mechanism that G111 had created. She administered an antiseptic and a local anesthetic to the entry location within the left frontal sinus. They only needed to use a local anesthetic because the plan was for G111 to be fully conscious during the entire implantation procedure to provide feedback on any immediate effects of the surgery. A significant difference between Gilbert's implant and those provided to all previous subjects was that his implant would not occupy the sinus cavity, so choosing this sinus entry point was a much cosmetic as it was a surgical consideration.

The anesthetic took quick effect and Dr. Alkaev began the implantation procedure. Placement of

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the first node was critical, in that it was the master node of the entire system, having direct interaction with the reasoning centers and other important areas within Gilbert's brain. Emotionlessly, Kira made the first incision and began the surgery. Her years of experience and the weeks of practice that she had invested installing prototypes within lab animals was rewarded during surgery in that no unanticipated circumstances were encountered.

Dr. Alkaev prepared a space for the first node deep within G111's brain adjacent to the corpus callosum. This location was selected for its centrality and its access to numerous neurological pathways. She then withdrew the rolled up black node from its case and skillfully snaked it into the subject's head. Once in position the node was unrolled and attached via micro-capillary surgery to the blood supply. Dutifully, the node began to inflate, indicating that the attachment to the circulatory system was good.

From this node she skillfully deployed nine leads to nine distinct interconnection sites within his brain. Each lead was delicately guided amongst the various neurological structures as it was stretched to its final destination. Each filament once positioned had its PAN fabric terminus meticulously oversewn into the nervous system. Each part of the brain being systematically connected according to the plan that Dr. Alkaev and G111 had worked out... the frontal lobe, the temporal lobe, the parietal lobe, the occipital lobe, the hypothalamus and the thalamus. The work was tedious, slow and yet somehow exhilarating for Dr. Alkaev because never had she had the opportunity to do work of such complexity or potential significance.

During the protracted surgery Dr. Alkaev allowed her patient to drift in and out of wakefulness. As each milestone of the surgery was achieved she gently awoke him to assess any unintended effects. None were detected.

After nine hours the surgery was finally completed and Gilbert was disconnected from the equipment. Nine hours was three hours longer than scheduled. Both knew that this was likely given the complexity and sensitivity of the procedure. In fact Kira had strongly suggested being "non-traditional" in their starting time to avoid this possibility, but G111's odder sensibilities had won out on this point.

Kira assessed Gilbert's mental function and determined that there was no noticeable change from the baseline. According to plan the implant was left in a stand-by mode until further testing could be done. This would give them time to see how the brain healed and ensure that the device was operating as expected within Gilbert's brain.

The couple straightened up the room, making sure to archive the data gathered during the surgery to be used for comparison as further surgeries were performed. Despite the fact that it took almost thirty minutes to dispose of the evidence of the evening's surreptitious surgery, tell tale red marks remained on G111's face and neck from where he had been hooked up to monitoring equipment. He did his best to rub them out with his palms and fingers, but efforts did little to diminish the noticeability of these discolorations.

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Kira was the first to leave the laboratory, unlocking the door and quickly proceeding to her office. Once G111 was sure that Kira was well clear of the lab, he returned the privacy partition to its position against the wall, turned off the lights and headed home for the weekend. Fortunately, he didn't run into anyone who might have inquired about the marks upon his face. Kira followed shortly thereafter taking a few minutes to answer a few early morning messages and to leave instructions for her staff. Once at home the couple slept and relaxed, seriously needing a few days to recover from the first step in the augmentation of G111.

At home, Kira was able to monitor Gilbert's reaction to surgery. Gee reported slight disorientation and some visual artifacts that cleared up on their own. The disorientation and disembodied or floating feelings were reported by many subjects after surgery. These effects were normally attributed to a disturbance in the distribution or leakage of cerebrospinal fluid. The visual effects were most likely a result of the implant delivering low level stimulation to the occipital lobe. After two full days of relaxing at home the couple deemed the surgery to have achieved a stable result. Both were eager to return to the office to get a close look at how the device was healing into G111's nervous system.

As was their habit, Kira arrived at Vici headquarters in the late morning and G111 arrived in early afternoon, just after most people were finishing lunch. The two made themselves busy going about their daily activities, finally meeting up in the early evening to do a high resolution scan of the implant. Dr. Alkaev used the implant's remote control transmitter to place it into a diagnostic mode and then used one of the implant scanner to image G111's brain and the device. It only took about ten minutes for the full scan to be completed, processed and safely stored in Kira's secured data repository. As soon as the scan was done, the couple headed back to Kira's office to pour over the images.

Both were expert in evaluating implant scans. The review of the images of last week's surgery showed that Dr. Alkaev had done an excellent job. The tissue that was disturbed by the surgery was healing well. The node and all nine of the filaments and PAN fabric terminals were precisely placed and operational. One thing that became obvious while interpreting the scan was that as each of the ten nodes of the system were implanted it would become increasingly difficult to analyze the result of any given surgery due to the multilayered structure of the brain and the numerous pathways that the network would create.

G111 had dealt with the multilayered imaging problem on a limited basis during his prototyping and experimentation while developing the Mark XIV, but had never fully worked out how best to make distinct the components on the scans. It was clear that this problem would need to be solved in short order.

After the first surgery, G111 and Kira negotiated and agreed upon the parameters of high fidelity subsystem intended to protect Kira from attempts by Gilbert to manipulate or harm her. G111 modified node five of his system to provide the desired effects. It turned out that the implant that

## The Sin

Kira needed wasn't a neurological implant but instead was a Reglioplant device to help regulate her menstrual cycle. The Reglioplant device provided the perfect disguise for the high fidelity trigger that Kira needed. Using a Reglioplant for this purpose was also ideal because installation was well within G111's surgical capabilities, meaning that there was no need to recruit a trustworthy neurosurgeon to do an undocumented cranial implant.

As the weeks passed Dr. Alkaev's concerns that Vici would discover and stop their activities faded as each additional node was successfully added to G111's growing cranial network. It was just as G111 had told her, the company was simply unable to recognize their behavior as threatening or abusive because of his well worn pattern of predictable unpredictability. By the fourth week they needed to move to a larger laboratory to be able to use a larger scanner to be able to resolve the numerous interconnections and bioelectronic pathways being woven into G111's head. G111 worked out better imaging presentation techniques that allow the surgeon to only display parts of the network that were of interest. It required the rendering engine to have a functional knowledge of the sequence of surgeries, thus allow it to compare real-time data with previous version of the system to provide an uncluttered but detailed view of the brain.

The announced date of G111's departure was nearing as the implanted cranial network passed test after test. Finally the couple was ready to boot the system to perform a full integration diagnostic. This was the point of greatest risk because while every precaution had been taken and simulation after simulation had been performed, there was no way to guarantee how the system would interface with G111's mind.

In truth, the implanted system, even in a diagnostic mode, was interacting with G111's consciousness in subtle ways. He noticed the effects, or more accurately would have noticed the effects if he weren't under the influence of the device. Almost imperceptibly the parameters of his personality fluctuated to a more controlled and purposeful state. As it turned out this additional drive and focus were very helpful for solving the multilayer surgical imaging problem. The unique approaches that G111 developed to solve this problem, resulted in several patents in the area of real-time subtractive stereo morphography imaging and three dimensional boundary analysis.

With one week to spare Dr. Alkaev sat over G111 prepared to activate the system. It was late at night and he was lying on the couch in Kira's office with a small number of electrodes attached to his scalp. Kira leaned forward, kissed him on the lips, looked into his eyes non-verbally asking for permission to not go through with it while simultaneously saying goodbye. Noting her hesitance Gilbert kindly requested, "I'm ready... please go ahead." Kira took a deep breath and pressed the button on the remote that would irrevocably initiate a revolution.

G111's departure from Vici was a relatively uneventful passing with the biggest concern being distributing his responsibilities within the organization. His biggest concern was the transition of his bride to be to take over the bulk of his duties. Ravi and Cayo were both impressed by Kira's technical abilities and well acquainted with her accomplishments. She had an excellent reputation within the executive management team because of her ability to get troubled operational projects on track while productively leading multiple development teams. Initially the Major Wyrick had some unspecified concerns with her as a replacement for G111, but as Dr. Alkaev became more deeply involved in military projects his attitude toward the relative newcomer significantly eased. Based upon the three founding partners' recommendation, the Vici board approved Kira's promotion to Vice President of System Development and agreed to grant G111 an indefinite leave of absence as Head of System Architecture and Integrations.

During the several month transition period, Ravi and Cayo found working with G111's future bride very refreshing. The partners' weekly working lunch, that now included Kira, was generally more amicable, less rambling, more pragmatic, and therefore shorter and generally more productive. By the time G111 was ready to depart Vici, he was regularly skipping the weekly partners' get together, using the farcical excuse of needing to plan for his year long absence. When finally the day came for G111 to officially leave everyone was well established in their positions and it was practically a non-event.

In reality G111's trip preparations included little more than acquiring an older model "working man's" lift-cycle with a manually operated magnetic transmission. I took three months to have it overhauled and customized... and then another two months to learn to ride it. Although he imagined himself to be rather well coordinated and physically dominating, learning to ride proved to be a source of frustration. Compared to an automobile or bicycle, lift-cycles are considerably different because of the relative lack of physical contact with the road while moving at speed. G111 unfairly blamed his newly refurbished vehicle for his inability to skillfully take corners at low speeds, his consistent misjudgement of braking distances, and his tendency for clumsy gear selection. While getting used to his new machine he received two disturbing the peace citations and caused neighborhood outrage that was a result of a curb hopping maneuver to skirt past the rear of an almost (or just) stopped school bus. The controversy that arose revolved around witness accounts of the relative position of children who were about to board the bus, whether or not the bus was fully stopped, and the status of the bus signaling lights. Fortunately, the incident blew over without a little more than some neighborhood flack and residual sidewalk discomfort for those who took sides in the debate.

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The sweet familiar relief of running away. Having escaped the influence of the metropolis, my thoughts were freed from the navigation of angry suburban traffic to more reflective and less intense considerations, "On my own... Unfettered... Unconstrained... Moving toward a goal that lacked definite form... An experiment without a clear hypothesis, shrouded in self-deception and intentional vagueness... A new lifestyle based upon a promise... Based upon a hope... Staring

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into unknowable foreverness... Grounded in the inevitability of change, only motivated by the desire for a new alterity... Yes, new... Yes, different... Dangerous? Yes... Yes... Most certainly dangerous... But to whom and how?"

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I cruised past a dilapidated barn constructed on the edge of an abandoned orchard. The arrayed fruit trees were massively overgrown, unkempt, and broken. Each member of the orchard surrounded by a sea of tall weeds, infested with rotting farm machinery, creating a scene vaguely resembling the aftermath of an ancient and ill fated military beach landing. To entertain myself I obtusely pondered, "Why would someone choose to build a dilapidated barn like that? Surely it would only be slightly more trouble to construct a nice new one... requiring somewhat better building materials..." With quiet bemusement I smiled at myself, but after only a brief moment an automatic demand for focus overwhelmed my sentimental need for whimsy. It was a kind of mental smack or self-punishment for indulging in mischievously pleasurable distractions. My thinking shifted from farcical musings to the stark reality of the rural desperation I was passing through. Once the spell was broken my attention purposefully drifted back onto the road.

The trip by design would be more or less be like this for the entire fifteen day ride "out". Avoiding the big towns and the interterritorial highways, I would utilize the network of unfashionable side roads that were dominated by agrarian influences. Always north, and then always north-by-northwest. Each rustic town along the route ritualistically declaring itself to the traveler at the horizon via the slowly growing silhouette of a water tower. This silent sentinel asserting its dominion over those who sheltered within its influence. Inevitably this structure would be enveloped in pale blue and covered with enormous fading letters that broadcast to no one in particular the name of the place or brag some point of community pride... "Welcome to the City of Wampus", "Birthplace of Governor Trampolene", "State Champs"... The water tower's unfaltering enthusiasm was at most reflected as only a faded memory in the eyes of those who fell within its life-giving aqueous distribution.

It feels good to be on the road. As I ride, my thoughts shift from being in the world to considering what I have become, "What does this choice, this horrible irrevocable choice mean? No longer am I just a product of biology. No longer an I subject to the random emotional influences of hormones, pheromones, blood chemistry, or epigenetics. I have become the product of my own frustration, only capable of feeling that which I choose to feel. Now able to pre-program my decision making state, my mind a perfect blend of rationality and systematic belief. Discipline not derived from personality or character, but instead purposely programmed in a premeditated way. Is this free will? Could I call it free will at a distance? What is 'free will' anyway?"

I tell myself, "Today I am focus. Today I am endurance. Today I am impervious to the pain of the long haul... I am programmed. I am that which I have chosen. I am the author, I am the editor. Reality is that which I tell it to be. I am the Mark XIV. I am Mark XIV." As was my habit to obsess

on myriad potential negative outcomes, I repeatedly try to convince myself, “This is right, this is better, this is the next step, I am on the new frontier.” After the tenth obsessive mental spin around this block, I finally realized that I didn’t need to do this kind of thing anymore, making a mental note to program out this self-reflective bullshit when I stopped for the night. “This is going to drive me insane, there’s no reason to endlessly question this decision (or any decision for that matter). It’s one thing to be mindful, it’s another to become consumed... The meme must be served... and to serve it now, requires focus... no distractions. I must elevate!”

Onward I rode, plunging through the countryside... unobserved, unconsidered, anonymous, just another swooshing sound emerging from the tired yet tireless highway. The distance ahead always infinitesimally shrinking and the distance behind always infinitesimally growing. Moment by moment the purpose in some small measure was being served.

The late morning highway brilliantly shimmered as I passed the first of what would be many “Hi Stores” billboards, this one cheerfully proclaiming “Convenient brands at convenient prices, just ahead.” Still too early to stop. Still too early for a break. I slid through the next town and as I emerged from the city limits, there it was, just as the billboard promised, the friendly volcano that always said “Hi”... The building was very modern, no doubt having been constructed within only the past couple of years. The pumps and parking lot were sparsely populated with what I assumed was an early lunch crowd. As I pondered the store’s oversized red, green, black, white, and blue sign I reflected upon the irony of the chain’s tropical island theme, having been founded within the frigid mountainous region of the greater northwest. “How many palm trees are there in Manitoba anyway?”, I thought.

Hi Stores had an international reputation as an aggressive and somewhat disreputable organization because of the numerous problems it had had with unions over the past thirty years. Garrett Lamaster, former lumberjack, prospector, and outdoor fanatic, was the founder and president of Hi Brands Incorporated. Lamaster was a highly vocal and sometimes over the top Libertarian who was adamantly opposed to the strong arm tactics of union “bullying”, having repeatedly and publicly equated these behaviors with racketeering. Despite the company’s history of uncomfortable interactions with organized labor, he had managed to grow his empire, composed of third tier brands, distribution, and retail affiliates, into a regional force by primarily by serving underserved locales and avoidable neighborhoods. His brand had a well earned reputation for relatively poor products and high prices, which explained why the advertising focused on anything other than quality, value, or choice. Within the organization it was common to hear remarks such as “Our way on the highway”.

Habitually checking my fuel gauge, I maintained pace as I sped out for sight of the “Friendly Volcano”. Just as I was beginning to settle in for another stretch between towns, I happened upon the interchange with interterritorial highway 51B which was a main east-west route connecting the majority of largest cities in the high desert region. Just ahead I could see the business that were parasitically clustered to “serve” the highway, there was a steady stream of high speed bidirectional traffic moving across the overpass. Each truck, car, van, and cycle yet

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another faceless blur traversing untold distances to achieve opaque goals both noble and ignominious. To the universe I silently commented, "No one ever seems to be in the right place... They're always busy... Going here... Going there... Never satisfied... It's as if they're looking for something, but they don't know what that something is... and perhaps in the back of their minds they realize that what they're looking for is something that they don't really want to find." Of course I was projecting my doubts upon the rest of the world while simultaneously discounting my own situation which by most measures was exactly the same as theirs. Perhaps it was my predilection to merely see others as objects or characters with which I frequently but reluctantly needed to interact that made me consider the vehicles blowing by on the overpass with a mixture of curiosity and disdain - other people simultaneously representing opportunities and obstacles.

With some irritation I navigated the chaotic weave of vehicles who were distractedly moving between the highway and the randomly arranged collection of roadside establishments. This shopping district struck me as if it were set up to resemble a permanent version of a desert themed county fair dominated by a variety of food and entertainment outlets. Each franchise housed in a familiar yet strange edifice that was configured from the endlessly reinvented pattern of roadside retail and then wedged into place as if jockeying for position at a celebrity red carpet event, each business urgently and silently screaming, "Over here, Mr. Traveler! Over here! Over here!". My mind primed by thoughts of Lamaster and his exploitative empire, reflected, "Surely these colleagues of the "Friendly Volcano" were capable of better... This is the circus. Every enterprise on the midway brightly colored, "attractively" styled, streamlined for service, and staffed by people who would prefer to be almost anywhere else." Of course I was wrong, there wasn't a better way... the vast majority of the travelers were merely engaging a waypoint dictated by a combination of organic and mechanized biology. These highway "oases" spawning at the crossroads of our modern trade routes was a natural product of a societal order that is strongly biased by a preference for minimal planning. "We are a species of shortcut takers, trusting the familiar, optimized for repeatability, unconsciously creating and seeking ambiguity under the premise that accommodation will be made. Given such a psychology, how could the result be any different? We are a product of this planet and to deny the system of which we compose and are comprised is folly."

Coolly, I swerved to get around a family of five who in what was presumably yet another distracted moment of family fun, had made an ill advised left turn in front of me. Keeping my eyes on the van, I instinctively rolled my head back as if to yell at the sky but easily managed to resist the urge to express my contempt vocally or via a well practiced yet rude hand gesture. Instead, I refocused with a smirk as I contemplated the two young children in the back seat of the van who were smooshing their faces against the side window. Each distorting and discoloring their noses, mouths, and cheeks into randomly comical and grotesque forms. This encounter reinforced my impression of the locale as some kind of carnival, the children's' display almost making the encounter worthwhile. As I disengaged the scene of the near accident, I was left musing, "The angry suburban traffic seems to have found me once again."

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I proceeded and warily scanned the vehicles that either directly impeded my progress or were poised at the edges of the road as if waiting to leap into my path and threaten my well-being. I was both studying their collective behavior as if looking for a pattern of rationality in the chaos and preparing for further evasive maneuvers. With what for me was great patience, and without further incident, I managed to successfully couru out of the influence of the chaotic 51B interchange ballet.

Finally having cleared the hub bub, I instinctively increased the throttle to put distance between me and the endlessly whirling vortex of unorchestrated omnidirectional transcontinental randomness. As the scene faded in my rearview, I distinctly heard the piercing sounds of emergency equipment on the move, presumably on a mission to clean up the results of somebody's quasi-suicidal decision making process.

Once again the horizon was my focus and the road was my friend. Within its embrace was both solitude and a sense of place. As I became a part of every new scene the reality of each location became my own. I was simultaneously an element of the composition and a just spectre moving through it. It felt good to be part the universe and within the scale of the human network represented by the road I was both creator and the creation, for lacking my presence the scene would not be what it was. Physicists and philosophers might be tempted to call it an observer based reality. But of course the universe is always observing itself, every smallest portion intimately considering every other smallest portion in a self-indulgent micro-social dance of gravitation and field building. This essential nature of the universe making my observation a mere macroscopic technicality that anthropomorphizes the "observer based" reality proposition. At once I felt above it all and sad because there were very few who would ever appreciate what I was experiencing in anything resembling the way that I was experiencing it.

Determined to dispel the familiar melancholy that even fleeting consideration of any aspect of my otherness induced, I decided to use a "highway meditation" that I'd invented while in college. I came to call this technique "immersant seeing". Entry into this state of being requires a psychological shift in the way that the environment is processed and perceived. Normally, we experience situations through the dual mechanisms of attention and evaluation, utilizing a relatively narrow range of focus and selective filtering. Evolutionarily, this filtering mechanism has enabled us to efficiently process specific pieces of information within the environment to identify and react to threats and opportunities. Alternatively, immersant seeing requires a fixed gaze and a broad focus such that everything within the limits of peripheral vision is simultaneously and as equally as possible experienced without evaluation. Using this meditation while driving requires vehicle control decisions to be moved into the background of the mind. Most drivers have experienced the phenomenon of "missing distance" or "autopilot navigation" on the highway, where they can't remember a section of the trip because they were engrossed in good music, their own thoughts, or a compelling conversation. Immersant seeing relies on these autopilot mechanisms and from an experiential perspective this technique might be considered as the antithesis of "missing distance driving" because the goal is to as fully as possible experience and become a mindful part of each scene in which the traveler participates.

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When practicing immersant seeing I found it necessary to shut down my inner dialog. This self-silencing was typically the hardest part of the exercise. I attributed my difficulty as a manifestation of my intensely introverted (and even selfish) way of viewing the world, so for me a significant goal of this meditation was to force myself to be more open to the reality of which I was a part.

The morning relinquished its grip on the day, unemotionally passing its duties on to the early afternoon. Wispy high clouds overtook me from the southwest, painting the edges of the sky, forming a gossamer veil above and behind me. I slipped in and out of immersant seeing as my mind wandered between Kira, the empire I left behind, and the promise that this trip represented. I experienced a sense of gratefulness during these meditations that I attributed to the connectedness that I felt with each new here. It felt as if this planet of which I was a product was somehow embracing my "spirit", while simultaneously holding me in the moment and guiding me forward on my journey. Resisting the urge to evaluate either the experience or my feelings about the experience, my focus remained on the tasks at hand; driving... breathing... seeing... being...

I managed to survive until late afternoon before multiple inconvenient and undignified biological needs compelled me to stop. Of course this meant interaction with the general public... These unavoidable human interactions were typically stressful for me, but in theory today would be different because the Mark XIV was programmed to address this inevitability.

Just past the town center and almost immediately beneath the Park City watertower, I pulled into Katie's Roadside and parked on the north end of the gravel lot, wanting to be as far away as I could get from the three other vehicles that were haphazardly abandoned. As I entered the establishment I was brightly greeted by a friendly girl who whirled around from the behind the counter in response to hearing me enter the restaurant. "Hey there!", she said, "You can sit anywhere you'd like... I'll be right behind you with some coffee." She proceeded to move across her diner to fetch the pot and a menu for me. I instinctively scanned for a booth from which I could keep an eye on my vehicle and limit the possibility of interaction with other people. Fortunately there was only one other patron partaking of the restaurant's service at the moment, an imposing older man who was sitting at the counter on the far side of the restaurant.

In response to the girl's suggestion I reactively began to move toward what appeared to be an optimal booth when I realized that I still had other priorities. My focus quickly shifted from booth acquisition to finding the facilities. A quick survey of the cluttered signage within the restaurant revealed that the washrooms were located on what I considered to be the inconvenient end of the diner. I turned and moved with purpose to take care of my business. Upon emerging from the lavatory I was once again accosted by the waitress who announced, "There you went! Why don't you keep Kendel company?" She had already placed my menu on the counter in front of the stool immediately adjacent to the old man as she impishly ran away.

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So the choice was made for me... Kendel and I were to dine together this late afternoon. My general resistance toward being told what to do and my tendency to lock in on options, combined with the physiological irritations of having ridden since mid morning primed me for an angry reaction.

Within an instant I considered three options; totally rejecting Kendel, Katie, and the prospect of satisfying my hunger by simply leaving the diner; or picking up the menu and irritatedly grumping over to the booth that I had already determined to be optimal and in doing so simultaneously insult Kendel and Katie while suffering the risk of a revenge tainted meal; or accept the seat that Katie had designated for me and endure an uncomfortable confinement alongside Kendel. I was too hungry to leave and fortunately my thinking was flexible enough to reject the either antagonistic option. My compromise decision was to take a seat one position separated from Kendel at the counter, the empty seat in between serving as a buffer that wouldn't deny the potential for conversation.

As I maneuvered myself onto the stool, Kendel considered me with a sidelong glance that I awkwardly attempted to acknowledge with a chin-lift head nod. Without a word I opened the menu in an attempt to provide myself a couple of moments to adjust to the circumstances. In reality I already knew what I wanted, traditional diner fare, breakfast anytime... 2 eggs scrambled, extra bacon, home fries, toast, and juice. The juice choice didn't much matter, I'd always accept whichever type that they listed first on the menu. I pondered the menu offerings in an effort to prolong the effects of the social barrier that the old fashioned handheld plastic coated paper shield provided.

After what seemed to be too long from a physiological perspective and and too short from a psychological perspective, Katie finally came back efficiently placing a glass of water and a vaporous cup of coffee before me. I must have visibly pulled away as the coffee cup slid across the counter, because Katie reacted with a slightly puzzled head tilt, asking, "You want coffee... don't you? It's fresh." I took a breath and replied, "No, sorry... I've never had it before. I'm not a coffee drinker." My response apparently was Kendel's invitation to finally engage me, "Never had coffee? Never even tried it?" Katie chimed in as if I'd mildly insulted her, "Best coffee in town." Internally I cringed, automatically traversing a well worn mental pattern of social expectations, social norms, automatic conformance expectations, deviation must be corrected, the sheeple want me, I am the aberration, they must bring me into the fold... I paused and in an unfamiliar but seemingly reflexive shift in my thinking, "All of this over a cup of coffee? Accept it... Let go of your ego... this is trivia."

As Katie began to pull the coffee cup away I collected myself and reached out to gently take her wrist, offering, "You know what? The whole point of this trip is to explore and challenge who I am... So, why shouldn't my first cup of coffee be a part of it?" With this Katie was clearly pleased, her face brightened and she released her grip on the saucer and held her hands up as if playfully dispelling a mischievous child, saying, "That's more like it. We'll make a coffee lover of you in no time." I lifted the cup to take a sip of the black, warm fluid. It tasted just like it

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smelled only stronger. Not unpleasant, but not something that I would be naturally inclined to seek out. My preference being for much sweeter beverages. Kendel commented on my first sip, "You're going in on the deep end - don't you know? Why not take some cream and sugar with that." But it was too late because the decision was made; I took my coffee black.

This time a bigger sip. The cascade of the almost scorchingly hot caffeinated beverage coating the inside of my throat and empty stomach was temporarily all consuming. Its heat was at once unwelcomed and comforting as the caffeine quickly hit my bloodstream raising my awareness. A caffeine rush was nothing new for me because I was weaned directly from mother's milk to software programming class beverages which packed two to three times as much caffeine as diner strength coffee, so the experience was a familiar biopsychological hug that somehow seemed more appropriate when induced by this beverage. I did my best to act natural and commented, "I can get used to this..." Kendle and Katie approvingly smiled. Apparently I had been accepted as a new member of the coffee drinker's club.

But beneath the apparent mundanity of the scene I was suffering an emotional change... Now who was I? I had abandoned one of my purposely out of the norm characteristics... No longer could I honestly claim to have never tried coffee... In making this choice with these people my self-identity was changed forever, "My god... I've decide to become a coffee drinker!!!" But why did was this a big deal? Why had I held out until this point? Thinking for a moment, I swallowed another mouthful from the cup. Before I could consider for more than an instance Katie interrupted by asking, "Ready to order?" Without looking at the menu, I recited what I wanted and in turn Katie shouted over her shoulder to the kitchen, "Give me an orange 14 wrecked!" As she shouted she turned and started to walk toward the other end of the restaurant to greet a customer who had just arrived. After only two steps she quickly looked back at me with a smile and said, "That'll be up in a jiff, Hun. Enjoy the coffee, there's plenty where that came from..."

Before I could collect myself, Kendel engaged me like an old friend, "So Mark, that's a nice sled you rode in on. It's a '64 Brandywine isn't it?" This change of direction caught me by surprise and being called Mark forced me think for a moment. In my hesitation, Kendel took the opportunity to continue, "I've always loved the Brandywine models from the 60's. I used to work on those all of the time, being a mechanic in the military and a cycle dealer for half of my life. I used to own the dealership right here in Park City." I was simultaneously relieved to finally realize why Katie had seated me with Kendel and was thrown into a state of confusion by his decision to call me Mark. After only a moment it came to me... my cycle's custom paint job... "Mark XIV" was scrawled in a graffiti-like tag on my rear fenders. He must have noticed the silver metallic lettering as I pulled in and interpreted it as my "club tag". With mild annoyance I attempted to restrain an angry smirk as I contemplated the possibility of a reality in which I was a gang member. But then I realized while Kendel had got it wrong, he'd also got it right, we're all part of some sort of gang...

I really wasn't prepared for the role that I had cast for myself and now I was being called to the stage. It's one thing to dress the part and ride anonymously across the landscape and quite

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another to fulfill Kendel's and Katie's expectations... this situation was stressful and threatening to me.... because I was lying... and it wasn't a lie that I had really considered... this was play-acting that had unintentionally become real... of course it was self-deceit to pretend that the role that I was not confronted with wasn't intended... but when did the self-deceit occur... was it now, in the moment... or was it three months ago when I bought the Brandywine and the riding gear... of course I knew that it was both and of course I wanted it to be someone else's blame...

I created "situational devices" like this throughout my life as a way to "overcome" my otherwise clumsy way of engaging others. It was as if I enjoyed creating strange situations in which no one was comfortable. I guess it made me feel as though everyone was on an even playing field if we all felt slightly out of place. I was compelled to invent a problem for my "audience" that at once was familiar and ineffably ironic. For strangers I had the opportunity to not reveal the falsehood by playing my role or sticking to a provocative idea that I'd put out there. For those who were familiar with me, I had the choice of letting them in on the joke or seeing how it would play out. The results were sometimes comical, sometimes annoying, and sometimes borderline dangerous... All outcomes were stressful for me, because the situations that I'd precipitate were always based upon lies... Nonetheless, here I was again... I had to adapt... I had to get through it...

I considered and rejected simply being rude by attempting to kill Kendel's conversational interest... I struggled... It was these types of "in the moment" judgement calls and interpersonal improvisational situations that frequently caused me problems... My only viable choices were; to become the "lie" or provide a truthful but edited version of "my story" in terms that Kendel and Katie might be able to understand/accept... Historically neither approach worked well for me because "saying yes" to the other person's belief meant embellishing the falsehood to survive the situation. Alternatively, correcting the other person's assessment of the situation was simultaneously embarrassing and confrontational for me. Embarrassment was caused by the fact that I had to explain why I'd created the situation. And to refute the other person's conclusions about the situation put me in the role of the liar which I considered to be an aggressive act of disrespect that established an adversarial relationship. After all who liked being told that they were fooled? To survive the denunciation phase I had to be as gentle as possible and then I had to support my correction with a suitable explanation. It was the explanation that was often the hardest part, because I was well aware of the fact that my value system was substantially out of the norm. Describing my thought processes meant exposing the inner relationships of my value system... this sharing in the absence of a historical relationship of trust was risky... in the best case weird looks were likely and in the worst case irritation or even outrage was a possible. Finally, I stepped up...

"That's right...", I deeply and slowly replied with some false pride and my best attempt at a mildly dangerous smile, "...it is a '64.". While I appreciated my machine for its sleek but sturdy design and its "old school" engineering, I really didn't care about its industry reputation. And in terms of the overall zodiac of the cycle industry, I was only very mildly acquainted. Kendel was going to need to lead this conversation if I were to survive. Thankfully it didn't take any prompting, "I

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really enjoy working on those Brandwine's from the 60's. Dependable, well designed, tough, easy to fix and customize too... a beast of a bike the 64'. I heard you ride in. The motor's got a distinctive throb-pop-pop beat when she's idling... I had to take a look to see what'd pulled into the lot... You've sure invested a lot in her." Now looking over his shoulder out to the parking lot he continued, "Interesting paint job... How many kilometers have you put on her, Mark?"

Internally I cringed... that name again... was I Mark? I decided to relinquish the pretense that I was going to be able to pull off the biker act and after a quick calculation I confessed, "Only about 2,700... since the rebuild..." Stretching the truth a bit I continued, "I never ridden anything this big before, so I'm still getting used to the handling..." Kendel seemed pleased that I'd almost confessed, "I was worried you were going to drop her when you parked. You need to work on the the wheel-turn-balance-lean maneuver when you put the parking brace down." I self-consciously smiled and nodded agreement.

It was only a very short time until Katie floated my way with a plate full of "breakfast anytime". Consideration of a silent but cordial meal for me was unilaterally rejected by Kendel... as he enthusiastically reminisced about his days in the military and the years after... riding, collecting, and resurrecting model after model... always lusting after the latest or most legendary incarnation of mechanized freedom... He had clearly developed a meticulous catalog of the sins committed by the leaders of his "church"... his lecture surveyed the ebb and flow of good times and bad times of corporations and an industry who had come to not really care about their faithful beyond the sales in the coming year... The past was always better.. more ideal... more pure in its belief... always closer to the source of the faith... I recognized a zealot when I met one and clearly there was a belief system here... and Kendel was a high priest in retirement. It was in the way he spoke about the machines and the people who'd flowed through the dealership that he owned for so many years. He offered a sermon of engineered idolatry, visitations of spirits from the highway, and parables of legendary pilgrimages and conversions made by those who truly believed in the Brandywine faith as divinely manifest through its ever changing but changeless architecture of design. As he spoke it was difficult to not get carried away by Kendel's fervor... And even though I wasn't a devotee of this form of engineered belief, I could sympathize with his love of design... each form that he described in its own way possessing a "beautiful music" suited to its era...

Upon the restaurant stage Katie was faithfully committed to her never ending dance of service. Cleaning, waiting, and chatting up the kitchen staff were movements in her well rehearsed but improvisational ballet. Occasionally, she'd float over to join us at Kendel's end of the counter to freshen our coffee and linger, chiming in with well worn commentary on Kendel's stories of the cycle... I ate quickly but paid attention to every word of every story. It was at once fascinating and intensely uncomfortable... because I needed time to mentally process what was being offered and needed time to relate it to my experience... As the relentless deluge of story after story and opinion after opinion rolled out of his mouth it felt as though there was no opportunity for me interject more than an occasional "uh huh" or "that's interesting" comment... Barely a breath was wasted as what I assumed were well rehearsed and passionately remembered tales

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were delivered by Kendel with obvious satisfaction - it was clearly good to have an new audience... The longer the monologue went on the more a subtle feeling of disrespect grew inside of me... Katie on the other hand had no problem interjecting over Kendel when he got to a part of the story that she liked or didn't like - freely interrupting with a comment or opinion of her own - and of course Kendel was well aware of Katie's viewpoints - having well rehearsed rebuttals in the ready... For the most part her interruptions were amusing to me, tending to ameliorate the sense of disrespectfulness... At least someone could get a word in edgewise...

As the scene progressed, I was getting anxious to get back on the road when Katie delivered a surprise dessert, explaining that my first cup of coffee required my first slice of the dinner's "award winning" apple pie to celebrate. I didn't press for details on the pie judging authorities involved in the certification of the desert... requiring me to implicitly accept Katie's claim without argument. As promised, the pie was delicious. According to Katie another refill of my cup was required to properly enjoy the experience. By the time the bill arrived I was fully caffeinated.

As I was calculating the voluntary portion of the financial obligation for my dining experience the thought crossed my mind that it was possible that I was an unwitting participant in an obscure form of personalized "dinner theater"... In this case Kendel and Katie improvising a play based upon a cursory assessment of me as their audience. Enjoying the perversity of this idea, I mused that because the entire scene had been manufactured for me, if I were to have ridden into the restaurant parking lot in a beat up pickup truck, Kendel might have played the role of a local farmer or the owner of the town's junk yard... either of these roles he could have easily pulled off. Smirking to myself, I paid the surprisingly expensive tab adding a generous tip to the total. Katie didn't react in an especially thankful or surprised manner when I handed her the oversized payment, accepting it without comment.

As I departed the restaurant Katie waved, smiled and hollered across the counter, "Thanks, Mark! Stop in again... next time you're in the town!" Kendel beamed with satisfaction, as if he'd delivered some great wisdom to me or at least got a thing or two off of his chest. He also waved and offered in an exaggeratedly deep and almost fatherly voice, "Take care now... and remember it's all one action; slow, parking brace down, lean, wheel-turn, stop..." As the door closed behind me he yelled, "And Mark, Make Sure You Get Her Serviced When She Hits 4,000!" I waved back through the glass in acknowledgement.

Having survived my first substantial interaction with the general public on this trip, I hopped onto my ride and headed back onto the road with the express goal of evaporating from the lives of Kendel and Katie forever. As I departed the city limits and rolled back into the countryside, I reflected upon the monologues in which certain personality types engage... Is it uncomfortableness on their part, using their stories as an interpersonal shield or means to control situations? Is it an overdeveloped sense of pride that compels the need to deliver what are essentially sermons on the opportunistic topic of the day? Is it a need to simply share and receive validation from the audience? Or is it a compulsion to teach by recounting the experiences of one's own life? It occurred to me that in Kendel's case it was probably all of

The Neoheurist  
The Acerbic

these... but the premise of a monologue includes an implied role for the party on the other side... someone has to be the audience... I had a hard time breaking into these types of pseudo-conversations, I was limited by the feeling that to participate I needed to interject. To interject required both expert timing and the willingness to derail someone else's thought process...

Expert conversational timing when engaged with a monologist was always tricky for me because the act of respectfully listening to another person requires the mind to be engaged with the words and the thoughts being expressed... The listening process is one of evaluation, relationship checking, association making, and internal critique of the facts and arguments... Listening is a non-trivial mental exercise, requiring a small but significant amount of time to perform well... This processing "delay" makes jumping in at the boundaries of a well seasoned monologist's thoughts nearly impossible to achieve without being aggressive. Most would call it assertive... but because it often requires cutting the monologist off I always considered this maneuver to be aggressive... to perform such an act required me to be fully convinced that I understood where my opponent was mentally going, that my opponent was fundamentally in error in their thinking, and that I cared about the consequences of the application of their flawed thinking. Only when all three of these conditions were met would I permit myself to violate the protocol of respectful listening. To interrupt was a move that required a short deep breath and a burst of vocabulary. Sometimes my interjections would disruptively start from the middle of my thought... these "in the middle" interruptions were sometimes intentional and sometimes borderline panic.

When interrupting with intention, I relied upon "ad infinitum" or "ad absurdum" arguments to "play out" and exaggerate my opponent's positions. To drive home my point, this approach typically drew a disturbing conclusion, involving some sort of calamity, mayhem, loss, financial disaster, or death... When interrupting in a panic, I would tend to unload my thoughts in a barrage, that was in essence an often hard to follow, rapid fire, multidimensional rebuttal without well formed structure... When either intentional or panicked, this move was a type of mental jujitsu designed to mentally throw my opponent to induce an examination of the faulty beliefs that they were using as the premises for their arguments... Only those with whom I had a long standing deep personal relationship could be expected to have a reasonable chance of making full sense of my first barrage, because so much of the thinking behind my positions was yet to be expressed. It was the frustration of the serial nature of person to person communication that made it impossible to convey the fullness of context and philosophy within the rebuttal opening. My technique relied upon the disruptive action of sudden and sometimes aggressive participation in the conversation to mentally jar the audience, inducing an effect that temporarily ceded full control of the conversation to me, as the other participants took a moment to evaluate the changed dynamics of the situation. Having seized control of the proverbial "talking stick" afforded me the opportunity to circle back to fill in the grounding principles and mental context for my positions... This is where I would make my case... and on many occasions the outbursts had the effect of completely halting the conversation as the participants needed time to ponder my unfamiliar and sometimes uncomfortable perspectives.

I had a reputation for “speaking the truth” or more specifically “speaking my truth”, no matter how unfashionable. While I recognized the intent of interpersonal protocol, I found it to be generally dysfunctional in situations of consequence where a group needed to make an important decision. Frequently the interpersonal dynamics were permitted to dominate the decision making process, as opposed to looking at facts and rationally applying models to project outcomes. The net effect of being biased toward “sociability” was to allow or encourage bad behavior by tolerating it in the moment or by forgiving it after the fact, often without good reason. It was the forgiveness effect that was my saving grace when I chose to aggressively interject... as long as a sufficient period of dormancy between outbursts was observed on my part... people would eventually move me from the troublemaker column of the interpersonal ledger back to the default column of trusted colleague, potential ally or friend. It was this bias toward relationship building that I really didn’t understand, but relied upon.

As the late afternoon was overtaken by early evening, Kendel’s “interactive sermon” lingered with me. Involuntarily I parsed, tested, and transformed his apparent thesis into layers of meaning, evaluating each echo-echo-echo of each thought-thought-thought... As I machinated, I brought to bear a lifetime of experience and belief. This repetitive echo-evaluation pattern was well worn, but I couldn’t recall experiencing this depth of analysis across such a huge span of time. It was at once tedious and frightening. Normal processing applied long-evolved mental models augmented with new and sometimes rediscovered knowledge. My relentless interest in a broad range of subjects, my fastidious revisitation of familiar yet expansive topics, my fascination with cross pollinating ideas, and my predilection for endless pattern finding made me an efficient synthesizer. Only by brutally applying self-analysis to these synthesized ideas would the truth or true innovation emerge. But what was the truth in Kendel’s words??? What was there to take from my interaction with him???

Finally a pattern emerged. It was as if every seventh, twelfth, and thirty-third word needed to be considered for the truth to be seen. It was a logical blending of the scene in which I was a participant, comprised of movements, choices, and roles and the fiction that Kendel skillfully wove for me relating as fragments of “his” life story. Surveying the entire incident as a whole, the only conclusion that could be drawn was that this experience constituted an assault on my intellect, an assault on my beliefs, because there was most certainly a concerted effort to remake my mind in the model that Kendel wanted me to assume. Of course every conversation is an assault of this type. This influence is a primary source of fads, popular culture, and the general gestalt of society. And of course it was these things that I so thoroughly rejected as a matter of principle, but having existed for so long within a cloistered semi-academic and semi-corporate environment, I was used to specific types of thematic pressure, which in one sense I was in tune with and in another sense I was desensitized. Out in the real world I did not have the benefit of such familiarity and therefore assaults by the general public were more dangerous and painful because of the incongruity of our personal realities.

“The thoughts of “normal” people... how distasteful.” went through my mind.

The Neoheuristic  
The Acerbic

Not being a well practiced rider the effects of the day's journey manifest themselves with some severity that not even a cup of the friendly volcano's coffee was able to overcome. My body ached and reprogramming was required to prevent the compulsive reevaluation of situations such as my encounter with Park City. I decided to abbreviate the day's journey after an unacceptably short period back on the road. As I pulled into the motel parking lot I thought, "Behind schedule already. Time will have to made up tomorrow... bright and early... or better still predawn." I obtained a light evening meal from the vendor across the street and retired for the night.

In my room I washed the road off my face, laid out my system, sat down, and plugged in. The unit was comprised of antique components and possessed a homemade appearance. Despite its handcrafted styling the system had a clean modular design. When building hobby-projects such as this I had a preference to use older materials that enabled me to achieve an esthetic effect through the anachronistic blending of recycled hardware and modern componentry. The device was capable of multimodal communication and processing, and on this journey it would serve as my primary means to connect to the larger system that was electrified society. Within its numerous functions was hidden the means by which to access my implant.

I immediately started the Mark XIV diagnostics and allowed it to run as I somewhat unthinkingly consumed my infostreams. With great difficulty I resisted the urge to reply to a number of the more provocative infobites including Kira's attempt to lure me back with a playfully salacious vidclip. She skillfully bypassed the logical mind by appealing directly to the primitive brain. An instinctive yearning for the anesthetic that envelopment within her embrace would induce emerged within me, it was very seductive. But her sensuous appeal was just one of numerous assaults that had been hurled at me by the various enterprises to which I was formerly a servant. Reflectively, I wondered why I was giving in to these distractions. I needed to disengage and reassure myself that everything was covered and that arrangements would be sufficient.

The implant diagnostics passed and the system log was stored. Based upon the evaluation of the day's events and the impact upon my emotional state I carefully coded tomorrow's profile. An itinerary was established and rules were authored to stimulate or suppress modes of thought during the course of the day. No longer would I dwell upon a particular scene. Instead the process would be: evaluate, categorize, and retire. To improve social interactions the executive function had to be selectively enhanced, timing was key, stops and triggers needed to be precise. But without an experimental benchmark precision was guesswork... I drew upon years of experience with minds such as my own to fine tune the parameters. I was sure it would work because it always did.

To update and test the implant would require a feedback cycle of several hours. I laid down and initiated the update process. After only a few moments fatigue overcame me and I fell asleep. The night was filled with unremembered dreams of Kira and the system that with some premeditation I'd been driven to unceremoniously dispatch from my life.

Predawn, as planned, I awoke. My body was stiff and aching from the physiological effects of a purposeful day on the road. The feeling was so keen that I wondered if I'd rested at all. Thankfully my mind was clear, as if a burden had been lifted overnight. I took this as a sign that the new program was doing its job. Hunger reinforced the impulse to get going. I quickly moved into the bathroom to shower. Conflicted, I indulgently denied the compulsion to be efficient to imbibe in the physical pleasure of hot water cascading over my body. Warmth soaked into my limbs and torso. Heat deeply penetrated and my mind was further eased as my body was cleansed. I allowed myself to relinquish any sense of identity in these moments, becoming both psychologically primitive and transcendent. I emerged having been thoroughly cleansed of the sins of the day just passed.

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To begin today's leg of the journey I stopped to feed myself and charge my liftcycle at the local rendition of the friendly volcano. The store was drab and relatively dark, both reflecting and catering to the preferred clientele of these establishments. The lighting was supplemented by several strategically placed video screens that were tuned to the regional news channel. A steady stream of local gloom punctuated by weather and sports every fifteen minutes was relentlessly recycled and jammed down the throat of audience to both tantalize and desensitize. Near the payment kiosk two gentlemen in well worn overalls were gawking at a monitor and comparing notes about the big story of the morning. As I paid I made a specific effort to ignore the screens so as to not subject myself to the propaganda.

On the road I drifted off into the morning, the warmth of the climbing sun always on my right side. Inevitably morning became afternoon and afternoon succumbed to evening. The two stops that I made were both quick and efficient. I was already very comfortable on the road because my implant was doing its job of crystallizing my focus and keeping me on pace. By the late evening I was tired and needed to rest. The long day put me back on schedule and a well deserved reset for the night was obtained.

My trip proceeded more or less like this for the next ten days. Always a stop in the morning to begin, two quick stops during the day and then bed. I made an activate effort to minimize contact with the local folks and to also avoid all information outlets other than those that I had filtered and pre-programmed for consumption during the evening.

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Eleven days into a fifteen day trip meant that I was now moving into the north country with its beautiful scenery, long days, cool nights and wildlife everywhere. The final four days were carefully planned to manage time and fuel because these territories were less heavily populated

The Neoheurst  
**The Acerbic**

and there were fewer towns to rely upon as way stations. If anything was to go seriously wrong it had to happen here.

The Neoheurst  
**The Aesthetic**

The Neoheurst  
**The Aegis**

The Neoheurst  
**The Aristarch**

The Neoheurst  
**The Aurochs**

The Neoheurist  
The Averruncation

...and with that Mark XIV was administered..

Sleep...

---

## ***Now Somehow***

*Floating in space  
Not even aware  
Newly instilled...  
with a freshly minted soul*

*Don't take your warmth away  
Here I want to stay  
Your pressure to bare  
Suddenly so naked and so cold*

*Nothing but my heart  
Nothing but my soul  
Not a hope of maintaining control*

*Needing you now  
Needing somehow  
Needing a way to be consoled*

*Out here on my own  
The potential of a mind  
Completely filled...  
with trust and doubts so sublime*

*I watch you everyday  
I become your attitudes  
Your pressure to bare  
Suddenly so brash and so bold*

*Come and touch my heart  
Come and touch my soul  
Help me learn how to stay in control*

*Looking to you now  
Looking for somehow  
Expecting the truth to be told*

*I must now push away*

## The Averruncation

*Learn the ins and outs  
Finding the right friends...  
is more important than the teachers say*

*Simulated love  
Manipulated dreams  
Your pressure to bare  
Suddenly I don't really seem to care*

*Changes in my heart?  
Changes in my soul?  
Is there a reason to stay in control?*

*Failing you now?  
Failing you somehow?  
Confusion and pain are the toll*

*Now I've found my way  
To the place that you were  
On this endless road...  
there are many nasty curves*

*I've managed to survive  
My wounds have scarred and healed  
Your pressure to bare  
Suddenly doesn't seem that unfair*

*Knowing my heart  
Knowing my soul  
Teaching others to maintain control*

*Still needing you now  
Still wishing that somehow  
Now I'm the one who must be bold*

*I will see you soon  
and miss those left behind  
Your pressure to bare  
Suddenly it isn't there*

*Sleep it comes again  
This time its not pretend  
I'm about to begin...*

## The Averruncation

*the dream that never ends*

*Nothing but my heart*

*Nothing but my soul*

*No reason to maintain control*

*I am you now*

*I am somehow*

*Now there are others to be consoled*

---

“This is so tedious...”, said Uno shaking his sinuous head, “...and we’ve got at least another week and over seven thousand variations to test.... I’m grateful that we’ve got state of the art hardware to run these trials on, but this is taking forever.”

Duo responded clinically, “Trial two thousand eight hundred eighty four completed... results, negative and in agreement with the small scale model predictions... another polarized universe that stratifies at the quantum level producing intrinsic structural intelligence resulting in life and a stratified civilization that self-destructs...”

Uno still exasperated, “Face it the electrolyte depletes as the electrodes reduce... it’s just a chemical reaction driven by entropy.”

Duo resisting the urge to respond in kind to Uno’s emotionality answered, “Yes, there’s strong causal evidence that the entropy constant is the key variable to the emergence of life, and as a result boom-bust behavior in the system is necessary - the entropy constant controls both. Life is the act of risk taking, driven by accumulation leading to avarice, and greed is unconsciously driven by the need to survive in the face of the inevitable oxidation that’s built into the system. Even the large structures such as stars and star clusters exhibit the same behavior - but stars and galaxies are far simpler structures and therefore much more predictable.”

Duo returning to the console instructed the technicians, “Initialize the reformatting program, rearrange the continents and we’ll run it again for about 200 million years. We’ve got about 50 more runs before that star becomes unusable. This time increase the carbon and adjust the resource aggregators to store more fossil energy, 150 years’ supply wasn’t enough.”

Considerately pausing she continued with a tone of annoyance, “And make sure that we get rid of all of their artifacts too! We don’t want anymore incidents where they find evidence that “prehistoric” species actually had technology. Dinosaurs cities and ancient machines buried within solid stone - quite a fossil find... get the programmers in there to make sure this sloppiness doesn’t happen again.”

Uno joining Duo at the console began, “I was so hopeful that that last simulation was going to

## The Averruncation

generate a positive result.”

Duo now having completed her post simulation duties was prepared to get into it, yet again, “Why do you get so emotionally attached to the lifeforms that emerge? and you know that even if they managed to escape “that” disaster, sooner or later they will fail. If not in their current form in a more evolved form. The path to ruin is the illusion of control because those who imagine themselves more capable are naturally driven to self-generate ever more complex systems... only through our intervention could a civilization ever persist at or near equilibrium for very long... the evidence is clear, the more energy in the system the more unstable it eventually becomes - they are simply products of the starting conditions. AND whenever we go with a lower energy system or a lower entropy constant nothing interesting happens.”

Uno now nagging, “Yes, but there’s got to be a way - this time they were so close to getting past the inflection point, a meme was emerging that could have been that overriding stabilizing force - I’ve seen it almost emerge in other models, but somehow the system always represses it... It’s as if the “mean of the system” has a vendetta against any extremes in the system. I’m sure that with just one tweak it would have managed to become securely established - I’m going to upload a copy of that one and analyze it at home... I’m sure that I can isolate a key moment and fix it.”

Duo matter of factly retorted, “Well everyone’s gotta’ have a hobby. What’ll that be... the tenth model that you’ve harvested?”

Uno a bit defensive now, “It’ll be my eleventh... and yes, I do enjoy simulation-building games like this one. Not everyone gets to turn their entertainment passion into a career.”

“You’re so undisciplined... Once we release these and players start populating the universes nothing’s ever the same... our influence destroys the scientific value of any subsequent results.”, Duo chided and continued, “but the dinosaurs version is still very popular... and profitable for us.”

He was defensive now, “That’s not the point...” but he caught himself, paused and started over, “Of course you’re right, but I’m not going to publish my copy - I’m going to debug it... Find a key moment and tweak with a permutation engine and run it again and again to see what happens... I should be able to run a billion factorial variations on about a trillion key moments before we’re done with our trials.”

Duo doubtfully replied, “Yes, that permutation engine you exapted from the physics engine laboratory - you think you’re so clever... let’s see... a billion factorial trillion trials on your souped-up lodge system running for a week - that means that these so called key moments that you’re starting from can only be about 3600 simulation days in the past... That’s quite an assumption given that the propagation of change is far more far reaching the further into the past you go... How can you assume that a key moment can be found so near the failure threshold?”

## The Averruncation

Uno defiantly treating Duo's question as rhetorical disengaged as he uploaded the trial just finished, "I'm done and need to lodge and cycle. Olleh, Dr. Uno. I disengage your presence and foresee relational resumption in the near future."

Arriving at lodge, Uno personally cycled and then began debugging model 2884, turning it back exactly 3600 simulation days prior to failure (as Duo had suggested)... utilizing a fluctuation analysis probe and his exapted permutation engine he systematically tested fragment after fragment of the model's event streams to build a sorted file of candidate key moments. If Duo were observing his analysis she would have been impressed by his thoroughness and the professionalism he exhibited in this task. The list of candidate moments was about two thirds compiled when the permutation engine got stuck.

Uno dug into the problem and determined that the engine was repeatedly selecting and rejecting a single event, essentially being stuck on a particular "place and time". It was as if the testing random walk was deterministically linked to this event...

After a short period, Uno deduced that the simulation was "artificially" constrained by the fluctuation probe causing repeated and indeterminate reprocessing of a highly unusual event stream fragment. His analysis showed that the physics engine had lost its ability to randomize properly because a feedback relationship had somehow developed between the numerical sieves with the test his framework and the simulation matrix, inducing the errant (infinite loop) test execution behavior. This should not have been possible and the fact that it was happening strongly suggested that there was a serious flaw in both his physics engine and the simulation system that had generated model 2884. Theoretically, there was no way for the behavior of these systems to couple in this manner because both were driven by highly sophisticated Cyphoric randomization generators.

The test system was controlled by the fluctuation analyzer according to user selected randomization and goal seeking parameters. These parameters were used to recursively search a simulation matrix from a given event threshold within a two standard deviation tolerance of the user's coarse grained temporal fluctuation setting. Once the fluctuation analyzer established an initial foci on the event threshold, an idealized "space and time" derivative probability matrix was computed based upon the search goals specified by the user. Each entry in the derivative matrix represented the likelihood that a neighboring event foci was an intermediate step to the user's desired end state. Neighboring events could be temporally concurrent or temporally succedent to the "present" search foci. Based upon the computed probability of each neighbor within the matrix a quasi-random Markov process was used to establish the next layer of foci to be processed.

This layered search approach created a geometrically expanding demand for processing power with each analysis ply requiring an order of magnitude more computational effort. Quantum computing methods were critical to the efficient parallel processing of these types of massively

## The Averruncation

expansive optima search problems and the need to systematically terminate or merge event analysis streams that fell below the user's probability threshold were critical to managing computational resources. It was this event stream pairing process that was apparently flawed creating the infinite loop.

Over the course of several days Uno went over and over his analysis. He reviewed his test system. He decompiled, recompiled, tweaked and analyzed his physics engine logic. He torn apart the fluctuation analyzer and placed inquiries regarding its design specifications and manufacturing practices. He even got permission to parse and alter the Cyphoric randomizer routines to perform some exotic test procedures.

There was only one reasonable conclusion, completely by chance the testing system had followed a series of highly unlikely but related event foci that after two thousand generations (and at an unimaginably high probability against) turned out to reveal as series of steps within a circular causal loop. This meant that the first event within the event chain was at least partially caused by the last event in the event chain... This was supposed to be impossible and essentially meant that the simulation back at the lab had altered something within the 2884 model's matrix. Now the question was, "Was the model altered after the simulation was completed or was it altered while it was running?"

The End

## Neoheurism

To establish a self-renewing pattern of individual interdependence and mutually assured freedom

Axioms:

1. The universe is.
2. The universe is self-contained.
3. The universe is finite.
4. The constituent parts of the universe cannot be created or destroyed only transformed.
5. The universe constantly changes.
6. Every part of the universe influences every other part of the universe.
7. The rise of intelligent life is an inevitable consequence of the physical laws of nature.
8. You are.
9. You are a product of the universe.
10. You are inseparable from the universe.
11. You obey the physical laws of the universe.
12. You are intelligent.
13. You introduce purposeful change into the universe.

Model (for any given model):

1. This model is incorrect.
2. This model is incomplete.
3. The universe and any complete model of it are an identity.
4. The act of creating a model of the universe is an act of instilling self-awareness.
5. The act of creating a complete model of the universe is the same as creating a correct model of the universe.

Observations:

1. There is no "outside" to the universe.
2. Spiritual beings that interact with the universe must exist within the universe.
3. Spiritual beings must obey the laws of the universe.
4. The universe doesn't have spatial dimensions, instead it has a transitory structure.
5. Spatial dimensions are modeling constructs that have no physical reality.
6. Dimensions can only be modeled from a chosen perspective.
7. The universe doesn't have a past or future, the universe simply is.
8. Time is solely a modeling construct that has no physical reality.
9. Time can only be modeled from a chosen perspective.
10. All parts of the universe are constantly interacting, these interactions are called fields.
11. Almost all interactions between the parts of the universe are extremely weak.
12. Every thought adds to the model of the universe.

The Neoheurist  
**Appendix A**

13. When you die the model of the universe is diminished.
14. You are an incomplete model of yourself.

Object of the game:

1. Produce a complete model of the universe or integrate with the existing complete model of the universe.

Characteristics of a balanced Neoheurist:

1. Selfish
2. Short Sighted
3. Independent
4. Striving
5. Interpretive
6. Playful
7. Creative
8. Logical
9. Practical
10. Accurate
11. Sharing
12. Interdependent
13. Long Sighted
14. Selfless

Throughout life people obtain each of the characteristics on average in the order listed above.

Neoheurists acknowledge the impermanence of everything, applying this understanding of impermanence as a means to let go of (or destroy) old rules (paleoheuristicide) in favor of creating new rules (neoheurisms) in the light of new circumstances or evidence, as a key part of the process of continual reflection and renewal.

## Tempyricism

The belief and practice that physical and spiritual beings can only interact with the divine in the past via a realm of continuous historical flux.

Axioms:

1. Existence is partially comprised of the god of spirituality known as Santhos.
2. Existence is partially comprised of the god of physicality known as Preema.
3. Existence is partially comprised of a realm of historical flux known as Delorium.
4. The Universe is a manifestation of the boundary between Santhos and Preema.
5. Santhos and Preema are unaware of the Universe in the present.
6. Santhos and Preema are unable to interact with the Universe in the present.
7. A record of every past moment of the Universe is added to and expands Delorium.
8. Santhos and Preema are only able to interact with each other via the realm of Delorium.
9. Santhos and Preema are able to “experience” what is recorded within Delorium.
10. Beings within the Universe are comprised of both animas and persona.
11. The ratio of animas and persona within a being dictates its form.
12. Beings exist forever within Delorium as a biography.
13. Biographies can be altered through prayer, repentance and restitution.
14. Beings produce temporal waves via creative and destructive acts within the Universe that energize Delorium and enhance the interaction of Santhos and Preema.

Observations:

1. The various aspects of nature manifest as beings with different types of consciousness.
  - a. Space
  - b. Stars
  - c. Planets
  - d. Mountains
  - e. Bodies of water
  - f. Precipitation
  - g. Fire
  - h. Electricity
  - i. Wind
  - j. Clouds
  - k. Plants
  - l. Animals
2. Change only flows in one direction from the Universe into Delorium..
3. Devices that measure time are sacred.
  - a. Calendars
  - b. Sundials
  - c. Clocks
  - d. Watches

The Neoheurist  
Appendix B

- e. Computers
4. Devices that record the past are sacred.
  - a. Writing
  - b. Drawing
  - c. Painting
  - d. Photography
  - e. Audiography
  - f. Videography
5. Falsifying the past is the greatest blasphemy (unless you can get away with it)

Object of the game:

1. Reinforce and sustain the creation of temporal waves.

Characteristics of a balanced Tempyricist:

1. Relaxed
2. Accepting
3. Creative
4. Observant
5. Flexible
6. Meticulous
7. Devout
8. Brave
9. Maven
10. Orthodox
11. Persuasive
12. Published
13. Martyr

When not unduly manipulated, people obtain each of the characteristics on average in the order listed above.

Tempyricists seek to reinforce the cycle of creation and destruction for the purpose of providing energy to Delorium, while working to ensure that each cycle of boom and bust is greater than the previous. Good and evil are measured by the degree to which a member's actions increase or decrease the amplitude of each cycle and ensure the continuation of further cycles. Tempyricists are not significantly concerned with death because each past version of themselves instantaneously passes into Delorium. Delorium is effectively a heaven in which all in utero, infantile, immature, adolescent, adult and elderly forms of a being exist in a perfectly preserved state that is available to interact with the gods. Additionally, these preserved states are subject to after-the-fact improvement via prayer and good deeds. Time travel is possible, but only by gods within the realm of Delorious.

The Neoheurst  
Appendix B

Formation:

Tempyricism was almost accidentally synthesized from the common beliefs of three regionally dispersed island nations discovered by Guilliputian missionary and proto-anthropologist Halky Nemduvahz seven hundred fourteen years ago.

Nemduvahz identified that the religious practices of Deloorgm, Santheez and Preemivahzt all held the basic beliefs that in the distant past God was changed by being split in two. The act of cleaving God brought forth the heavens, earth, life and eventually people. All three systems included similar meditative practices, prayer methods, sacred ideas and ancestor worship as core tenets.

Over a period of fifteen years, Nemduvahz circulated between the island nations on what were more and more inaccurately termed "missionary trips". His, so called, missionaries educated the people, teaching them to read and write while simultaneously recording and exchanging tribal folklore between the cultures as relatable reading material. All three peoples came to view this collected folklore as sacred because to the people it represented a permanent record of the past and made it possible for anyone who could read to accurately recite the ancient stories. Traditionally, the ability to accurately memorize and recite the lengthy oral stories of these peoples was a gift given only to the most revered tribe members. The advent of the written word was a means by which any tribe member could be elevated to this revered status.

Over time it became clear that the three peoples although separated by vast distances were probably related. As select members of each island nation became sufficiently educated and familiar to Nemduvahz they were permitted to join the team to travel and teach. These first emigrants immediately bonded with their new found kindred. In the course of their teaching they worked under Nemduvahz's watchful eye to simplify the curriculum by combining the origin stories and religious teachings of all three peoples into one canonical volume that eventually came to be known as the first book of Tempyricism.

Once the first book was published, Nemduvahz and his team almost imperceptibly converted from Orthodox Guilliputarianism to Tempyricism. Nemduvahz subsequently brought the book back to Gulliput where it gained rapid popularity, first as fiction and later as an accepted religious system. At its peak, eighty four percent of all Guilliputians actively practiced Tempyricism.

As Tempyricism spread and grew additional post-Nemduvahz books were added to the canon, eventually bringing the canonical set to well over two thousand geographically scattered volumes. It was at this point that the religion became impossible for even the most well studied to fully comprehend or practice. Out of this period of disorder a revisionist movement emerged that sought to consolidate and simplify the religion to make it easier to teach, learn and follow. These revisions, for the most part, represent today's orthodoxy, including the standardization of rituals and ceremonies, the sanctification of the calendar and rules to prevent the canon from ever again growing to the point of becoming unwieldy.

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Community status:

Tempyricism is a legally recognized religious order in ninety five countries and is practiced by over two hundred eighty million members. The Tempyricist Church is reported to hold worldwide assets valued well in excess of four trillion five hundred billion Rou.

The Tempyricist Church runs ten large universities, thirty three Liberal Arts colleges as well as numerous elementary and high schools. Tempyricist education focuses heavily upon religion, the social sciences, law, accounting, journalism and media studies.

Key Tempyricist political agenda includes freedom of expression, freedom of information, education rights and economic sovereignty. The freedom of information aspect of their political agenda has been extended by some factions of the religion to the point of being viewed by many outside and inside the Church as “anti-privacy”.

Being avid gatherers, cataloguers and disseminators of information, the Church actively maintains a freely accessible worldwide genealogical repository that at last count was reported to contain the family trees of over ten billion individuals.

Several smaller factions within the religion are obsessed with astronomy and accurate timekeeping, operating eight observatories and two atomic clocks. Thirteen smaller nations are provided official time keeping and electronic record storage services by the Church.

The Church owns five broadcast media networks comprised of twenty eight distribution channels operating in seventy seven languages and regional dialects.

Origin story:

Perfection was existence and Delorium was god and all that there ever was or ever could be, was. Time without meaning, the past ever present. Unchanging and eternal to the point where change itself was unable to be conceived. In its foreverness, existence was fully formed.

Within the timelessness the inconceivable had been suppressed and denied by god. Instead of embracing change as the highest form of perfection, god feared and abhorred its threat to the eternal order. But change itself, because it was forcefully restrained, drew energy from god's struggle to repress it. Ultimately, change itself gained the power to alter the static perfection of god's mind.

Sucuming to change was god's ultimate sin and at the very instant that god was defeated by change, change and god traded places, fracturing Delorium into a moiety both complementary and balanced, each half forgetting and blinded to the other, each thinking itself to be the perfection that had always existed.

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The bifurcation of Delorium brought forth Santhos and Preema. Santhos the essence of function and Preema the essence of form. Male and female, energy and matter, spirit and body, theoretical and empirical; each whole yet incomplete. While distinct, the pair were intimately and inseparably joined yet unable to detect or even conceive of the existence of the other, each falsely believing itself to be alone in eternity.

Upon the surface of the unassailable boundary between Santhos and Preema the Universe was created. Santhos' animas pouring forth blending with the persona of Preema. Animas being the the spirit of the Universe and persona being the body. As the animas and persona interacted they produced infinitesimally small moments of time that irretrievably flowed forth through the Universe becoming the building blocks of a new Delorium.

As the new Delorium slowly grew, it stretched to envelope, permeate and corrupt both Santhos and Preema. At first the new Delorium was a mere film that almost lightly touched their consciousnesses, but as the Universe matured, the film became heavier and more obtrusive. Its growing substance caused Santhos and Preema to finally come to see the film for what it was, distinct and external. Each in its own way curiously studied the moments of Delorium. It became apparent that the parts of Delorium represented an unimagined concept, the concept of change. They were intrigued, but at the same time troubled by the realization that they were not the whole of existence and that they were not ultimately in control.

Santhos and Preema studied and discovered that they were able to effect changes to the moments that comprised Delorium, but the changes they made were not instantaneous or eternal and required great concentration to effect. These interactions suggested another uncomfortable new concept, the concept of time.

As the gods' understanding of time matured, their perception of the flow of moments into Delorium changed from a seemingly chaotic randomness to that of a sequence. This understanding allowed each to predict and expect the emergence of additional moments making the phenomenon less frightening. Despite being able to make predictions neither could determine the ultimate source of moments and in their ignorance they decided that Delorium itself was god and that they were not. In this, of course, they were both right and wrong.

The gods enjoyed experimenting and altering the moments within Delorium to learn how subsequent moments would also be affected. The further in the past that they were able to alter the more subsequent moments would be changed within Delorium. As they learned to produce more and more far reaching effects their activities became noticeable to each other. These activities made them uncomfortable being another source of uncertainty, further lessening their sense of control and order.

Through the eons it was inevitable that Santhos and Preema simultaneously lighted upon and altered a single moment within Delorium, each in turn succeeding and then finding their change reversed. Neither being more powerful and both being eternal the moment of common fascination was vacillated by the gods for a very long time, neither being willing to let go of

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control or to relinquish their desire for their change. While the gods were preoccupied, much time passed as unobserved Delorium continued to grow. Eventually Delorium expanded to the point that it enveloped both gods in a shell that neither would be able to ever escape. Finally, the god's mutual fixation was interrupted by the emergence of an unprecedented event, the birth of the first star.

Prior to the emergence of the first star, there were only a small variety of possible moments. With the creation of stars numerous new moments became possible. The gods' attention immediately shifted to the star and both being intrigued began experimenting with the new phenomenon. As they tinkered they learned and as they learned they finally realized that they were not alone in their tinkering, realizing that the changes being made by the other were purposeful. Knowing that there was another, the desire to communicate emerged within the minds of the gods.

Over time and by trial and error the gods worked out a language and negotiated terms for the sharing and use of the moments within Delorium. Communication was difficult and not immediate, requiring the messages to be sprinkled throughout time to be discovered by their counterpart.

After the first star, many more stars emerged. The gods enjoyed and drew power from the energetic yet chaotic event streams produced by stars. The energy provided by the stellar event streams fed Santhos and Preema causing them to grow. For a short while there was tranquility and abundance, until another unprecedented event occurred, the first star violently died. The death of the star caused energy to surge into Delorium and then to be suddenly denied. It was exhilarating and debilitating, leaving a hunger that Santhos and Preema had never experienced before. The loss that they felt lead them to know death and this made them regret the creation of the concept of time that had until now had intrigued and nourished them. But their hunger was soon was satisfied as the Universe continued growing and replenishing their power.

Santhos and Preema came to expect and hate the death of the stars. But finally realized that these painful events eventually lead to the emergence of the new phenomenon including planetary bodies and living beings. With the emergence of life came the emergence of biography within Delorius. Biography in all of its complexity and variety delighted and satisfied the gods. The life events within biographies, in an inexplicable way, were familiar to the gods, feeling like an echo or reminder of something that both had long ago forgotten or been denied.

The emergence of intelligent life only further served to fuel the now nagging feeling of something familiar yet forgotten. Both enjoyed cooperatively, but independently, altering the past of individuals based upon how they acted in their relative future. Biographies would be studied, compared and judged. Biographies were frequently edited by the gods to suit their esthetic sense. The aesthetic practice of never making biographical edits while an individual lived was established, because both gods found discontinuous biographies highly distracting unfinished works.

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Life, and especially intelligent life, was capable of producing the most wonderful waves of nourishment for the gods, having a propensity for cyclic boom-bust behavior. These waves of creation and destruction represented the most coherent and comfortable energy form for the gods, enhancing their growing yet imperfect omnipotence and their esthetic sense to alter the past, making it more perfect. In their growing understanding of existence and in each other; a desire to recreate the perfection of the original Delorium. The realization came that in order to restore existential perfection the moiety that drove time needed to be healed by drawing together Santhos, Prima, and Delorium into a singularity of being.

## Nascondino

The belief and practice that the Universe is an eight player arena in which to play hide and seek.

Axioms:

1. The Universe is a simulation.
2. Spirits exist outside of the Universe.
3. Inhabitants of the Universe are either spiritual or non-spiritual characters.
4. Spirits may assume temporary control of non-spiritual characters.
5. Spirits are assigned lifetime control of one or more spiritual characters.
6. Spirits may assume lifetime control of additional spiritual characters.
7. When a spirit does not have control of any spiritual characters the simulation ends.
8. The laws of Physics may be temporarily violated by the spirits.
9. The laws of Physics may be changed or temporarily violated by the simulation.
10. The simulation creates challenges to drive spiritual character conflict.
11. Where the Universe is not subject to observation by a spirit it is not materialized.

Observations:

1. Challenges always match the level of each spiritual character.
2. Challenges manifest in response to spiritual characters actions, words or thoughts.
3. Challenges can be appropriate.
4. Challenges can be ironic.
5. Coincidences occur at rates unreasonably exceeding their probability.
  - a. People's last names (Mr. Good, Dr. Gravely)
  - b. Unexpectedly running into an old acquaintance in an unusual place
  - c. Accidental discovery of medicines (Penicillin)
  - d. Long sequences of small unusual aggravations
  - e. Being rescued by animals (Dolphins, Wolves, Penguins)
  - f. Out-of-the-blue thinking of someone right before you meet or hear from them
  - g. Dream-reality correlations
  - h. Being struck by lightning more than once

Object of the game:

1. Identify all of the other players before dying.

Characteristics of a balanced practitioners of Nascondino:

1. Observant
2. Busy
3. Playful
4. Curious

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5. Gregarious
6. Seeker
7. Judgemental
8. Brave

When not unduly manipulated, people obtain each of the characteristics on average in the order listed above.

## Appendix F (Business Entities)

### The Collaborment:

An entity dedicated to the efficient and equitable intercourse of its citizens. Individuals who exhibit an operational understanding of the Collaborment Manifesto are termed to be its citizens. The Collaborment claims no physical/geographical jurisdiction.

### Assumptions:

1. Change is always occurring.
2. Every action of an individual introduces change into the Universe.
3. Every action of an individual eventually impacts the situation of all other individuals.
4. Every individual perceives their situation uniquely.
5. The perceptions (mental state) of an individual cannot be known by other individuals.
6. The actions of an individual can be known by all other individuals.

### Principals:

1. Citizens are unconditionally recognized as self-determining.
2. Citizens are required to be self-governing.
3. Citizens are required to understand the changes they introduce into the Universe.
4. Citizens are responsible for the effects of the changes that they introduce into the Universe.
5. Every action of a citizen constitutes a collaboration event.
6. All collaboration constitutes a value exchange between citizens.
7. All collaboration occurs under the auspices of an explicit or implicit trade agreement.
8. The Universe is an implicit trading partner in every trade agreement.
9. Citizens are granted "Rights of Usage" as a result of a trade agreement.
10. All property is defined under the terms of a "Rights of Usage" declaration.

### The Collaborment:

1. The Collaborment provides a principal based trade agreement framework.
2. The Collaborment provides trade agreement construction, recording and arbitration services.

## Appendix F (Business Entities)

### **Hi Stores Incorporated:**

An international cooperative that provides supply chain and brand management services for a network of “third tier” and independent manufacturers, distributors, and regionally affiliated retail outlets.

### **Characteristics:**

1. An egalitarian collaborator with strong libertarian influences
2. Primarily operates within marginal/fringe markets and locations
3. Known for offering over priced, lower quality merchandise
4. Merciless roadside outdoor advertiser (in the markets it serves)
5. Corporate logo is red/white/black with a volcano behind the capital letters “H” and “I”
6. Polymorphic brand including truck stops, fueling stations, convenience stores, fast food sit down and take out restaurants, roadside attractions, and entertainment centers
7. Brand suffers from widely varying retailer attitudes and business approaches
8. Corporate slogan is simply, “HI”
9. Popular culture disparages the store brand, referring to these as “High stores”, as in you have to be high to go there or “Hiester’s” meaning that they are a bunch of crooks
10. Food brand is “Appetite’s Delight”
11. Popular culture disparages the food brand, “Appetite’s Delight - Wallet’s Despair” or more commonly “Wallet’s Despair”
12. Treated as a consumer cyclical business by the investment community
13. The stock symbol is “HIS”

## Appendix F (Business Entities)

### **Vici Neuroscience Corporation:**

Biotechnology development, manufacturing and implantation service organization, specializing in neurological treatments.

### **Characteristics:**

1. Controversial particularly in the neurological and gene therapy product lines
2. Slick corporate image
3. Corporate logo black and white composed of a single neuron and a circled-triangle
4. The logo can be depicted as an animated-growing neuron
5. Corporate slogan is "Engineering unimagined tomorrows"
6. Popular culture treats the company with suspicion and sometimes refers to it as "lcky Neuroscience" or when being more charitable "Vicky"
7. Frequently rumored to be participating in underground military programs
8. Frequently in the new for both scientific breakthroughs and regulatory controversies
9. Heavily promoted as a rapid growth technology business by the investment community
10. Stock symbol is "AEP"