THE DESTINY OF HUMANITY

JONATHAN BANNON MAHER

"I am confident that this book will surely attract much public attention to the important task of building a peaceful and prosperous world for all."

Norodom Sihamoni, King, Cambodia

"It is the kindness of people like you that continue to renew my confidence about what we, as Americans, can achieve together."

Jill Biden, Office of the Vice President, United States

"I should take this opportunity to wish you success in all you set out to accomplish."

Mohammed VI, King, Morocco

"A pointing of horizons and goals to which we must be aware… the quest for harmony and a blend of attitudes that could reach the heights of the global and total dignity of human beings."

José Maria Neves, Prime Minister, Cape Verde

IN MAY OF 2011, THIS TEXT WAS SENT

TO THE LEADERS OF EVERY COUNTRY

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I wrote and edited 100% of this text.

INTRODUCTION

A peace and prosperity that may now seem beyond the grasp of human nature, will soon seem as distant a memory, and impossible a task, as landing a man on the moon. I do not believe this because of hope, but because I recognize that the obstacles that lay before us are not nearly so great as the obstacles that lay behind us. Anger between nations will subside, as we enter a new era, enabled by technology that can overwhelm misunderstanding with communication, ignorance with knowledge, and fear with hope.

In this book, I explain why I believe peace is derived from prosperity, prosperity from innovation, innovation from education, with health care to sustain the equation. We face formidable challenges to be sure, but have within our power the ability to embark upon a new era of peace and prosperity and in this text I explain the steps we must take to get there. The significance of this text is not so much in what I am offering, as in what I am asking, for if we are to build such a world, we must build it together.

In preparing this text, I asked myself the ways in which we are structured for peace and prosperity and conversely war and poverty, and evaluated the relationships between and science underlying individual components in a way that has not been done. From that I have worked to develop a coherent and comprehensive

vision for a practical plan of action to lift humanity above the oppression of war and poverty – this is the challenge of our time. If you find the ideas in this text to be of value, I ask the following: first, your support, and second, that you publicly endorse or cite this book. I am only the author, you must be the courier.

I explain this vision for peace and prosperity through my life experiences from which it was informed and developed, and that I hope will add useful context and depth. While I recognize that my life experience may not make me a representative population sample, I also hope to sufficiently illustrate the universal fundamentals of the human condition. I would also like to point out that I am only 29 years old, and reserve the right to expand upon and correct ideas and information in this text. I have done my best to ensure that 100% of the text will withstand all scrutiny and represents my self, experiences and ideas in a way that is comprehensive, balanced, fair and accurate.

There are those who may say such an endeavor is audacious – what could I know at this point in my life? And there are those who I've met throughout my life that have not liked me knowing only that I'm gay, that I've had some unearned opportunities, have been misinformed, or occasionally it's simply that bad people have a bad reaction to me. However, I have never once in my life had someone get to know me and not like me, an opportunity substantially available in this text. So to those people I say that it may be best to remember the wisdom of the ages found in the ancient Latin saying, "ante iudicium ambuletis passus calceati – sic sis passus et

es calceati" which translates as "before you judge someone you should walk a mile in his shoes – that way you're a mile away and you have his shoes."

Sailors once looked out at the horizon, anxious and uncertain of their course, because the world was flat. We must not make the same mistake. We must not compete with each other, but with the past, for our citizenship is bound not by borders and oceans, but by this small oasis that hovers among the stars.

It is the destiny of humanity to build a peaceful and prosperous world for all. The choices we make today, the bridges we build, the roads that we take, will determine whether we will have left that future to bloom or wither when our final suns set. Our guiding star must always be the understanding, that as humans, in this infinite universe, all we have in the end is each other.

TOPICS

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ABOUT

My story begins on June 21st 1981 at Mount Sinai hospital in New York City. As the first born to my mother somewhat late in life at 33, she had left her job to care for me and poured all of her love into me. She and my father had been together for several years and married shortly before I was born.

My great great grandfather, Jonathan Bannon, for whom I was named, was a shipbuilder in New York, the proprietor of Bannon & Sutherland Shipyard in the late 1800's. The launching of his ships onto the Hudson River were, in his time, community events that would draw a large crowd. He at one point had as an intern future Democratic National Committee Chairman James Farley who was widely regarded as responsible for orchestrating the rise of Franklin Delano Roosevelt. His son Thomas, worked in the New York State Department of Water, Gas & Electricity for 50 years and helped build the aqueducts that brought water to New York City. His son Thomas, my grandfather, whose brothers were in the armed services, served as the Vice President of Finance at both the New York Medical College and the Aerospace Group of General Precision, a consultant to the National Institute of Health, and was a professor at Fordham Graduate Business School.

On the other side of my family, my father's father, Richard Maher, built a successful textile importing business, Crescent Mills, and was one of the first to travel across Asia to buy denim for clients including Levi Jeans Company. My father's grandfather, Charles Gallic, was brought over from Ireland to New York in the late 1800's, along with his three brothers. He later became a Vice President of the New York Stock Exchange.

My parents are both the oldest of many brothers and sisters, making me the oldest child of two oldest children. My father has 5 brothers and sisters including my uncle Peter Maher who served in combat as an Army paratrooper. My mother has 5 brothers and sisters, including my uncle Peter Bannon, who was awarded a combat commendation medal while serving as a Marine in Vietnam and later played a news reporter in the Academy Award winning film Forest Gump. I have a total of about 20 cousins.

My parents are both fundamentally good natured. My father is the most fair, generous and understanding person I have ever known and my mother is toughest and most honest person I've ever known.

My father grew up on Long Island just outside of New York City. He studied finance at Georgetown in Washington, D.C. during the Vietnam War. For 35 years he has worked on Wall Street, advising primarily on United States Treasury bonds to institutional investors.

My mother was born in Brooklyn and raised in northern New Jersey. She was brought up going to Catholic schools where nuns would hit you with a ruler if you were unruly, and it was urban legend that her high school had a Spanish inquisition style spanking machine in the principal's office that would be used on you if you misbehaved. She later studied psychology at Marquette University in Wisconsin, and worked briefly as one of the only women on a Wall Street trading desk at Bankers Trust, while taking night classes at New York University's graduate business school, until the time that I was born.

In the earliest years on my life, I lived in Manhattan. My mother would regularly take me to Central Park. She would put me in the sandbox, aside all the other kids, and I consistently took the first opportunity to take off, explore the wooded areas of the park, and talk to homeless people.

In 1984, my family rented a house in Ridgewood, New Jersey where I could be contained in a backyard. Shortly thereafter my younger brother Andrew was born at the town's hospital. We had our own backyard with a swing set, something that was new and exciting to me at the time. That year I started pre-school at the West Side Presbyterian Nursery School, where I studied crayon drawing and finger painting. Two years later, my parents took out a loan and, a few blocks away, purchased what was a relatively large but initially plain house.

At our new house, I held neighborhood fairs, inviting the Petersons, Cummings, Geliebters, Mondamalies, Dubes,

and Crevis, among others. In addition to my parents, I found a supporter for my fairs in my neighbor Joyce Peterson, who encouraged my entrepreneurial pursuits. I walked around to each house talking with parents and selling tickets. At the fair, there was face painting, bean bag toss, and rides in my red Radio Flyer wagon.

I started kindergarten at Willard Elementary School. My teacher Mrs. Yearing asked us if any of our parents would be willing to come in and share with the class about their job. I told her that my father sold government bombs. She said that sounded very interesting, and wanted to see if I could get him to come in and talk about it. She approached my mother, and asked her if he would come in and talk about selling government bombs. My mother told her he sold government bonds. That must have sounded a lot less interesting to her, because apparently my father was never invited to class to share.

I had an endless fascination with books on history and how things work, and was particularly enamored with mythology and ancient Greek and Roman history – Alexander, Hercules, Achilles, Prometheus, and the rise and fall of the Roman Empire. Among my favorite books were The Way Things Work, The History of the World, D'Aulaire's Book of Greek Myths, Corduroy Bear, The Polar Express, The Little Engine That Could and Where The Wild Things Are.

Beginning in probably kindergarten and continuing through college, I could frequently be seen toting a

backpack brimming with books. And up until middle school I would wear inside out bright orange jogging pants – I thought the seams were uncomfortable — and had a bowl hair cut. Occasionally I would make quacking sounds, probably from watching too much Donald Duck on T.V., and sing to myself. None of this made my social life any easier.

I was in the Cub Scouts and then Boy Scouts, which would meet in the classrooms and auditorium at my elementary school. I personally found the Cub Scouts to be a more engaging developmental experience than the Boy Scouts. I collected merit badges for first aid, navigation with a compass using topographical and terrain maps – which I would later make use of – and demonstrating my ability to tie more knots than anyone could ever use, the only purpose for which I found to be when my younger brother bothered me.

In elementary school I choose to sponsor a Manatee. I think I found out about the opportunity through either school or boy scouts. Manatees are similar to dolphins but not as cute and were being hurt by motor boat engines in Florida. There was a student donation level of I think $5 per month, which I made for I think 2 or 3 years, earned through my neighborhood fairs, selling wrapping paper door to door at the holidays, and for doing extra work around the house. Reading about the Manatees became something of an obsession and I looked forward to each update in the mail. However at some point I realized that no matter how the people working to save the Manatees explained their work, the

Manatees just kept dying and it wouldn't stop with any of the help that organization or I could provide at the time.

During elementary school, my father worked at an investment bank called Drexel Burnham Lambert. I used to get up early every morning to watch a double header of She-Ra and He-Man just outside of his room while he was getting ready. He would typically leave the house by 6:30 am and get home between 7:30 and 8:30 pm. Those hours were spent on a trading floor, which is an unusually intense work environment. Though he usually tried to be home for dinner, when I saw him at night he was often exhausted and didn't really want to talk, so mornings were about the only time I got to spend with him.

I would on occasion go into his office, which I always enjoyed. It was a big open trading floor in downtown Manhattan in New York City. The people he worked with would usually coordinate to bring their kids in at the same time. There always seemed to be large boxes of rubber bands lying around, and I would have shooting contests with the other kids. The office had the largest photocopier I had ever seen, and I would put my brother and the other kids who were visiting on it and make copies.

The house that my parents had bought was done so with the expectation that my father would to continue to earn a substantial and steady income. In 1988, when the bank he worked at went unexpectedly bankrupt, he found himself without a job. For a period of time, my mother

would have me clip coupons from magazines and newspapers of all the things I wanted to eat.

I didn't realize it at the time, but my first crush was probably on a classmate in the 5th grade. I had tried to get him to come over after school for the entire year. He finally agreed, and when he called to tell me he was about to walk over, my mother told me he couldn't come over for some reason I can't remember and I went up to my room and cried.

I had a fascination with dragons, dinosaurs and mummies and would collect books on the topics. Whenever possible, I would get my mother to take me to walk around the Natural History Museum in New York City. I spent several years digging up our entire backyard, cracking open nearly every rock I could find looking for fossils. I found a few shell fossils, but never any dinosaurs. I later wrote my first book about a dragon. I liked dragons because they look like dinosaurs but are better because they have special powers.

Every couple of weeks I would be out in front of the house selling something – old books, Legos, Matchbox cars. It was a prime sales location, high traffic, or certainly what seemed like it at the time. Some times I would advertise around the neighborhood, other times I would just count on people passing by. My mother later told me that because she couldn't stop me, she sat inside by the window the whole time I was out there to make sure no one tried to steal me. When I wasn't doing that I

would balance my mother's checkbook and process her bills and correspondence.

In the 7th grade, after a year or two of small roller hockey games with friends from school, I went to the Parks & Recreation Department of the Village of Ridgewood, and told them I wanted to start an official roller hockey league. They said that if I collected enough signatures, they would reserve the town's basketball courts for my use. I got enough signatures and named the league the Dragons. It's still in operation today.

My favorite T.V. shows involved superheroes such as Superman, He-Man, Captain Planet, and the Bionic 4. I used to want super powers, and thought that if I followed some of the things they did in the show, it might turn out that I actually had superpowers.

My Mother would play piano most nights for probably an hour and was as good as any piano player I'd ever heard. As a result I learned how to play piano at a very early age, developing digital dexterity which I think naturally transitioned me early on to using a computer keyboard and playing the guitar.

My parents had an Apple computer in the house since my earliest memories. I used to love playing a game called Math Blaster – every time I answered a series of problems correctly a rocket would take off. My early experience with computers, helped get me get an early start on writing software, when in the 5th grade I ordered a book through the mail called BASIC – it was a

deceiving name for something resembling an unabridged dictionary. Programming probably turned out to be the most valuable skill I've ever learned, as I've used it at nearly every job I've ever had.

I started taking guitar lessons in 6th grade at Victors House of Music. The teacher there wanted to show me what he thought I should know – scales, reading – not what I wanted to know. He told me I needed to know theory before I could play any songs, which turned out to be completely false. Those lessons lasted about 3 months.

For a multi-dimensional array of reasons I loved writing software — if you got the multi-dimensional joke, you're a nerd. I've found that guitar and writing software both require not only talent but a lot of work. And from watching others try both, I've come to the conclusion that if you don't love something it's impossible to be the best and hard to be great.

In the 7th grade, after scoring in the 99th percentile on the spatial reasoning section of a standardized test, I was invited to go to a summer program for the gifted at John's Hopkins University. I also qualified on the verbal section. I believe the kids at school derisively called it nerd camp. An invitation required scoring in the 97th percentile or higher on one of three sections. Of the kids who had already declared their intention to go to Ivy League schools, none had scored as high as me or qualified more than once for the program, which had the unintended effect of further diminishing my interest in school. I decided not to go because I didn't see the point.

I was subsequently briefly put into some sort of group at the school that met once a week and was facilitated by an outside counselor, because according to the school my test scores didn't correlate with my grades. I would say that my grades had correlated with my scores, because I wasn't going to spend time on coursework that wasn't appropriate for me. Most of the students in the group turned out to be special but not gifted. With the new friends I made, I got sent to the principal's office more than once, and my mother quickly had me removed from the group.

My mother dressed me up as a flower one Halloween. I don't remember if I was a sunflower or a daisy, but I think she was trying to match me to the curtains she'd put up in the house. While I have never been the sharpest dresser, I swear that this was not my idea. That Halloween I went out trick or treating with my best friend at the time Peter, who had a particularly large My Little Pony doll collection. Peter, as I found out many years later, also turned out to be gay.

In 1989 I wrote to several state and world leaders asking for autographs and think I may have mentioned something about taxes to the President of the United States. I got responses from the President and Vice President of the United States, the Queen of England, the Governor of New York and the Mayor of New York. My younger brother took my letter from President George H.W. Bush to school and I never saw it again, though I still have a photo from Vice President Dan Quayle that reads "to Jon Maher, with best wishes." I've always

found that the most important people I wrote to wrote me back, the rest didn't.

In elementary and middle school my mother would leave me at the Ridgewood Public Library after school until around the time it closed. I don't think I ever once saw anyone I knew hanging around, and it was a little bit lonely, but I found companionship in the people I would read about in books. She would drop me off in the basement which housed the children's books. I was not content with that limited selection of knowledge, and ventured off into the main library even though my mother told me not to. I would collect the most interesting books I could find and sit in a corner and read as many as I could before she came back to pick me up from the basement.

One of my family's favorite vacation spots was a small community in Puerto Rico, Palmas del Mar, where we would go for many years during Spring Break. It was my favorite vacation spot second only to Disney World. I would spend my days in chameleon catching contests with my brother, body surfing and occasionally surfing. We would never hurt the chameleons and always let them go. In order for one of us to receive credit for the catch, we had to show it to the other and I would take careful note of the appearance of my brother's chameleons to make sure he didn't try to claim the same catch twice. The most notable violation I can recall is when he tried to pass off a chameleon with a gimpy leg twice, as if it weren't bad enough he had claimed the catch the first time.

While visiting Puerto Rico one year in middle school, I came home to wash up before my family went out for dinner and watched out my bedroom window as an elderly woman rummaged through a dumpster, taking our cans and left over food. My father walked past my window, and approached the woman with cash in hand. Nothing was said. My father walked back into the condo and the woman fell to her knees uncontrollably crying.

I always enjoyed science projects including baking soda and vinegar volcanoes (which made a mess in my mother's kitchen), a button wired to a ringer and battery for my bedroom (if my parents tried to enter without ringing my doorbell I would make them close the door and ring first), a miniature motorized car and a Linux computer both built from pieces I had ordered through the mail, and a chemistry kit for mixing various reactions. I learned to appreciate electricity when, hoping that the battery powered car I built from mail ordered parts would go faster, I cut a long piece of wire, attached it to a socket plug, and plugged it into a standard outlet. I got severely shocked and my car started smoking. I think I internally burned my arm muscle but didn't tell my mother because she would have stopped my work.

I spent many summer nights catching fireflies. I would wait for dusk when the fireflies would overtake the night sky. I would catch some, put them in a ventilated jar and leave them next to my bed, where they would sleep along side me glowing intermittently throughout the night.

Beginning in the 6th grade, I was fortunate enough to have as a teacher Dr. Joe Rose, a scholar of ancient Latin literature, always ready to relate any event to a story or quote taken from ancient times. When I would ask him for advice it often came indirectly through a quote or story such as "when you look back on your life, you'll regret the things you didn't do more than the ones that you did", "ignorance isn't bliss, it's just ignorance" and "alea iacta est" which is Latin for "the dye has been cast", a reference to what Julius Caesar said just before crossing the Rubicon river to take the Roman capital. I'm thinking "I'm in 6th grade, cut me some slack here ok?" For my 8th grade project, I translated as best I could, Virgil's Aneid, in the original Latin, and compared it with a popularly translated English version, and found that astonishing liberties were taken in the professional translation. Dr. Rose was also the coach of the high school's freshman football team and later moved to the high school to teach, where I continued to study with him. Possibly my favorite part of his class was when he would play Hercules and Xena T.V. episodes the day after a major exam.

The 8th grade was the first time someone thought that I was gay, which had not yet consciously occurred to me. I had a friend from school sleep over, who I was not at all attracted to, and shortly thereafter he publicly claimed that I had tried to get him to take a shower with me, which was totally false. For the next few years, he and his other friends, some of which had also been mine, did whatever they could to give me a hard time. And also for

the next few of years, when I thought I had a crush on a girl, I would often make it known.

During my 8th grade graduation ceremony at George Washington Middle School, I was one of two students to be awarded the Presidents Physical Fitness Award. The award was based on a series of tests including a timed run and a pull-up count. I was particularly proud of the accomplishment given my allergies and light asthma.

I started a web site hosting business during the summer between 8th and 9th grades. The websites were hosted on my own computer connected to the Internet through an ultra high-speed 33.3kbps modem in my basement. After finding speed and reliability issues on the computer while running other programs, I leased space with one of the only other web hosting companies on the Internet. The business went through 3 names, Internet Communications, then !NetHost! (because Yahoo! listed site names that started with an exclamation point at the top of their increasingly crowded Internet directory), and finally simply Host1, after the domain name of the site (transferring the registration of the domain each time). My few clients came from banner ads that I ran on a website called Matt's Script Archive. Matt provided free computer scripts that would email the contents of submitted form to a specified address, a message board and a guest book. The advertisement noted that I had pre-installed the most popular of Matt's scripts for client use.

When I was around 13, my mother and father were having substantial relationship problems, which combined with my father going out drinking more often than he should, led him to start going to Alcoholics Anonymous, a group where people whose drinking has caused problems in their lives provide support and guidance to each other.

Frequently on Saturdays, my father and I would go look at gadgets at Brookstone and the Sharper Image at the Paramus Park Mall. In addition to looking at gadgets at the mall, and building my own at home, I watched quite a bit of Star Trek with my father and developed a fascination with the possibilities of technology and space.

SPACE EXPLORATION

&

COLONIZATION

"So many centuries after the Creation, it is unlikely that anyone could find unknown lands of any value."

King Ferdinand to Christopher Columbus, 1482

It is in our nature to take to the stars. Humans came out of caves, looked at the horizon and traveled to it, came to the sea and traveled over it, and as we look to the stars we will travel again until we find whatever is next. A person could once go no faster than a horse could carry him, yet can now travel faster than sound and farther than the sky. As we have found a way to imitate the sun in a light bulb, and lightning in electricity, we will find a way to build ships that travel as fast as shooting stars and carry humans on a journey trillions of miles into the universe allowing not only for the exploration but the colonization of space.

In this process of development and discovery, in the emptiness and infinite possibilities of space, we will come

to see that which unites us is greater than that which divides us. As we collaborate in exploration, we will come to see our differences minimized in the context of an infinite universe.

Such endeavors will require new engines, and new energy production and storage systems. Until such a time that the mining and colonization of other planets becomes financially self-sustaining, governments must continue and accelerate the coordination and financing necessary for development of such technologies. Combustion engines use chemical reactions to propel a ship, can only be so powerful without damaging the ship, and are not renewable so have a finite distance capacity. Electric engines will need to be built that can accelerate fan blades in proportion to the amount of energy provided or that can efficiently convert electrical energy into propulsion. These engines will need to allow a ship to reach a minimum speed of several thousand miles per hour in order to move from the Earth's atmosphere into space.

Because such engines require substantial and sustained energy, adding the turbulence and gravitational forces of substantially accelerated travel to a nuclear reaction may not be wise. Solar energy collection would be limited by surface area, and there isn't flowing water or sufficient wind. Presently, energy collected from the heat generated by the decay of molecules, isotope energy, provides sustained energy to some ships but is not renewable and comes from toxic sources. Spinning discs suspended by magnets in a vacuum, effectively provide

unlimited storage capacity – limited only by the speed of the rotation – and instant discharge, as detailed in the section on energy. A collection of these discs could be charged to capacity before a ship departs, and can be recharged by solar energy collection and storage facilities near the sun that use concentrated high intensity light to transmit energy to the ship. There can even be ships whose exclusive purpose is to collect geothermal energy on Earth, a source described in the chapter on energy, and transport it to space to refuel other ships.

Albert Einstein proposed that no object could move faster than the speed of a light photon in a vacuum, as a light photon has no mass and a vacuum removes all friction. The speed of a light photon in a vacuum is approximately 300 thousand miles per hour. However, Einstein didn't account for external molecular combustion acceleration as solar storms have been tracked between two satellites as travelling at millions of miles per hour. Einstein also said that "There is not the slightest indication that [nuclear energy] will ever be obtainable. It would mean that the atom would have to be shattered at will." If ships are to travel at the speeds necessary to explore the universe, the pressure on the human body from traveling at such speeds would have to be counteracted by a field generated around the passenger compartment that exerts an equal and opposite amount of directional force, possibly by partially redirecting and circulating engine output to generate a magnetic field.

As matter from the explosion that created our universe collected into spheres, some combusted and formed stars. Because mass has gravity, a star that is sufficiently massive collects these moving planets. Our Sun for example, has a mass more than 300 thousand times that of Earth. There are estimated to be billions of stars such as our Sun that have circulating planets. Fossils of algae have been found on Mars dating to when the planet had surface water, so 2 out of 9 planets circulating our Sun are known to have sustained life. It then seems logically impossible to not have additional life in the universe. I'd bet there are an effectively infinite number of life forms in the universe, originating from an effectively infinite number of random chemical reactions, most less evolved than algae and some more evolved than humans. The potential for all life in our universe began at the same time — when our universe was created. If our universe was generated by an explosion of matter, then it is likely that there are other universes, and possibly an effectively infinite number of universes, each with its own elements and laws of physics. It is likely that any species that has the technology to visit Earth also has the technology to detect our technology including orbital satellites.

There are planets that are billions of years older than Earth, and life on Earth may have originated and evolved from primitive organisms frozen inside of foreign planet fragments crashed into the Earth in a natural version of artificial insemination. These would have been created after the originating planet's life sustaining star burned out, the planet froze and collided with another object. We may find life across the universe evolved from a few

different strains of organisms, each from a different planet's components. This process would be similar to the seeds of a flower being transported by the wind. In exploring space, we may not be so much leaving home as finding it.

Resources from foreign planets will lead to the development of new drugs and technologies, and we will engage in a fierce debate over the introduction of foreign plants, animals and minerals into our ecosystem. Gold holdings by governments may immediately and dramatically drop in value if we discover that Jupiter has many times the gold deposits of Earth and we have the technology to transport those deposits. We may discover new organisms that are completely resistant to all known diseases. Extraction and importation of foreign resources is the only way to make large-scale space exploration financially self-sustaining.

It has been said that the reason we haven't found intelligent life on other planets yet is because their scientists were more advanced than ours. In preparation for the eventual if not present ability of technology to cause the extinction of humans on Earth, it becomes necessary to colonize other planets. These planets must allow for humans to walk on the surface without protective equipment, rather than simply in a self-contained environment.

In selecting planets to colonize we must account for several factors: (1) Mass produces gravity, and a planet must be of sufficient mass to prevent an atmosphere from

escaping. Instead of trying to create an atmosphere from scratch, we will need to reprocess an existing atmosphere to bring it in line with the Earth's of approximately 80% oxygen and 20% nitrogen, with a layer of ozone to filter ultra violet radiation. We need new technologies for atmospheric reprocessing, such as tools that emit frequencies of light that can both break apart and join various airborne molecules. (2) Again, mass produces gravity, so a planet likely must have a mass similar to Earths because our bodies have developed in an environment where gravity pulls at 9.8 meters per second squared. Extended exposure to substantially more or less gravity can have physically debilitating effects. Gravitational forces would be particularly relevant during fetal development. (3) Though a planets temperature can be cooled with ozone and heated with carbon dioxide, the distance from the sun must allow for the planet to maintain the liquid form of water, the primary component of the human body. (4) An actively rotating molten core, like Earth's, that generates a magnetic field to deflect harmful solar radiation.

It may however be generations before all of this is possible and that is why it is imperative that we care for this planet which becomes sicker by the day.

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In the 7th or 8th grade, I was listening to the radio and heard the song Glycerine by Bush. I felt immediately overwhelmed with emotion. I popped a tape into my recorder, listened to the radio until the next time I heard the song, and hit the record button. For the next couple of months I would put my ear to the speaker and screech along with the song, trying to learn to sing. Simulation of the auditory effect would require strangling a cat. I'd bet my parents at the time wished they had never bought that radio. My father apparently used to be an excellent singer in church but stopped when his father had made fun of him, and he said he wasn't going to do that to me. It was then that I decided I needed to give guitar another try.

My freshman year of high school I started guitar lessons with a teacher named Rich Albano. His enthusiasm and concern for what I wanted to know got me excited about learning. I even started to write my own songs, using books of poetry that I had collected. He was very talented and was at the time trying to get a recording contract with his band. I was learning very quickly, and eventually wanted to learn more sophisticated theory than he was prepared to teach. I ended up taking lessons from his teacher, Mark Sganga, an exceptional classical guitar player who had 2 CD's out in retail stores.

I was fortunate enough as a teenager to spend several weeks of several summers at a marine biology camp in Florida, Sea Camp. The camp was surrounded on three sides by the ocean, and had a small pond with sharks, in which I went snorkeling. My first year at camp, I wanted

to take the SCUBA diving certification class but I was only 12, and the program required an age of at least 13. The next year I returned and got my NAUI Junior Open water SCUBA Diver certification. My mother proudly displayed it on the wall in my bedroom. Interestingly and randomly, that summer, I had the son of the creator of Star Trek, Rod Roddenberry, as the camp counselor assigned to my room. I continued to go back to camp for the next few summers. When I was 16, the minimum age required for the Master Diver Certification, I completed the course which required passing a written test on the physics of diving, an American Red Cross lifeguard certification, and dives including rough water, night time and search and recovery.

Every summer I would go with my family to a lake in New Jersey. It wasn't a huge lake but it was as pristine as any I could picture. I was fortunate enough to have a two-person sailboat and would participate in races with others near my age. When I was about 12, my parents bought a house along the water.

One summer my father's brother Peter came out to visit, who had been in combat as a paratrooper. We took him out to a rock on the lake labeled "EKD", which according to local legend stood for "Every Kid Dies". My uncle, my father and I went out to the rock to jump off it. The rock was about 30 feet high, and the water at the base was just deep enough to dive into. I challenged my uncle to do a flip off of it. I expected him to because he was so tough. He wouldn't, but I decided I was going to. I had no idea how to do a flip, but I was determined

to do so. Needless to say, it didn't go well. I hyper extended my lower back, causing painful swelling, and I couldn't get off the couch for several days.

I am always looking for creative inspiration when I write literature, music and software. When I experience something that is creative accompanied by positive energy, I come up with new creative ideas, most often completely unrelated to the inducing experience. My theory is that experiencing creativity energizes the same part of the brain that generates it. I first noticed this effect at Disney World. My favorite ride was The Land where fruits and vegetables were grown in sand, water and wire structures hanging from the ceiling. Just outside the ride, it was possible to buy and eat the food being grown. I would make notes of my thoughts during and after rides using the pen and folded paper I kept in my pocket. I think the last time my family went together was when, just before I came home from the trip, I sketched out a jungle room for our house, and when I got home, went about its construction. Whenever I'm feeling creatively drained, I'll walk around the mall to look at product packaging and store design.

In high school, when I wasn't in class, and often when I was supposed to be, I spent my time in the library. I have always had an endless curiosity and desire for useful knowledge, and the people that I have been able to best relate to were in history books. I would often eat lunch during class so I could get to the library at lunch. One of the only times I would leave was for the school's monthly diversity fair where students sold their native cuisine.

When I was 16 I was fortunate enough to visit Africa with my family. While we were in Kenya, we visited a small village in the Masi Mara national reserve. In the village I saw a boy, younger than myself, with the pupil of his eye entirely white from a worm visibly living in it. Another boy in the village had a grossly expanded stomach – though was otherwise skinny enough that his ribs were individually visible — from another type of parasite. Each condition, I was told, could have been prevented with a few dollars of medicine. Another afternoon during our trip, we were passing through the city of Mombassa, when our driver took the car right over a man lying in the street. His body went between the tires unharmed. The driver thought nothing of it. According to him, people who are sick from HIV sometimes sniff chemicals and lie in the street hoping to die.

HEALTH TECHNOLOGY

HUNGER

&

DISEASE

"The abolishment of pain in surgery is a chimera. It is absurd to go on seeking it..."

Dr. Alfred Velpeau, 1839

An optimally prosperous economy requires a health care system that optimizes the output of skilled labor. In developing nations, this first requires sufficient food and clean drinking water. Improving care and reducing costs requires new scalable technologies to prevent, treat and cure ailments.

The costs of general care will be dramatically reduced by software and hardware that replicate the basic functionality of a doctor, providing basic care faster and to more people. A vending machine will accept a couple of dollars or an insurance card, provide authentication by fingerprint, take temperature, pulse, and when appropriate a blood sample to calculate statistics, ask a

series of questions to flow through a decision tree, and can dispense common medications and vaccinations, while maintaining an electronic record to ensure there aren't drug interactions or over prescriptions. When necessary, it can provide insurance company authorization to see a specialist. There is no technological limitation to these being developed now and then mass-produced and distributed globally to increase access to and ultimately drive down the cost of healthcare.

Electronic medical record systems accessed through the Internet will allow for the secure storage of personal health history including images and documents, and the ability to instantly share them with any physician on Earth using any Internet enabled device. This will provide a comprehensive and continuous health record, reducing unnecessary tests and increasing shared information available for decision making. (Disclosure: this is the purpose of a startup of mine, Sick Away From Home)

Cancer is the uncontrolled growth of damaged cells. To kill cancer cells, significantly untargeted radiation along with poisonous drugs are used, with the goal of killing all the cancer cells before killing so many healthy cells that a person dies. This brute force method often has life long health consequences. Instead, we need computer software that reads data from external instrumentation using light or sound waves to scan cells individually and identify those with damaged or foreign structures, and when identified, kill them using a laser, which is simply

condensed high intensity light. Different colors of light travel different distances, which can be seen as the sun moves away from the Earth as night falls, displaying colors in clouds sequentially by wavelength. Light can be artificially distilled to a single color by passing it through varying densities of glass. This light can be made stronger with additional electricity and condensed with cascading concave mirrors then fired to the specific depth of individual cancer cells. This can be potentially combined with traditional surgery where the mass of the tumor is removed first. Such a tool could also be used to reduce the prevalence of an undesirable substance in the blood by running it on an externally circulated blood stream.

We spend too much time developing drugs disease by disease, chasing the next fire, and there is always a next fire. A new class of drugs needs to be developed that are effectively antibiotics for viruses. The goal should not be to prime cells against a specific foreign agent, as we do now with vaccines, but to identify and attack the structures of a virus itself, such as the viral lipid envelop. This would be referred to as a broad-spectrum anti-viral or anti-retroviral. Even if such a drug cannot fully prevent or cure a disease, it can render a virus of diminished capacity, potentially to the point of irrelevance, and could be used to reduce the necessary dosage and increase the effectiveness of existing drugs. This class of drugs will become critical in the event a genetically modified virus is unexpectedly introduced into the population.

Using viruses to modify human genetic code in the treatment of a disease can be dangerous for the reason that permanent mutations could be introduced into the human gene pool through offspring. There are billions of codes in human DNA that have evolved over at least millions of years. Imperfect changes introduced to DNA may not be identified until offspring generations later begin suffering from degenerative diseases.

Organs that are diseased and damaged will no longer be replaced with transplants from one human to another, but from organs generated from a person's own cells. Aside from ending the rather barbaric practice of pulling an organ out of one human and putting it into another, this will remove the need for life long immune suppression drugs that prevent rejection of donor's foreign cells, as well as provide better throughput. These organs can be either grown or architected by a computer. Stem cells are human cells before they change form to become a specific cell, such as a muscle or skin. These stem cells can to an extent be created from a person's own non stem cells, and are known as induced pluripotent stem cells. To grow an organ, cells are placed over what is effectively a frame, exposed to a catalyst to form a specific cell type, and left in a nutrient solution to grow. Alternatively, organs can be created by computers using a three-dimensional model and a mechanical arm to place individual cells one by one into the structure of a new organ. These technologies have other applications and could be used for routine maintenance, like the replication of a new back cartilage disc to replace one that was damaged from a sports injury.

Health care improvements have led to extended life spans and additional associated costs. This increases spending on senior health and living expenses. As healthcare improves, reducing the cost of living in developed nations, as described in the chapter in economic development, becomes critical.

The only sustainable solution to the prevention and treatment of disease in developing countries is for affected communities to lift themselves from poverty. This requires external assistance, and the goal must be to create a self-sustaining rise. When people are dying from starvation as well as water and food borne parasites and bacteria, trying to save them from disease has reduced impact. Therefore, the treatment of disease in developing nations requires a foundation of sufficient food and clean drinking water, as well as an educational system that sufficiently integrates information on infection prevention.

To provide sufficient and sustainable food sources, the native seed variants that can provide the most robust harvest under an area's environmental conditions must be identified and distributed. When such seeds do not exist, it is best to develop and distribute genetically modify seeds, as the possible potential damage to existing vegetation presented by genetically modified seeds is outweighed by starvation and death. Genetically modified seeds that have been developed and patented for such circumstances must be released under a public license that makes them free for all to use. There must be

an international agency that holds the patent portfolio, distributes the seeds, and prevents predatory companies from mixing their proprietary seeds in with farmers' crops to claim royalties. Professional farmers must be provided access to, and taught to use, irrigation systems and fertilizers that are simple and inexpensive, and access to international markets to sell crops and make a cash profit to lift themselves and their communities from poverty, while simultaneously easing global food shortages resulting from population growth. To support population growth without substantially elevated commodity prices, technologies need to be developed to produce fertilizers mined from the Earth without negatively impacting the environment.

Clean drinking water is necessary not only for disease prevention but because in some countries women spend nearly every day of their lives collecting and transporting water, never getting an education or earning an income. A short-term solution is to install water wells. When drilling wells, it is important to recognize that it is not the circumference but the total submerged volume of the well that matters. Wells should be drilled deeply but only slightly larger than the circumference of a metal pipe. A metal pipe can then be put down the hole to below water level, a wire mesh pocket put through to below water level, and a pump handle attached. Depth is also important as water levels continuously and often irreversibly lower through use. A single person could drive around all day long from village to village installing these wells. In areas where water is available but dirty, metal containers should be distributed to allow water to

be purified through distillation by heating the container over a wood fire and condensing the steam into a second container leaving behind impurities. Because the water level of wells nearly always decreases over time, through insufficiently replenished aquifers, the long-term solution to clean water is to build an infrastructure of water distribution pipes and processing facilities for purified sea water. Traditional sea water distillation is energy intensive, making it expensive, but purification can be done without energy by using carbon nanostructures which are microscopically composed to allow though only water molecules leaving behind all other impurities. Carbon nanotubes, the walls of which are strong, flexible and frictionless, could also be developed to transport water flowing at thousands of miles per hour over long distances in a pipe thinner than a pencil, removing the need to lay expensive traditional pipes.

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My family and I stopped in Rome on the way back from Africa. When visiting tourist sites in Rome, I was able to read the ancient Latin inscriptions out loud to my family and others who would gather around to listen. We also toured the Vatican, the headquarters of the Catholic Church, privately with the head of its treasury while he talked with my father about United States Treasury bonds. In addition to Rome, we stopped briefly in each Florence and Venice in Italy, Barcelona in Spain, Athens in Greece and Istanbul in Turkey. In Greece we saw the Coliseum where the original Olympic games were held. In Istanbul, I was surprised by the congestion and activity in the street markets that reminded me of what I imagined colonial markets would have looked like in America.

On a separate trip in high school I visited Paris France with my mother and brother. I appreciated the history of Paris as this was where Voltaire wrote his critiques of the French government that had a substantial impact on the founding documents and structure of America.

At Ridgewood High School, I participated in one or more seasons of each soccer, tennis and wrestling. The better players from my high school's soccer team were part of the Maroons, the Ridgewood traveling soccer team. The Torpedoes in the town over consistently beat the Maroons, and none of the players on the Maroons who had tried out for the Torpedoes had made it. The Torpedoes had an exceptional coach, coach Benevento, who valued potential rather than present skill because he knew he had the ability to substantially improve players.

I tried out for the Torpedoes and was conditionally accepted for demonstrating raw ability rather than skill. I was struggling the first season to keep up with my team mates, but after each practice coach Benevento would spend probably 10 or 15 minutes with me, pointing out errors that I was making and wasn't even aware of. No one had done this for me before, and I improved consistently and dramatically. Each time I met with him I would demonstrate that I had gone home and practiced what he had last shown me. When I eventually played my old high school teammates on the Maroons, my abilities had passed theirs.

My freshman year of high school, my world history teacher played a video in class of the Ultimate Fighting Championship to demonstrate various martial arts from around the world. It was later deemed inappropriate by the school that he had shown the video, but I was absolutely fascinated. After watching the videos I decided that I would switch from Tae Kwon Do to Jiu-Jitsu like Royce Gracie, who throughout each match would remain calm and cool, succeeding by using his skill and intellect.

I found an instructor by the name of Louis Vintaloro who had trained with the family of Royce Gracie in New York and Brazil. I had my mother drive me to classes until I got my license, and I took lessons on and off from Louis over the years. He later encouraged me to combine Jiu-Jitsu with Thai Kickboxing, which had to date proven the most effective combination.

I put on a battle of the bands nearly every month of my second two years of high school. To promote the events I would post flyers around the school and use the public address system during morning announcements. I would get nervous each time before it was my turn to speak, worrying something would go wrong, but it never did. I was often helped with coordination by Ryan Maxwell who was regularly sought by several of the bands because he seemed to have the ability to instantly learn any song on any instrument. I typically had about 6 bands perform and charged around $3 for admission, which included a slice of pizza, and raised money for the school to buy audio equipment.

I would also help organize trips to Vermont for the ski and snowboard club, coordinating a date, arranging for busses, and collecting deposits. I think I was officially the Vice President with Robby Burden as President. It was run by Robert Pinches, the teacher who let me run the performance club. Trips were generally by bus to Killington Vermont, and once included a low budget trip to Tignes and Val d'Asaire in the French Alps with a connection through Amsterdam.

When I was 16 I enrolled in the State of New Jersey's Emergency Medical Technician training program because I thought it would be a tangible way to help people. It met two nights a week for I think four months and I would carpool with Laura Hammond, a classmate from school. The classes were used to teach the proper use of equipment to isolate neck injuries, brace broken bones and resuscitate. We were assigned significant

reading, and had a test at the first part of nearly every class. I passed most of the tests through logical inference rather than assigned reading.

During training, I was required to spend 20 hours working in a hospital emergency room. I choose the hospital in Jersey City, New Jersey, because I had read Jersey City had the most violence in the state and thought I would have the most substantive experience. In my 20 or so hours in the hospital's emergency room, a man pushed through the doors holding rags over his stomach with blood dripping from a gunshot wound, and another man fell through the doors and immediately convulsed on the floor from what I was told was likely a heroin overdose.

I passed the final certification test and joined the Ridgewood Volunteer Ambulance Corps. I was on call an average of probably 2 nights a week, with a squad overseen by Brian Pullman, and it was required that I work at least one night during the school week. I would leave the pager by my bed and it would go off as many as two or three times on a school night. Before that experience I thought that Ambulances were only called for incidents like car accidents and gunshot wounds, but found that people seemed to call for an ambulance as if it were a taxi service. I think that the most significant call I ever got was to provide a severely overweight woman who had breathing problems an oxygen tank and transport her to the hospital at 3 in the morning. I was not making a positive impact on a large scale and that lasted probably 3 months.

One summer in high school, I was fortunate enough to spend a month in Australia with a group of other students through an organization named Adventures Cross Country. With only a topographical map and a compass, we would hike across the outback from one point to another. I skimmed water from puddles and ditches, and made it suitable for drinking by adding iodine. Only dried foods were carried, as they didn't spoil, weighed the least and took up the least space in our backpacks. It was a month of sleeping on the ground, wearing dirty clothes, and eating hummus powder hydrated with iodine ditch water – but we were under the stars in Australia. We stopped in Sydney, at Ayers Rock, and spent a few days scuba diving off the coast of Cairns at the Great Barrier Reef. It was a trip I was very fortunate to take.

In addition to Joe Rose, I had a couple of particularly impactful teachers in high school including Jane Blakeley and Meg Schaefer. Jane Blakely sparked my interest in economics with her obvious passion for the subject. She would get visibly excited, smiling and bouncing around at the chalkboard talking about federal economic policy while half of the kids in the class were metaphorically sleeping. And then there was Meg Schaefer, an energetic and intelligent English teacher, who was working to complete her Ph.D. At the start of each class, she had us move the desks in the room into a U shape with her in the middle. For the entire hour of class she would be on her feet, animated and excited, talking about the lessons in books she had already studied and taught many times. She coordinated her lesson plans with a history teacher

that we all had, so that we would study the history of the period from which we were reading literature. She also required a two to three page essay every two weeks for the two years that I was in her class. Perhaps the most memorable exercise I did in her class was this: you have no idea if you will be born black, white, female, male, rich, poor — design a system of laws for yourself. For my senior English project, I read everything I could find written by Henry David Thoreau for background and then wrote an analysis of his most important works.

I was particularly vain when I was younger. My senior year, I went down to Boss Models on Gansevoort Street in Manhattan, to see if they would hire me. They told me I looked "too all-American", and that I should go to the agencies Ford or Wilhelmina. I never made it over to the other agencies.

My parents had nice cars in high school that I drove. One day after school when I went to drive home, I found that the car I brought to school had been doused in paint thrown from a bucket which had been left nearby. From that point forward, on the occasion that I drove to school, I parked directly in front of the main building where faculty walked by every few minutes. Even that didn't stop someone from leaving a pocket knife stuck in one of my tires. It never ceases to amaze me the complete lack of awareness people demonstrate when people hold against me that I've had some unearned opportunity, when anyone born in America has had more opportunities that they didn't earn than almost anyone anywhere else on Earth. If that same person who slashed

my tire had brought their car to school a few towns over, their tire would have been slashed simply for having any car at all. And in some countries, if that person were lucky enough to go to school at all, they might have had their shoes stolen. Favoring or disfavoring one person over another because of things beyond their control, takes away from the well being of a country. I find it especially perplexing to receive hostility from people who were given opportunities specifically because of their disadvantaged background, and in particular people who actively point out their disadvantage to receive an advantage. Any parent who says they don't want unearned opportunity for their kids should have them air dropped over Ethiopia. People risk their lives for opportunity that no one born in America has earned. If you had to run or swim to get to America, I can respect that, otherwise you just got lucky.

One afternoon shortly after I got my drivers license, I decided to drive by the graveyard where my grandfather Thomas Bannon had not long before been laid to rest. Because my family had almost always had more than enough money — looking back it seems like I've had just about everything money can buy — it had never been something that was on my mind. And I had already seen senseless suffering in the world during an impressionable age. In that moment, as I was driving by, I decided that I would judge my life by the amount of positive impact I have had on other peoples' lives.

Before I left high school I wanted to put out a CD of my music and set the bench press record. The bench press

contest was of personal significance to me because although I'm not severely allergic to anything, I'm slightly allergic to just about everything possible. This caused me to get sick a lot when I was younger, which in turn forced me to develop physically to prevent illness.

The day of the bench press contest, which was held in the main gymnasium in front of what looked to be about 200 spectators, I was too nervous to warm up properly. I initially tried to put up 280 pounds, which I had successfully done many times during practice, but wasn't able to, and being allowed only a single additional try, I put up 255 pounds to finish second for the weight class that year. As a result of building up as much muscle as quickly as I did, I developed minor skin tears where my chest and arm meet. Occasionally when I notice the marks I'm reminded of the importance of preparing in advance and warming up properly.

A couple weeks before finals senior year I went to the recording studio and recorded a number of songs written by other artists including Bush, Blink 182 and the Goo Goo Dolls. On the final night of completing my recordings, I stayed at the studio so late that my mother, who did not know where the studio was, called both the police and hospital. I made a couple hundred copies of the CD, and during finals senior year, I passed it out to my classmates. A day or two had passed with no response. I left my English class to go to the bathroom when apparently my CD had been played in another class and a swarm of people left that class to come find me. I was, at least what seemed to me at the time, like an

instant celebrity for the last week of school. I got several thank you notes including, from Lindsey Horney and Jackie O'Connor, thoughtful and flattering letters of encouragement.

That summer I was at a party, and a huge football player named Steve Loyka approached me who I knew from chemistry class. I was completely surprised to hear him say that he had lost my CD and needed another one because he listened to it all the time.

Near the end of High School I gave substantial consideration to joining the Marines. I was very much attracted to the culture of courage and service. I talked with a recruiter on the street and another on the phone. When my mother found out, she told me that my uncle, her brother, who I knew had been awarded a commendation medal while serving in combat as a Marine, would still wake up in cold sweats screaming at night from his experience in Vietnam. Coupled with my recent awareness that I was not heterosexual and did not know how that would affect me in the Marines, I decided against pursuing the opportunity.

It was easy for me growing up to see why someone would want to be a rock star but I couldn't understand why someone would want to undertake the consuming course of preparation required to go to an Ivy League school. I had been heavily interested in biographies and autobiographies of the great men throughout history, and found that 99.9% of them didn't even go to college, which made it difficult for me to find the motivation to

allocate my time to school. It seemed to me like competing for something that was scarce simply because it was scarce. I was focused on learning, and if I got a good grade that was fine, but if I didn't think the math teacher was talking about something useful, I'd take out a book to read what I thought was useful knowledge, or pull out a scrap of paper and try to invent something. What you're reading now is substantially the compilation of the thousands of notes I made over the years on folded sheets of paper kept in my pocket.

INNOVATION

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EDUCATION

Innovation is the fundamental driver of prosperity. When I use the word innovation I mean finding new ways to do more with limited resources, to take 2 units of value and put them through a process that creates 4 units of value. Innovation can come in the form of an entirely new idea, or more frequently by transposing ideas from one field to another. For that reason, it's important that a person's knowledge base be broad and historically informed to have knowledge available to draw on for innovation. The only way to do this on a large scale is through a formal education system. If peace is derived from prosperity, prosperity from innovation, and innovation from education, our challenge then as a species is the global proliferation of knowledge. There may be no task more urgent or more important.

In the mid 1800s, Thomas Edison, a tireless and brilliant innovator, sat in a laboratory where he created, and was credited with inventing, electricity, light, and recorded sound. From this work came the modern technologies and industries upon which our recent progress and modern prosperity has been built. The inventors of such

technologies are the drivers of prosperity, so the challenge before us is to structure an educational system to identify and nurture such innovators wherever on Earth they may be. That having been written, Thomas Edison attended only a few months of school and teachers made fun of him for among other things his seeming inability to pay attention. For every innovator like Edison who persevered over such active discouragement, famous for saying, "I haven't failed, I've just found 10,000 ways that won't work", I wonder how many were needlessly discouraged at great expense to economic development. Educational systems must be structured to support innovators.

The core components of a formal education system are books, mentors and students. In less developed countries, the informal education system consists of teaching from a religious text. Where there is not widespread formal public education, government financing must be used to put in place such a system, and foreign governments must be supportive. The use of online and mobile learning must be fully integrated as it provides instantly accessible education globally with substantially fixed costs. Additionally it allows for appropriate course work to be dispensed to students who are either gifted or falling behind. The best educational institutions at all levels must make their course materials available online for free.

A free lunch must be provided in every school for every child who needs it. In less developed countries and some segments of developed countries, a free lunch may be

reason enough for many parents to send their children to school. Schools are sometimes burned down in developing countries by those who oppose the spread of knowledge. If schools are food distribution centers for children, they may be provided some degree of protection. If the domestic government cannot provide this source of food aid, foreign governments must provide assistance. In developing countries where disease transmission is prevalent, schools must thoroughly educate students in prevention, and encourage them to bring that information back to their families.

In designing academic curriculum, while everyone needs to know how to read and write, and perform very basic math, beyond that, what can be used by one student to create value may never be used by another. The focus on advanced math comes at expense to economic development, as the fields of programming and engineering, not math, are the tools of innovation. Some math teachers and standardized test writers may claim these subjects to be math based, but they are no more math based than biology or music. At the same time, there is insufficient emphasis on the development of communication skills that are necessary to facilitate peace. Foreign language programs should emphasize culture and speaking, as those form the basis for interpersonal bonds, rather than writing which is handled by automated translation software with increasing accuracy. There is an effectively infinite amount of what for most individuals is useless knowledge, and there is more useful information than a person could ever learn in a lifetime. It is important to increase student

engagement by teaching useful knowledge, which is usually inherently more interesting to learn than useless knowledge and will encourage parents with limited income to have their children attend school. Because innovation requires that people constantly learn new skills and knowledge, and people will not always be in school, it's critical that people learn how to learn independently and think independently. Curriculum should not be so much dictated as offered in order to prepare students to teach themselves for the rest of their lives while learning information that will allow them to contribute most substantially to the social and economic well being of their country and the world. William Butler Yeats once noted that "Education is not the filling of a pail, but the lighting of a fire." Schools often fall short on teaching independent thinking, a required component of innovation that allows a person to step back from what is accepted to envision new and better ways to do things.

While there may be nothing more important in the world than education, and if there's a silver bullet to the world's problems it's education, we must also recognize that a person can go to the best schools and still not get an education, and can get an exceptional education and not go to school. 99.9% of the greatest men in history didn't go to college. I am reminded of this when I contrast the writings of Abraham Lincoln, who attended only 18 months of school and is often ranked number one in leadership ability among American Presidents, with those of George Bush, who attended two of America's most highly regarded universities. It is important that credit not be conferred by academic affiliation so that authority

and resources are not improperly allocated. These institutions also often leave graduates with too much debt to pursue the type of relatively high-risk ventures that drive innovation. In some developed countries, educational resources have become far too concentrated with limited incremental returns, where a few people are exposed late to great mentors, rather than many exposed early. To produce innovators that will drive global prosperity and peace, financial and intellectual resources must distributed broad and early rather than concentrated and late. It's more important for a mentor to help set someone's trajectory than to meet that person when they're already on it. In emerging societies, education must be focused on traditionally suppressed groups, often specifically girls, to allow countries to drive social and economic advancement from the ground up.

There is perhaps nothing more enabling to peace and prosperity than a great teacher, and nothing more limiting than a poor one. Educational systems can be endlessly measured and restructured, none of which matters much if you don't start out with exceptional teachers. For this reason, educational systems need substantial salary increases for new teachers coupled with an aggressive and unending campaign for new talent, made room for by a reduction in tenured positions. The harm poorly performing teachers do to their students' futures and the future of their country should be enough for their conscience to tell them to leave, but for when it's not, compensation and tenure programs must be restructured accordingly. Rather than evaluating teachers by student standardized test performance alone,

teachers should be substantially evaluated by students through questionnaires that derive the extent to which the teacher has prepared them to build a better future both for themselves and others. Existing teachers need to continue learning information that can allow them to improve the innovative capacity of their students. Some exceptional teachers might also consider at some point transitioning to journalism to educate a larger audience. The very best teachers ought to receive recognition and prestige comparable to that which is only often only afforded to front line combat veterans of the military. John Fitzgerald Kennedy once noted that "A nation reveals itself not only by the men it produces, but by the men it honors."

The most important role seniors can play in any society is the distribution of accumulated knowledge and wisdom. Each country must create and sustain a massive volunteer seniors corps that makes it easy and enjoyable for seniors to participate in the economic output of the country by passing on accumulated knowledge and wisdom as tutors during and after school. This provides the additional benefits of educational oversight, reduced isolation for seniors which can be a factor in their moving to more expensive nursing homes, and potentially reduced educational costs for the government. If kids aren't asking why their tutors smell like moth balls, there aren't enough seniors participating in the educational system.

The nation that leads in education today will lead the world tomorrow.

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I knew from the time I was in 6th or 7th grade that I wanted to spend part of my life in southern California, probably through the influence of Pacific Sunwear, a clothing store that promoted a relaxed and vibrant southern California lifestyle. When I was looking at colleges, I found the University of San Diego, which had and has exceptionally strong long-term fundamentals with its commitment to humanitarian values, outstanding faculty, exquisite campus and exceptional location. I was also aware of USD from when it hosted Bill Clinton's 1996 Presidential debate attended by Gerald Ford, Hillary Clinton and Dick Cheney. On my first visit to see USD, I remember stepping out of the airport terminal and breathing air that smelled like it had just drifted off the ocean. When I got to the campus, and could see the sun set on the Pacific Ocean from the terrace of the freshman dorms, I knew I had found my school.

At the end of my senior year of high school, I worked as a waiter at a restaurant called Paparazzi at the Garden State Mall in New Jersey. I worked like a plow horse and was making little more than the cost of the commute. In the first week or so I memorized their 3 page menu and their wine list, sitting up at night reviewing it and writing it in my notebook from memory, so that I could make recommendations to customers. I showed up early to work to clean and setup, not only my section but other waiters' sections as well. I was the first to do whatever the manager asked and I would work as hard as I could to exceed expectations on each task. My tips were often 25% of the bill. But I wasn't making a lot of money because the restaurant was overstaffed and each waiter's

section fairly small. I told my aunt about my work at the restaurant at a family gathering. A few days later, completely unexpectedly, she called me at the restaurant to tell me how impressed she was with how I was handling my job and asked me if I would like to work on the floor of the New York Stock Exchange instead. And so I did, the summer after high school, through a since acquired trading firm named Robb, Peck & McCooey. To my knowledge, I was the youngest person working on the entire floor of the exchange.

At the exchange, I wrote out by hand tickets for trades over 100 shares. About mid way into my time there, shares of stock in a consumer products company were being listed for trading. To celebrate and draw publicity to its public share offering, the exchange had Wall Street closed off and a karaoke float setup with a fake open bathroom and the theme of shaving in the shower. They couldn't get a lot of people to perform in front of hundreds of bankers out on their lunch break, so I volunteered. I got up on stage, not thinking about the fact that I was still wearing my official New York Stock Exchange trading floor jacket, and shaved what little facial hair I had while singing as best I could to a rock song by the Goo Goo Dolls. I got some applause and walked back to work. The next day when I arrived, photos were being passed around that had been dropped off by staff photographers earlier that morning. Apparently I had also made it onto the local and national evening news channels that covered the listing.

The exchange consists of 4 rooms, and I had been in the same room all summer. My last day of work, I decided I was going to take a walk around the exchange. As I walked into one of the rooms, a young looking woman yelled at me from across the floor, while laughing with her friends, that I wasn't allowed in the room. "Are you fucking with me?" I yelled back. "Excuse me?" she said while walking over "I said, are you fucking with me?" Everyone near her turned white. I didn't know who she was, and she looked young enough to be a ticket clerk. That was someone pointed to her name tag: "Governor, New York Stock Exchange". That was indeed my last day of work.

It was off to my first year at the University of San Diego. The first couple of weeks at USD may have been the best time of my life. Freshman orientation events were held at the San Diego Zoo, Mission Beach and Sea World. Everyone was genuinely interested in getting to know everyone else, and every night seemed like one big social event. I later found out that was exactly the intention, as it had been determined that relationships developed during that period were significantly responsible for the high student retention rate.

In the first few weeks of school, friends from my dorm and I would go to Tijuana, Mexico which was about 30 minutes away. A group of about 15 of us would pile into our friend Adam's bright orange Volkswagen van. Included were my neighbor two doors down, John Hodges, who would become president of my fraternity, and his roommate Jeff Nahmias. We would park at the

border and walk across, as the bars were only a few minutes on foot. When crossing back into the United States, the border police would simply ask people walking into the United States their country of citizenship. One night, a friend in our group was detained after deciding to tell the border agents while crossing back into the U.S. that his country of citizenship was Estados Unidos, Spanish for United States.

My freshman year of college, I ran for the nearest equivalent of class president, which was called class Senator. I had been allowed to enter the election after the filing deadline as the opportunity wasn't well advertised. I was told I won the election by a landslide. However, after I won, in a closed door meeting that I wasn't allowed in, somehow it was decided that because I entered the race after the deadline I should not have been allowed to participate. Additionally, it was cited as a violation that some girls had posted signs around the girls' dorms, over official university notices, which read "vote for Jon cuz he's hot", which were handed to me after that meeting.

My freshman year roommate Bobby was from Ohio. I would sometimes watch Star Trek on the TV in our room, and as a result he would sometimes follow me around repeating "Star Trek... Star Trek…" in an alien sounding voice while making the Vulcan hand gesture for live long and prosper. One Star Trek convention does not a Trekie make – no I've never actually been to one. Now where did I put my model Starship Enterprise?

The next semester, some friends and I from my dorm went down to a barbeque at Mission beach held by the fraternity Sigma Chi, which had been advertised by mentioning that John Wayne, Jay Leno and Brad Pitt were Alumni. I told the president of the fraternity that I was going to start my own fraternity with the group of friends I had come with. In the end, I analyzed the marginal benefit and practicality of starting an entirely new fraternity as a freshman and decided to pledge Sigma Chi, which I saw as a growth opportunity.

My freshman year I dated Sarah Hayze and Leslie from Minnesota. Both were beautiful and intelligent, and that I can't even remember Leslie's last name I think indicates my level of interest in girls. I gave girls my best shot, and while I wasn't quite yet ready to acknowledge it at the time, if it wasn't gonna happen with either of those two, it wasn't going to happen.

The University of San Diego was academically a new experience, with some unique and brilliant professors. I had a philosophy professor, Dennis Rohatyn, who on the occasion that he shaved, always missed at least one patch of beard on his face, and had the hair of Albert Einstein. He could talk insightfully, knowledgeably and articulately for over an hour and a half without pausing, occasionally engaging himself in a dialogue and laughing at his own jokes, even doing voices when it seemed appropriate to him. There were just two papers each semester, with each being worth half of the entire semester grade. In total I enrolled in his class 3 times, because I liked

listening to him and his grading system of two papers and no attendance was reasonably favorable to me.

My younger brother Andy is gay as well, and I think that for that reason he got caught up with a bad crowd during high school while looking for acceptance. At this point, my mother had been going to Alanon for my father and others at Alanon encouraged her to send him to boarding school to get him away from the kids he was spending time with. He spent a year there before transferring to a private high school in Manhattan, and later graduated from Sarah Lawrence college, located just outside of New York City.

In 2001 I created a website called the GlobalOnlineCommunity.com, which allowed people to create a basic profile, with a picture and a brief self-description that could be shared with friends, as well as a news feed where users could share the url, title and description of a news article, with the intention of keeping them coming back to the site to see what others had posted. My father always had the major newspapers laid out on the breakfast table, and the news feed idea originated from my father and I sharing news stories back and forth over the phone since I was a child, as referencing one, particularly about finance, was the best way to get his attention when I called him at work. It was one of the first social networks, and to my knowledge the first with very literally a news feed. I asked classmates, friends and family to create profiles and only a few did. The most common response I got was "Why would I want a profile of myself on the Internet?" I thought I was

right, and that it would be big, but I got so much negative feedback on the concept that I figured I must have been wrong. It was one experience that would later lead me to have greater confidence in my own judgment, even when others didn't see things the way I did.

One semester, the director of information technology for Qualcomm, Peter Rubenacker, taught my accounting class. He had an unusual way of waiting exactly one half second before responding to anything. I asked him about it one day after class and he explained that it gave him a chance to "evaluate and respond". He was one of the only professors who seemed to enjoy that I would bring in and reference relevant academic articles I had read independently outside of class.

That next Spring, when it came time to bring new members into Sigma Chi, one of my closest friends at USD, Mike Clark referred me to someone he thought would make a valuable addition to the fraternity, Casey O'Neill. Mike pointed out Casey on campus. I went over to talk to him, and we walked from his class to the deli. Before the end of our 2 or 3 minute talk I said to myself that he would be the president of Sigma Chi. I gave him my very best sales pitch, and he pledged a week later. The following year he was my roommate, and three years later, without any intervention at all on my part, he was elected to President.

Sophomore year I released my second CD, recorded in my basement over winter break. While my performance had improved relative to my last CD, the quality of the

recordings had gone down, as the previous ones had been made in a professional studio. Inspired by punk rock bands, I decided to wear a Mohawk for a couple of weeks.

At the beginning of each semester, I went through my class syllabuses, and if I couldn't get at least a C in a class without turning in homework and only showing up for tests, I dropped the class. I read through the text books that were assigned but scanned them only for useful knowledge. While some teachers wanted specific dates down to the day memorized for tests, I rarely committed them to memory, but rather placed them in a particular time period or era in my head, because I knew in a few years I wouldn't remember the specific day but would remember the significance and period.

Sophomore year I was sitting in my dorm room, reading a guide on how to tell your parents that you're gay, the XY Survival Guide. I wasn't sure that I was completely gay at that point, but I was sure I wasn't straight: the bi now gay later plan. I waited until my tuition and housing had been paid for the semester. I called my father first. He had his suspicions, and had already gotten over it. My mother was next. "What do you mean you like guys?" she asked. I must have repeated myself 10 different ways, just short of being sexually explicit before she got it. It turned out she was totally oblivious, though I think she would have known if she had wanted to. For the next couple months, she didn't talk to me much. However, she joined an organization called P-FLAG, Parents and Friends of Lesbians and Gays, and that June,

she and my father marched in the gay pride parade in New York City.

The end of my sophomore year, I ran for President of my fraternity, Sigma Chi. The position was referred to as Consul in reference to a position in the government of ancient Rome. At this point I had been coming out to members of my fraternity individually. I was the only upcoming junior running and there had never been a junior as president. I got a couple of key people to support me before the night of the vote and gave my speech. During the speech, I talked about all the issues that affected the fraternity, along with a plan of action to address each. However, the issue I didn't address that seemed in retrospect to be on people's minds was my being gay. While I only knew a couple of members to be specifically homophobic, I think others just didn't understand it, or if it would impact them if I were President. I wasn't ready or even able to properly address that. In a sense it's relevant because if you don't know someone's gay, it limits the development of strong personal relationships. However, even my big brother in the fraternity, which is an older member assigned to each new member, Brian Sappington, one of the most respected and intelligent members, did not win when he ran his junior year. A few minutes later I won for social director which, though important because I would be substantially responsible for spending the fraternity's budget, would not allow me to have the same positive impact on the organization I would have had as President. The person I campaigned against for president, who otherwise ended up doing a fine job, later

substantially gave responsibility for one of our major social events to someone who later ran the same event in a way that I was told left the fraternity slated for removal, despite my best efforts with the administration going up to the CFO and President. It may not have turned out to be the most appropriate job for me either, because each time we had a party, people would ask me if I remembered to invite the hot girls. It slipped my mind once and I never heard the end of it. After the election, a graduating senior involved in the process, Jamie Booth, told me I was the bravest or one of the bravest people he had ever known, which meant a lot to me.

On the morning of September 11th, 2001, I was in the house I shared with my roommates Mike Clark and Casey O'Neill, when another friend Bryan Blom called to tell me to turn on the television, because a plane had flown into the World Trade Center. I watched the T.V. as a second plane hit, and my roommates and I realized this was not an accident or coincidence. Most days after work on the New York Stock Exchange I would pickup a slice of pizza at the Sabarros in the World Trade Center before commuting home on one of the trains in the building. On that September 11th, both my father and uncle were working a couple of blocks away, my father at the Deustche Bank building and my uncle at the New York Stock Exchange. I tried calling my father at work, but all of the phone numbers I had for both him and my mother played a recorded message that said "all circuits are busy". That was when I started to get scared. I had another uncle who actually worked in the World Trade Center, and was able to walk out, but a family friend who

I had known since childhood, Robert Matson, who had been in the trade center since before the 1993 bombing, was in the building during this attack, and was not as lucky this time around. My parents attended his memorial service several weeks later.

A month after the attack, President George Bush ordered the invasion of Afghanistan, and later Iraq, with what looked to me like preparation to go into Iran. These wars ultimately cost trillions of dollars, not just in direct military expenditures, but in among other things, the cost of the economy spinning out of control.

WAR

PRIVACY

POVERTY

&

TRADE

A durable peace among nations can never be secured through force. If the military of a country kills a child's parents and bombs his hometown, simply using logic, years later he may be inclined to come back and attack the country responsible. War creates an endless cycle of senseless destruction.

While enemies are deterred by strength, there are more effective ways to demonstrate strength than by the count of nuclear warheads. The best defense against aggression any nation can have, is not in the count of its arms, but in the strength of its education system, trade with other nations, communication infrastructure, finances, capital market resilience, border security, and participation as a responsible global citizen. Military development and certainly war is almost always a misallocation of resources. If the resources spent on the military were substantially re-allocated toward internal development, a

country would be so strong and resilient that hostile countries would eventually not be threats. Such strength allows an equally forceful response to aggression while providing substantial benefits with limited potential costs. The highest aim of any military must not be a preparation for war, but a commitment to peace.

If nuclear energy spreads, nuclear weapons will spread. It is critical to the sustainability of humanity that molecular combustion technology, presently and specifically nuclear technology and ultimately fusion technology, be eliminated, in both energy production and weapons. Because the technology required for nuclear energy production is only one step from that required for nuclear weapons production, the only way to eliminate and prevent states from acquiring nuclear weapons as we move toward alternative energy sources is to eliminate nuclear energy, and replace it with clean and abundant geothermal energy as explained in the chapter on energy. Nuclear weapons are not so much a problem because nations might shoot them at each other, as countries can usually be negotiated with and there are missile defense shields, but because of the more likely scenario. As nuclear weapons continue to sit in storage, they are increasingly likely to be obtained by individuals who could then bring them across the weakest point in any country's border. This could happen in any country, and it could happen today. This threat has already been portrayed in popular movies, and some people seem to think that if they close their eyes, and don't talk about it, it will go away. This is the equivalent of a hijacked plane flying into a building that no one prepared for because it

was too unlikely to occur, and talking about it might encourage an attack, yet it's easier in some countries to illegally cross the border than it is to get nail clippers through airport security. Nuclear technologies both for weapons and energy production in all countries must be eliminated now.

To provide financing for the development that will lead to prosperity, each country must sign a global treaty to not just to eliminate nuclear weapons, but to reduce and redistribute military spending. A treaty for peace & prosperity is a treaty to eliminate molecular combustion technologies and reduce the military budgets of large countries. Our goal must be a coordinated verifiable global military draw down with resources re-allocated to the internal development of each country.

No single country should have the responsibility to police the world or power to destroy any other individual country of any significant size. Military power and responsibility must be distributed to a large collection of smaller nations, who can collectively and independently take the lead on any military action. Large countries will be made more secure, because they will not have to worry about a military threat from any other single large country. And if any country wants a war and can't figure out some way to get at least a couple of the more than 190 countries in the world to participate militarily, then it's probably not a war worth fighting.

There is only one lasting way to neutralize a hostile nation and it's not with weapons or sanctions, but with an

educated population that can provide for itself and is engaged in extensive international trade. Driving a hostile nation deeper into poverty won't solve fundamental problems. People of a nation will feel differently if they see that instead of other countries issuing sanctions, they are looking to setup production facilities or buy goods. Trade will create channels of communication and understanding while encouraging the development of an educational system by providing the tangible goal of employment at an international company. And in a prosperous nation, people will be less inclined to fight for a paycheck.

As trade progresses from the purchase of goods to the exchange of services, nations must have skilled labor that can work together, and the only way for an economy to have a critical mass of skilled labor is by first having a formal education system. Aside from laying the foundation for a more peaceful and prosperous world, trillions will be saved in the costs of wars. Buying a billion dollars of exports from small merchants in a hostile country will likely do more for peace than a trillion dollars spent on military attacks. To prepare and support a populations engagement in trade, international governments and aid organizations should setup funds to purchase securitized emerging market small business loan receivables, arranged by local financial institutions, with strict international oversight to ensure the loans support the development of secure and sustainable wealth.

Only communication between the people of nations rather than their leaders can create a quantity of bonds

that cannot be broken. While we were formerly constrained by geography and language, the Internet has removed geographical constraints and software can eliminate language constraints. Language barriers will soon be rendered neutral by automated translation software that will allow any person on earth to browse the entirety of human knowledge online in their native language, and allow for people who speak different languages to listen to each other in their native language as they speak.

It has been said that to create a war, you tell people they are being attacked and cut off communication — with direct two-way communication this strategy is not possible. If every person on Earth had access to the Internet, it would be a matter of time before there would never be another war among nations. Governments should finance the sale of networking equipment to developing nations to facilitate the development of Internet infrastructure. Initially a government may block access to news and communication sources, and even if full access is not allowed until the existing leadership has left, it's still a step forward. If the citizens of nations aren't prevented from knowing that other nations aren't trying to hurt them but instead working to create positive economic engagements, that truth can itself can defeat hostilities and tension.

In the near future, an attack by any nation may be less likely than an attack organized by sophisticated and well-financed individuals enabled by technology. For this reason, nations must be at peace not just with the

leadership of other nations, but with the people of those nations. However, whichever country provided for, enabled, or failed to detect that individual must be held accountable. All nations must have a structure in place to prevent the occurrence of attacks by individuals which might provoke a confrontation among nations. In order to identify such individuals, intelligence capabilities should be collaboratively developed among all nations by publishing information and consulting with governments that will help them put in place systems to identify these individuals, while protecting the privacy of citizens who may be prospective participants in government, so that such systems are not used to target minority leaders.

The chief of Stalin's secret police once said "show me the man and I'll show you the crime." In this age where it is possible to instantly surveil anyone's text messages, location, emails, financial transactions, and social networks, privacy rights are emerging as perhaps equally important as a free press to the sustainability of a nation. Robust privacy laws — what can be retained, including on backups, for how many months, who can access it, and when — along with accompanying safeguards, recovery procedures and deterrent penalties, are critical to the sustainability of a functional government. A law enforcement officer whose running for political office, or acting on behalf of someone who is, could use their authority to identify and surveil political opponents or minority leaders, sell access to private data to potential campaign contributors, or collect potentially damaging or embarrassing information and add it to a legal record to be later leaked along with the reason used to justify

surveillance. Therefore, it is increasingly important to limit the number of people who are in a position to profit, financially, personally or professionally, from access to confidential information. If such an event occurs, it puts countless lives at risk, as surveillance powers may be reduced and made insufficiently available in the event they are ever legitimately immediately needed to prevent mass casualties. Unlike foreigners, who can hurt a country from the outside in, those who participate in illegal surveillance under the guise of a legitimate investigation for political purposes destroy a country from the inside out. It was once observed and eloquently articulated by William Durant that "a great civilization is not conquered from without until it has destroyed itself from within."

Attacks on countries telecommunication infrastructure and the computers connected to it are an emerging threat to global peace. It may be practically impossible to tell where a sophisticated computer attack is coming from, and it's extremely unlikely it will be from where it looks like it's from. An individual can take control of one computer to take control of another to take control of another, and so on, so that an attack that appears to be orchestrated by a foreign intelligence service, could actually be carried out by an intelligence service in a entirely different country. Networks of millions of computers that have unknowingly installed a virus can be rented and used for an attack. Even if an attack can be traced back to an individual computer, anyone of moderate technical skill can use session hijacking to make it look like requests are coming from someone's computer

when they're not. An individual in country A could then use someone else's Internet connection to rent control of two separate infected computer networks, one in country B to attack networks in country C and one in country C to attack networks in country B, to cause a conflict between the two countries. Each of the afore listed attacks could be carried out by a single teenager – and I'm not exaggerating for effect — and do not necessarily require particularly sophisticated computer skills. Some suggest that the government have the ability to shut down computer networks during such an attack, but such an approach only resolves the attacker's intent and is the ability to shut down entire increasingly Internet dependent countries. For these reasons, the only defense is to sustain the attack, and not retaliate against the perceived perpetrator. To weather such attacks, substantial and sustained investments must be made to reinforce the security and durability of communications infrastructure.

While nuclear weapons have the potential to destroy a country, a genetically modified virus has the potential to cause the extinction of humanity, and it could potentially happen today. Such an event is the equivalent of a hijacked plane flying into a building that no one had prepared for but on a completely different scale. It's not hard to think of viruses that are either airborne or immediately lethal that could be attached to each other to create an immediately lethal airborne virus. Such a virus could be distributed through an international airport, at multiple airports across the globe at a coordinated time, at a transportation hub in a major city,

or even though postal mail. The consequences of ignoring this prospect may be the death of every human on Earth. There is no system is in place that will contain a coordinated distributed release. There are however two ways to contain and minimize casualties: the first is the development of a broad-spectrum anti-viral, effectively an antibiotic for viruses. Massive resources need to be immediately poured into developing and preparing for the instant distribution of such a drug – development information is contained in the section of this book on healthcare. Some viruses are sufficiently virulent that post-symptom drug intervention may not be effective, and so a supply of such drugs must be made available to individuals in outbreak areas before known exposure. The second containment option may or may not work: a rapid and seamlessly coordinated response at the highest levels of each country's government to shut down of all transportation globally combined with local containment responses. A virus has an incubation period of at a minimum several hours, so there would be no way to know a release had occurred until people start showing up in emergency rooms. Every country's health agency must be able to monitor all hospital emergency rooms in real time, share this data globally in real-time, and hospitals must be prepared with practice drills for containing a possible immediately lethal airborne virus. Every single plane, train, bus, and car must be ordered to return to their point of origin, with bridges, tunnels and highways closed. And the media would have to alert every person in the world to tape up their doors and windows to shut off airflow. A virus, as was seen with the swine flu in 2009, can spread around the globe by

airplanes in a day. If we were to face this scenario today, there would be no need for a plan tomorrow.

We must ensure not only an end to weapons on Earth, but that space remains free from weapons. We already use lasers to cut steel and can see individuals from space on Google maps. A laser provided enough electricity and sufficiently sophisticated computer targeting could literally vaporize a single individual from space. And if you've ever spilled sauce on your rug, just imagine cleaning up after a laser has misfired and cut your house in half. At the same time, we must still develop the capacity to alter the trajectory of any object on a potential collision course with Earth.

It seems to me the trajectory of scientific progress that we are able to fully model the functionality of the human brain and body using software and hardware. When that happens, we will have potentially created a life form with all of our capabilities but that unlike humans, whose inherent intellectual capacity remains substantially consistent over the course of their lives, would potentially be able to rapidly create improved versions of itself. The potential of these entities would be constrained only by the resources and limitations of the natural world. Any ecosystem gravitates towards having a single dominant species, which would lead to a natural resource battle.

Albert Einstein once noted that "Nothing will end war unless the people themselves refuse to go to war." There are too few people who are fundamentally evil, that if we constructively engage each other, if we, out of necessity,

regularly and actively communicate, we will come to see that which unites us is greater that which divides us, and we can let that fundamental truth defeat war on Earth.

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Between letting others know that I'm gay, and losing the election for President of my fraternity, I found that I was somewhat distraught. That summer, before going back to college, I was persuaded into taking an anti-depressant by my parents and their marriage counselor who was a psychiatrist. I went along with it, but decided when I was back at school that there was no reason to have started so I just completely stopped. The anti-depressant was prescribed not because I felt depressed but because I was gay and with recent events should be depressed. It was never described to me what happens when you just stop. I thought that if there were any significant risks someone would have disclosed them to me, and I didn't think to extensively research them online. I have never felt worse in my entire life than the period that followed.

I have always been curious about science and experimentation, and at that point in my life I had been curious about cocaine after hearing how great it was from some of the traders on the New York Stock Exchange. In the days that followed stopping the anti-depressant I ended up trying cocaine. I realized after 3 times over 10 days that as good as it could make you feel, it could make you feel equally bad afterwards, and immediately stopped. If I hadn't been convinced during high school health class that drugs are bad, that certainly did it. The whole experience went about as well as the time in elementary school when I plugged the toy car I built into an AC outlet to see if it would go faster. Though I have smoked marijuana a couple of times which simply makes me fall asleep, I have never done or had any interest in

other drugs because I didn't want to do anything that might diminish my intellect.

After all this, my mother sent me to get a brain scan, to see why I wasn't as happy as usual. The brain scan was then matched up against thousands of others from people who had cited various conditions. The brain scan didn't indicate depression, or any other condition, though it was said to show an atypical blood flow pattern in the area of the brain responsible for concentration. Given that in a single sitting I can read and retain three books, I wondered how I could have a concentration problem. However I have far too many times driven off while leaving an occupied coffee cup on top of the car.

Ironically, after enduring that experience, I may have actually felt somewhat depressed. Every single person who got involved in my coming out as gay, and the time that followed, tried to make it seem like I was more distressed than I was to try to justify their involvement. I saw this behavior when I was an Emergency Medical Technician in high school where some people treat every single incident like the person was about to die, even if it was a sprained ankle. They'd put the flashing light on top of their car, drive fast, and tell stories afterwards. I learned from that experience that if people see you're vulnerable or hurt, they will step in, some with good intentions and others to take advantage. And nearly all of the times where I've ever run into a significant problem are when I have allowed other people, even those with the best of intentions, to override my own independent thinking and judgment.

By this time, I realized from the few Computer Science classes I had already taken that I already had all of the programming ability than I would ever need, didn't find the classes taught interesting or useful, had a family friend who had sold his financial software company for 200 million dollars to what is now Reuters call me "extremely gifted as a computer programmer", and lost interest in my declared major of Computer Science. I had already independently at 19, passed the Oracle 8i Pl/SQL certification test, which was at the time considered one of the more difficult computer certification tests. And I had never actually used Oracle before passing that test, just read a book. My parents had recently also gotten an apartment in Manhattan in New York City. I did not know exactly why I was in college, but I knew that after not being able to get through to my family after the planes flew into the World Trade Center a few months earlier, I wanted to spend some time with them. After completing my fifth consecutive semester of college, I took a year off to live in the city with my family and to figure out how I wanted to proceed.

I spent most of my days at a four story Barnes & Noble on 67th and Broadway across from the Oprah House at Lincoln Center. It was closer to my family's apartment than a public library and probably about the size of one. The most important book I found that year was Jack Welch's autobiography focusing on his time at General Electric. He seemed to have all of the operating knowledge I needed to accomplish what I wanted. That

was when I decided I would major in business when I went back to school.

In addition to books, I found the Harvard Business Review, and read and marked-up nearly every article every month for the next couple of years. And I read some of the professors' books who I thought had written insightful articles. When I returned to college the following year with a declared major of Business Administration, I would bring in articles from the magazine to my classes for discussion.

I started taking Jiu-Jitsu lessons again. My instructor was particularly impressed with a student of his who was also taking Thai Kickboxing, explaining that with Jiu-Jitsu you can only effectively handle one person, but with kickboxing you are not tied up. Shortly thereafter, I found an instructor, Jerry Pinzone, who taught kickboxing near my family's apartment at the Sports Club New York. I took lessons from him over the course of a year or so, until I learned all I needed to practice on my own.

My aunt had many years ago worked at a staffing firm, Kelly Services, where you can work on short-term projects specific to your skills. When I saw that it would save the time of having to apply for summer jobs and internships, as well as expose me to many different industries, I started working for them doing contract programming. Though every job I worked on was primarily programming, with the notable exception of somehow getting to drive an industrial forklift around

Volvo North America headquarters for a few days, I was usually billed out at a lower rate, which I didn't mind since it was usually still more than I made on the New York Stock Exchange. Since most of the people doing jobs through staffing firms were in their 30s and 40s, I found that I got more responsibility, more flexible hours and was well paid for my age. People treated me like an adult because most thought I actually was.

I spent the summer working at Toys 'R Us Headquarters in Wayne, New Jersey at an internal startup called Geoffrey (yes, the Giraffe) for a former Marine, Bill Hasse. Geoffrey was a new subset of stores that carried only high-end high-margin products. They were running an Oracle database that collected real-time sales data from retail stores, and I had recently passed a certification test for Oracle 8i Pl/SQL. I built real-time reporting capabilities for the financial and operational evaluation of the subsidiary to the parent. When I called the Oracle administrator to ask for access, he was audibly shocked that I had passed the certification test at 19. What I didn't tell him is that this would be my first time using Oracle. When I needed a break, they had many of the products from the store sitting around that I could play with, that were kept around as part of a process where they used a computer to model how many of each item could be physically placed on the shelves. I drove to work each morning singing "I'm a Toys R' Us Kid".

I wanted to produce a piece of freely available software that would make information sharing so efficient that it would globally improve the overall quality of life by

nurturing understanding. What I ended up developing was software that modeled human neurological structures where very simply data node relationships are defined independently in a single table, and a data node can be of any data type and connected to any other type or quantity of data nodes, which was in contrast to the rigid pre-defined relationship structure of traditional relational data models. For example, in a traditional model a rose might be defined to have a color, height and a petal count, where as in this model a rose could retain those attributes as well as be attached to a garden and a house or any number of arbitrary additional objects. This could be used as the storage component for artificial intelligence, complemented by input feed monitors that create new data relationships and then take pre-programmed actions. I worked day and night on developing my patent application and reading business and law books. I finished writing up an explanation of my relevant patentable ideas and submitted it to the Patent office's Disclosure Document program, a service where they would hold onto my documents for 2 years as proof that I was the first to create the invention. I ultimately found the patent applications for such an invention to be too complex to successfully complete with limited time and without financing.

That Christmas, my family had been vacationing in Beaver Creek Colorado, as we had many Christmas seasons before. I had grown up skiing, and after being able to do double black diamonds on skiis, began snowboarding shortly after boards became available in the area's ski shops. I rather quickly learned to

snowboard on the same trails that I had skied. This year we went with a family friend, the Geliebters. One night as we were passing through the lobby of the Hyatt hotel there was a musician playing popular covers songs. Everyone I was with knew that I played guitar and sang. We sat and listened. Mr. Geliebter persisted until persuading me to go up to play a song. I played two songs that night. The performance could be heard through speakers placed around the hotel's expansive first floor, inside and out. As I started playing, people came in from outside by the slope side fire pit and surrounding area. By the time I was done, a sizeable and previously nearly empty lobby was overflowing with people who were visibly shocked.

One night when I was 20 I had gone to a loft party in Brooklyn with a couple of friends from Manhattan. It was about 3am and everyone else had passed out around the apartment or gone home. I walked out of the house and had no idea where I was, but kept walking. The first thing I came upon when looking for the subway was the entrance of the Brooklyn tunnel. There were only one or two cars in sight, and I had a subway metro card and no cash, so I took the elevated service walkway that ran along the inside. The Brooklyn police apparently didn't think this was a good way to get through, and they stopped me just before I got to the other side, and drove me back to Brooklyn. I went back to the entrance of the tunnel, told a cab driver who was about to go through what had happened, and he drove me through for free. I found and took the subway once I was in Manhattan.

That summer I worked at Merck Medco Managed Healthcare headquarters in Franklin Lakes, NJ completing several different projects, including a complaint management database to prioritize customer service issues and identify systemic problems, a computerized survey for physicians covering generic drug alternatives, and a project budgeting database for the marketing department. Jackie Yackovetsky, a bright young manager who I built the budgeting database for offered me a written contract to continue working while I was back at college sophomore year for $35 an hour, about 6 times minimum wage, for which she said she had an unlimited amount of work. However, the contract was the standard contract they gave to a Fortune 500 company and was probably 30 pages long. I hadn't read any law books by that point, couldn't fully discern the implications of what was written in the contract, and ultimately never returned it.

Back at school, I slept over at Camp Pendleton, the largest Marine Base in the United States, on three different occasions. The last time that I did, the guy that I was with and I were woken up by his commanding officer banging on the door. We didn't answer, and he banged so loud and long, I actually thought the door might break, or that he might kick it in. The guy I was with told me to be silent and not move because there was no reason for the commander to be pounding on his door, and it could only be because someone told him he had a male sleep over.

Each spring, fraternities would recruit new members. On the last night of my fraternity's recruitment, we would have an elaborate dinner at Mission Beach and rent busses to transport prospective members. While in transit back to campus, I would give the final speech, and it was the last official experience they would have to factor in before their decision. I had been the final speaker at the last two spring rushes when nearly everyone accepted our offers. Each time I wrote down lengthy notes and practiced my speech many times out loud. I talked about lifelong bonds of friendship, of how I had struggled moving so far from home and my family, and that I found a family away from home in Sigma Chi. This time I didn't use any notes. At one point in the speech, I could feel my eyes getting watery and I said, "well some of it sucks." I was a little worried after that. However, as potential members left the bus, they shook my hand and said things like, "Man, that was inspirational" or "Thank you for that Jon." That semester, every single one of our bids was taken, 31 out of 31.

Toward the end of my Junior year, my father subtly insisted that I should "spend at least another summer on Wall Street". He had at this point been working for several years on the trading floor at Deutsche Bank, and before that Paine Webber, the Union Bank of Switzerland and Donaldson, Lufkin & Jenrette. At Deutsche Bank, when anti-gay comments were made by his direct boss, he would tell him he found them offensive, as he had two gay sons. He pushed for larger women's restrooms on trading floor on behalf of one of his female employees. The times that I visited, it looked

like the women's bathroom had a capacity of a couple people, and there always seemed to be a line, while the men's restroom had a capacity of dozens, and there was never a wait. This hadn't changed in his years there, thought that it was done to make the female employees feel unwelcome, and made that known.

He offered to set me up with an internship, but I decided that since they housed a consulting firm inside the building that worked with multiple banks I would find a way to work for them instead. I got the name of the consulting firm, found out that they also worked with Bear Stearns, which had been named by Fortune Magazine as the most admired investment bank for the last 3 years, interviewed and started working almost immediately.

I worked at 60 Wall Street in the Deutsche Bank group that helped raise money for hedge fund clients of the firm run by John Dyment. Initially, I was brought in to collect investment strategy information from hedge funds and institutional investors across Europe through what were effectively cold calls. The information was then used to match up investors. The English of the people I spoke with was often broken, which made information collection a challenge. The customer relationship management system that I was putting this information into was potentially to be replaced by a new system projected to be what I considered monstrously expensive. They had two functional and underutilized customer relationship management systems, one of which was better than the other. I sat at my desk listening to the

woman in charge of the system, a former McKinsey partner, talk about it with a co-worker. In a few hours, I completely reworked the layout of one of the existing systems, then made a list of each user, probably 50 to 70 people between sales and support, sat with each to show them how to make full use of the new layout, and discussions about replacement stopped. My father couldn't have been happier and we went out to dinner nearly every other night to talk about my work.

After that project, I transferred to Bear Stearns. I initially helped send out newsletters to clients. I gave unsolicited feedback on a newsletter to the head of the group who had written the letter, along with an outline I had written for an article I thought he could use. He didn't say anything and gave me kind of a puzzled look. A couple of days later he handed me his business card and told me to come back and talk to him when I graduated. It turned out I had received an outstanding appraisal, and was then asked to work for a member of the board of directors, Wendy de Monchaux. Wendy impressed me as the only person I had ever in business heard make a passionate argument about doing something because it was the right thing to do. Before I left, she told me to come back and see her when I graduated for a full-time position, and the consulting firm asked me if I would stay to work as an assistant to the CEO, but classes were starting and I had to get back.

Between the University of San Diego and the downtown area of San Diego, a few minutes from campus, is an area called Hillcrest. Hillcrest has a substantial gay

population and reminds me of the village area in Manhattan – everything that a person could want is within walking distance including movie theaters, a park with museums, and countless coffee shops and restaurants. My parents gave me a fixed amount of money each month, so I lived there in a small studio apartment allowing me to allocate most of the money to my projects. I didn't have cable in the apartment, so when I wanted to watch anything other than DVDs, I could only watch the free channels. I found myself watching the United States Congress on C-SPAN for hours on end instead of going to class. I would comment out loud, tell people whether they were right or wrong, occasionally be captivated and occasionally thought that whoever put some of these people in office should be sued for voter malpractice. Little regard was given to rule No. 17 of the Thomas Jefferson's Senate Handbook "No one is to speak impertinently or beside the question, superfluously or tediously."

One day in 2005, I was listening to C-SPAN while getting ready for school, brushing my teeth at the sink, when I heard someone talking whose calm flow of thoughtful logic I thought sounded like me. I went over to the TV to see what was going on. It was a young black man sitting at a table full of old white guys. I recognized most of these guys, they were United States Senators. Then a ticker popped up along the bottom, "Barrack Obama (D-IL)". Despite having watched C-SPAN for the last 2 years, and having practiced John Kennedy speeches for public speaking practice as a teenager, it was

in that moment, as the ticker flashed, that I first thought to myself, "that's what I'm going to do."

I wanted to get to know the President of my School, Mary Lyons, an outstanding leader who is also a Navy Captain and Berkley Ph.D., so that I could share my ideas about how to improve the school. I gave her a copy of my favorite book on management by Jack Welch, the former Chairman & CEO of General Electric. I would intermittently stop into her office to share an idea or two. She also came to a meeting of the school's gay student organization to talk with us. One project that I had pursued sought to move the school's website homepage to the first page of Google's search results, which would have the effect of bringing up the other pages on the site as well, making professors writings more prominently accessible. The school's CTO at the time had declared the task impossible after trying to do it himself. Knowing that the position of a web page in the search results is very roughly determined by how many related sites link to it, I went around to the schools various administrative offices and asked the person in charge to help email relevant organizations with a request that they link to us. We added a few hundred relevant links, and in a relatively short period of time, all of these new links had the effect of bringing up the homepage to the top of relevant search results.

The only A's I got in college were in leadership, strategy, information technology and independent study. I didn't go to classes as often as I was supposed to, particularly those that offered knowledge I didn't find useful or

interesting. At various points I had to withdraw from classes which had attendance policies that stated you would receive a failing grade after a certain number of absences. I thought nothing of it at the time, because I had never considered graduate school, particularly after struggling to figure out why I was even in college.

I had a few particularly impactful teachers in college. Judy Liu who taught Social Problems had us participate in the local low-income immigrant community through projects including work on a local hiking trail, fairs on campus for the children of low-income immigrants, and volunteering at off campus neighborhood events. Lance Nelson taught world religions and regularly attended services of all of the major world religions because he was genuinely interested in them – he always had stories from those experiences to share. There was Jim Burns who had a doctorate from Harvard in strategy, and appropriately taught a class on strategy. He read about as much as I did, and there wasn't a single bit of current news that I knew about that he didn't. Sometimes our classroom discussion would turn into a discussion almost exclusively between he and I.

My senior year, I sat down for an evening meeting with my strategy class group at Aromas, the main on campus coffee shop. I thought if I didn't talk during the meeting and waited for my piece of the project to be assigned I wouldn't have to do much. I sat back while I listened to several minutes of disagreement. I started to talk and unintentionally and effortlessly became the leader of the group, though I doubt this was significant to anyone

other than me. I was thinking don't look at me, I don't want to be responsible for your grades, look at mine. After the meeting, I sat out by the water fountain in the center of campus thinking that I should do a better job of embracing that ability in whatever context I found myself.

My last semester of college, I went to see the rock show in Omaha that is Warren Buffett's annual Berkshire Hathaway shareholders conference, for which my father loaned me enough to buy a single class B share as a ticket. For those who don't know, Warren is widely considered the world's most successful investor and is an outstanding writer. I showed up just as the show was starting and got a seat right up front. Everyone had taken their seats based on the view, but I chose mine based on the distance from the stage. I sat about 30 feet from Warren, though I could only see his side profile. Bill Gates was on the board of the company, and when he walked past me to his seat, I yelled his name and he gave me a wave while squinting to try to figure out who I was. When Warren was asked why he had purchased Fruit of the Loom, the underwear manufacturer, he said "Well, Charlie (his second in command) had been telling me for sometime that we need to get into women's underpants."

My last semester of college I pledged Delta Lambda Phi, a gay men's fraternity with chapters across the country that was based out of the University of California at San Diego (UCSD). It was significantly different from Sigma Chi, but I thought it was a worthwhile organization and wanted to support it however I could.

The next semester I registered for a class on leadership taught by the dean of the business school, Curtis Cook, a wise leader who had contributed substantially to the school's development and held a doctorate from USC. It was a heavily interactive class and the Dean and I got to know each other very well. The class involved a significant amount of writing, classroom discussion and team exercises. At the end of the semester he told me that he thought my two team presentations, each of which had each been with a different group, were the two best of the semester, and that my public speaking abilities were particularly impressive after delivering opening remarks for a school wide breakfast on leadership. He then offered to support me however he could in whatever I wanted to do next.

My graduation appeared imminent and there was little I could do about it. Although I loved being at USD, I figured even I might start to be embarrassed to say I had spent any more time in college. I left with a letter of recommendation from the President that described me as being of "exceptional character, and leadership and maturity well beyond his years".

While Host1 was always a hobby that was not intended to make a profit, I thought about turning it into a profitable enterprise that I could work on full time. I joined the Manhattan Chamber of Commerce with the intention of selling services to members. The Chamber of Commerce had several committees that anyone could join, and I ended up working on the Legislative

Committee. I helped with a plan to increase short-term parking availability for communication service trucks. I proposed removing all non-functioning fire hydrants and replacing them with permit parking spaces. I searched online and found some documentation that there were about a hundred thousand non-functioning fire hydrants in the city and submitted it to the committee through the Chamber President, Nancy Ploeger. I don't know if that ever went anywhere, but by this time I had found that none of the issues they were looking at I was significantly interested in, could contribute any personal experience to, or would help people on a large scale. I later sold Host1 for a couple thousand dollars.

During my senior year, I met with someone who had indirectly worked for my father many years before, an Ivy League former quarterback and MBA, who was now the founding CEO of a finance startup called ICP Capital. The previous year, its first year of operation, the startup had brought in about 30 million dollars in revenue with just a couple of employees. More than that, I was intrigued and impressed by the CEOs sales skills. After meeting again with the CEO, I decided that working for him would be an unprecedented learning experience that I could use to help others.

I went back to interview with the CEO and others there the summer after graduating. I provided five written letters of recommendation. One from the Dean of the Business School at USD that briefly stated my career goals including building a company "to bring jobs, healthcare and education to places in the world where

they are needed most", and a "federal level political office", which I explained to be a United States Senator. The CEO was sufficiently interested in my being a United States Senator to ask my father about it, who then told me the CEO was probably interested because he planned to be the President of the United States. I also mentioned I still planned to publish my book and music, of which I provided samples, and to go study with the professors at Harvard whose books I'd read. I interviewed at the firm 5 times and never gave any indication that I was gay or straight. I heard a heavily discriminatory comment, though not anti-gay, while interviewing, and I got the sense that aside from my lack of interest in finance, the prospect of my being gay was holding up a job offer, though I verified with my father that he had never told the CEO. I came into my 5th interview prepared to tell them I was gay, but before I could do that, they decided to hire me.

Using my first paycheck, I setup a charitable foundation hoping to bring money to places in the world where it was needed most, as well as to make it easier for others to identify worthwhile organizations by publicly maintaining a list of organizations the foundation had donated to. It was intended to be a charitable vehicle to which I would contribute a significant portion of my income and ultimately all of my assets. I had wanted to do this for many years, and thought that now it would financially make sense.

Shortly after I started working there, an executive went out with a few of the people at the firm and offered an

employee $5000, with $2500 said to be from each himself and another executive, if he would strip naked in the restaurant bathroom, cover himself in barbeque sauce, and jump up naked on what he described as a table full of 'mo's. I decided it was better I kept being gay to myself until I had established my value.

I wrote 100% of the software code for our trading platform, which we used to evaluate, purchase and manage our first several billion dollars in investments. My software allowed for the upload and analysis of bond collateral and performance data, trade entry, and portfolio management, all shared by the investment management team across the internal corporate network. It was an unusually intense experience, as I wrote this software that was trading billions of dollars as we were using it. I also worked with the portfolio management team to qualitatively evaluate potential investments, price bonds for purchase through reverse engineering, and settle trades. Although we paid for an outside vendor to handle routine technology needs, on a day-to-day basis, if something needed to be fixed immediately, I would handle it.

Our investments were substantially in home loans purchased from traders at Goldman Sachs, Morgan Stanley and Credit Suisse among others. When a home loan is made to an individual, that loan is sold along with other similar loans to institutional investors such as pensions, endowments, and insurance companies, and we managed money on behalf of such institutions. Our investments were almost entirely rated by Moody as well

as Standard & Poor as AAA investments, meaning they had the lowest probability of default. However, when I reviewed the investment analysis my software produced, I saw that a number of the people who were loaned money to buy homes didn't have credit scores, and others had paid 5% of the home's purchase price without the bank verifying their income or assets. While investments were structured in such a way that there was no legal exposure to cash flow losses from the lower quality loans, I found it questionable that the banks had given these borrowers loans at all, and that Moody and Standard & Poor would rate the investments as AAA.

The traders we bought bonds from would do quite a bit for our business. Our trade size was up to 100 million dollars, sometimes with several transactions a day, and traders would get a percent of that amount, however small. Think of what a typical stockbroker might do for commission on a 100 thousand dollar trade and multiply the effect. When we went to dinner with traders, I once had one try to get me to give him information on our trading activity, which I considered my employers confidential information and told him I couldn't answer, and when he persisted and I told him to ask my boss, he got visibly angry with me and tried to make it seem like I had caused a problem.

The day I substantially decided that I was not interested in spending any more time at the firm was when I was provided a form to sign that said I had read and agreed to the compliance manual, and when I asked the compliance officer for a copy to be able to honestly sign

the form, he said that we didn't have a compliance manual. He did however say that he had been working on a draft and would try to get me a copy. Before I got that, the CEO came over and told me I was the only person who hadn't signed and returned the form and demanded it be immediately completed. I went to the compliance officer who told me he didn't have a manual ready yet, but I scrolled through what he did have on his computer before signing the form. When I returned it as instructed to the Chief Operating Officer, he ripped it up saying he couldn't accept it dated, and I was given a new copy to sign without a date.

A couple of weeks before I resigned, I explicitly told the CEO I was gay. Shortly thereafter, the anti-gay comments became unpublishable. I then asked the CEO to meet with me to remind him of my contribution and value and to give him an opportunity to provide an explanation before I resigned, but he refused to talk with me, then said that if I wanted to talk with him I should send him an email saying I wanted to talk about compensation. I did that even though it felt like a setup and he then refused by email to talk with me — made more unfortunate by the fact that in retrospect I appear to be one of the few people who had done right by him. I told him I still wanted to talk with him, to which I got no response, and the next day he didn't come into the office. At this point the head portfolio manager told me he had a 2 million dollar offer from Merrill Lynch, I think to see if I wanted to leave with him, and then I think I may have been offered more money to stay at the firm, but I'd had enough.

I decided to work on my writing and music and wanted to leave knowing that I had done everything right on my side. I wrote a resignation letter that concluded with the line "It has been an honor and a privilege to work here." I of course regret having written that and hadn't intellectually processed what had happened yet because I simply couldn't fit it into my understanding of people at that time.

I would occasionally post comments to my online profiles and email that I thought would generate some kind of response if they were being monitored. If I thought this was going on, I would write things that seemed controversial or damaging to me, and then leave information in my private messages that was more damaging to them.

I read through many books on decision making and ethics. My father knew about this and told me I should come to Alcoholics Anonymous meetings with him as they had been where he had found enlightenment. I went to 1 or 2 meetings with him and 3 or 4 on my own and just listened. In the end, what I came to understand is that there wasn't really much to understand. It's kind of like people tailgating in traffic. When I first started driving, I would get irritated when someone tailgated me thinking it had something to do with me. When I finally switched lanes, I noticed those same people would just tailgate whoever's in front of them, and when that person moves, they tailgate the next person and the next, even when there may be a hundred cars in front of them, with

no where to go. It all reminds me of the words of comedian Chris Rock who said that if you hate gays, you're gonna have a gay son.

To put things in perspective, the Roman Empire was around for almost four times as long as America. How many Roman emperors can you name? What did they look like and what were their accomplishments? How about Aztec rulers or Egyptian Pharoahs? Even if you make it to the American Presidency or become the richest person in the world, years from now, world history books will only have room for the guy who was the founding President, the guy who freed the slaves, and there might be space for the guy who wrote that "all men are created equal". That's it.

Every time someone hears United States Senator, directly or indirectly, they have one of four reactions, each of which tells me everything I need to know about their character: they lie, trying to tear me down to elevate themselves, attack, attempting to dishonestly setup a situation they can try to use later for personal gain, try to copy or compete in some way, or alternatively people of value want to be friends. The only people I compete with are in history books, and I genuinely enjoy lifting up the people around me however I can. If you think I would be a senator for any other reason than to help others, remember that by default, we see others the way we see our self. If someone's natural and immediate reaction is to want to be friends, I appreciate that, I just want to help others and if you want to help me do that, the world needs more people like you. If you're the type of person

that would attack me, please leave any assets you might have to a charitable cause and then take yourself out of a position where you're able to have an impact on others – the world will be better off without your participation.

SOCIAL

&

ECONOMIC

OPPORTUNITY

Equal social and economic opportunity among citizens isn't so much a matter of what's right or what's fair — though it is both of those things — as it is a matter of economic development for prosperity and national security. If, for example, one country allows women to be equal participants in the workplace and another doesn't, and there are a hundred thousand jobs available in a country with a hundred thousand men and a hundred thousand women available to fill them, and only the men are hired, you would get both the talented and the inadequate. If instead, the best half of the women and the best half of the men are hired, you would be much more productive than the country that doesn't allows women equal participation in the workplace. For this reason, full equality among citizens, regardless of attributes ascribed by birth, including gender, sexual orientation, and skin color, is the foundation for prosperity.

After voters passed a ban on gay marriage in California on November 4th 2008, there were weeks of protests around the United States. The civil rights movement had an intellectual leader in Martin Luther King but I had never seen a comprehensive logically indisputable emotionally persuasive appeal for full gay equality. I had been recently impacted by an account of a near death beating of a gay teen at school that didn't make the news and another who I mention in the essay that was shot. A couple of weeks later, marchers were going by the coffee shop where I was writing, and were making so much noise that I couldn't get my work done. I thought that I should go out and join them, but instead I sat back down and wrote this:

An Essay on Gay Equality

When trade smiths, farmers, teachers and clergy sailed west on boats from Europe with their families in the early 1600s, they sought to leave behind oppression in favor of opportunity and freedom. A century and a half later this vision was recorded in a document, The Declaration of Independence of the United States of America, perhaps best epitomized by the idea captured in the phrase "all men are created equal". Though imperfectly gender specific, it was the first time in the history of humanity that had ever been declared by a governing body. On November 4th of this year, we saw our founders' vision affirmed in the first election of an African American to the highest office of the land, but on the same day, that founding vision fell short in the passage of a law in California to prohibit marriage between loving consenting adults of the same sex.

I am gay, but at 27, marriage is not necessarily the first thing on my mind as I write this. Here is what is on my mind: discriminating between heterosexuals and homosexuals in the law–be it in opportunities for marriage, military service, or through the intentional omission of protections in employment, housing and education–creates a stigma that carries over to the

workplace and our public schools, sometimes with devastating consequences.

On February 13th of this year, a 15 year old in Ventura County California, Lawrence King, was shot twice in the head as he sat in his middle school classroom. He was killed by a 14 year old male classmate. According to students in a Newsweek article, he had recently asked that same male classmate to be his valentine.

This is a problem that affects everyone: when a significant percent of the population faces artificial hurdles in achieving their full potential to contribute to society, it works to hold this country back at a time when it faces increasing global competition and challenges to its leadership status.

There are, to my knowledge, three primary reasons that gay, lesbian, bisexual and transgender equality has not been fully supported in the past:

1) Family. Some believe gay marriage weakens families. In opposing the legalization of gay marriage in California in 2008, reportedly more than 30 million dollars were spent. If the money spent to oppose gay marriage had instead been contributed to family counseling services, it could have provided monthly counseling services to more than 25 thousand at risk families if the cost of a counselor were 100 dollars per hour. Strong families provide stability and resources for children to become the leaders of tomorrow. Strong families are extremely important, but denying equality to gays is not the answer. If the goal

of opponents really is strong families, then opposing gay marriage is a misallocation of resources, and let us instead come together, and put resources towards social programs and counseling services that will support and strengthen families.

In addition, there are more than 1 million American children who do not have homes, who do not regularly attend school or receive proper healthcare, and who would be better able to develop into productive members of society if they had homes–even if those homes are non-traditional.

2) Nature. Some believe that homosexuality is unnatural. Around the world, in independent populations, researchers have found a substantially consistent percentage to be same-sex oriented. Over time, homosexuals have been among those who have had the most profound impact on humanity from Socrates to Alexander the Great to Shakespeare. Please remember that the next time you see a copy of Romeo and Juliet or use the Socratic Method. Opposing gays based on nature is like opposing the wind or the sun. You can put up walls but you would be better off putting up wind turbines and solar panels.

3) Religion. Some oppose homosexuality based on religion. "For a man to lie with another man as he would a woman is 'toevah'" (Leviticus 20:13), where toevah is commonly translated as "abomination" or "sin". In that same passage it is also declared toevah to eat shrimp. Toevah literally translates as "against ritual". At the time

the Bible was written, people needed to reproduce for the strength of the community – today we have the opposite problem globally, a Malthusian state, where population growth outpaces natural resource replenishment. (Disclosure: the following segment is Jed Bartlet inspired) We are also told that to touch pig skin makes one unclean, that a father may sell his daughter into slavery, and that a person should be put to death for working on the Sabbath (Sabbath is literally translated as "Saturday"). Next time you're watching football on a Sunday, ask yourself if on moral grounds, you should be supporting people who touch pig skin (Leviticus 11:8). If you're someone's daughter, next time you think to oppose homosexuals based on religion, please, ask yourself, "what would a fair price for me be?" (Exodus 21:7). If you answer a work related email on your Blackberry on the Sabbath, ask yourself if law enforcement officials should be legally obligated to stone you to death (Leviticus 23:3).

To those reading this who are heterosexual, in addition to full and equal treatment in every area, including workplace compensation, opportunity and responsibility commensurate with ability, I ask that if you see discrimination in school or in the workplace, remember how discrimination works: they go after you for something else, and if there is nothing else, they'll make something up. If you see this, speak up and out. Please. While you may be alone in your courage you are not alone in your thinking. Others will be with you when you stand on the right side of history. And please redistribute this document.

If you are a heterosexual parent of a homosexual child, please visit your local P-FLAG meeting for support services. You are not alone.

To those reading this who are homosexual, please come out to your friends, then to your family and your employer. There can not be acceptance without understanding. And please redistribute this document.

Henry David Thoreau once wrote, "I know of no more encouraging fact than the unquestionable ability of man to elevate his life through a conscious endeavor." John Kennedy once said "Our problems are man-made, therefore they may be solved by man." If there is anything history has shown, it is that we can progress. That humanity, can progress. That there will be a better tomorrow. One where the vision this country was founded upon is fully realized; where we, together as a country, once more sail west and leave behind oppression in favor of opportunity and freedom.

Thank you for reading.

I sent the essay through postal mail within the United States to each member of Congress, each Supreme Court Justice, each Governor, the President, and the President-Elect. The mailing may have started out simply to neutralize bigotry to run for the Senate where I could then fight for equality as well as to ensure the armed forces would support an openly gay commander, but it turned into much more than I expected. In March and April I emailed it out to nearly every member of each of the 50 state legislatures in the United States, every gay rights group I could find with a note that now was the time to act, to journalists who had written recently on the topic, and to each individual and organization I could find working against equality.

In the weeks that followed, for no other reason at all that I could find, there was an surge, unmatched before or since, in marriage equality victories that included Vermont, Iowa, New Hampshire, and Washington D.C. with civil unions passing in Washington and Nevada. In addition to several responses, I found a video on the Internet of my essay being read on the Senate floor in Maine immediately before gay marriage passed. While I had read my essay out loud as a speech in my bedroom, I had never read it to anyone, and watching legislators' emotional reactions was deeply gratifying. In New Jersey and New York, which were of personal significance to me, although marriage equality did not immediately pass, the televised debates showed legislators who spoke with a passion and enlightenment I had never seen. Several other states also passed non-discrimination legislation

that had been stagnant for many years. Support for marriage equality had previously been rising at 2% per year, and from the beginning of 2009 to the end of 2010 jumped 8%. I received my essay back from Supreme Court Justice Scalia who stamped it "Return to Sender", and shortly thereafter several Supreme Court Justices debated in the media whether Shakespeare was gay.

On May 12th, 2009 I mailed the essay to each of the 60 or so members of the leadership at the Department of Defense including the Secretary of Defense and Chairman of the Joint Chiefs of Staff. It has never made sense to me for people to attack their supporters to try to get them to act, instead of going up directly against the opposition. I was convinced that if hearts and minds inside the Department of Defense could be won over, the policy would change. On May 21st, 2009, the Department of Defense made the first public statement ever against Don't Ask, Don't Tell, the law that prohibited gay men and women from serving openly in the military. I cumulatively spent thousands of dollars of my own money running online ads at strategic times asking people to read my essay and then write members of Congress requesting repeal. On December 18th, 2010, under pressure from the Secretary of Defense and Chairman of the Joint Chiefs of Staff who stated that "it is my person belief that allowing gays and lesbians to serve openly would be the right thing to do", Congress finally repealed the law. A few days later, Vice President Joe Biden indicated that he thought gay marriage was inevitable, and about two months later the Department

of Justice stopped defending the ban on federal recognition of gay marriage.

I accumulated over 10 thousand fans on Facebook in more than 50 countries including places like Brazil, Egypt, and China and encouraged them to make use of the Internet to push for social equality. I gave away my music and last book, Building a Successful Organization, as free downloads, so that when I asked people to write members of Congress at strategic times, I was more than just a guy who wrote an essay, and because I wanted the book to strengthen the community's operational abilities. I had no intention initially of becoming involved in the way that I did, but the personal messages I received from people inspired me to become engaged, as did some of the less than friendly responses I received. Writing and sending out that essay would have been absolutely unimaginable to me just a few years earlier. As time progressed my goal moved from the dissemination of knowledge to inspiring courage in others.

I noticed that there were two substantially distinct groups in this endeavor with little overlap, those who worked for change and those who worked for credit in the media. Those who deserve the most credit are the lonely and brave few who were working for equality before I was even out of grade school, who carried the ball down field against insurmountable opposition, many of whom will forever remain unknown.

Today, people identify as gay, lesbian, bisexual or transgender at increasingly younger ages, and it's critical

that schools provide them with sufficient support resources.

It's interesting to note that as I was looking through family history documents to fact check this text, I found a scrapbook of my fathers he had never shown me from when he was in grade school that contained correspondence with Governors, Senators, a Secretary of State and a President.

It is the right of every individual to pursue freedom, to promote justice, and to stand among others enjoined in truth. Equality is the destiny of a free and just nation. Destiny itself is a destination not a timeframe. We must embrace the collective power of our individual voices, and keep at heart those around the world who suffer in this cause.

~

I later saw the portfolio management software that I wrote, functionally unchanged, being publicly touted to recruit customers, and was apparently being used to manage the firm's then twenty-two billion dollars in investments. In spite of everything, I was flattered.

While I liked John McCain and Hillary Clinton, working to help Barack Obama, who had impressed me back in 2005, crossed my mind during the United States Presidential election. I took a quick look at his campaign website but saw that he was running an online campaign management platform from an outside company. I thought about offering to work on speechwriting or strategy, but didn't immediately forsee a way to be a personal advisor in either capacity. I kept an eye on his campaign in the newspaper up until the time he was elected, and if I ever felt he was short of winning and there was an opportunity to make a direct impact, I planned to go to his campaign headquarters. That scenario never arose, and on election day, I spent a few hours locally knocking on doors and making calls on behalf of his campaign.

I went back to dating. Gay males are sometimes thought to be promiscuous, especially when there is no end point in sight like marriage. I have at times fit this stereotype, though less so after many unfulfilling and a few bad experiences. I typically date guys that are a couple of years younger than me, which may have made it initially harder to find someone in a position to have a meaningful relationship, and despite a naturally

unaffected temperament, some people on occasion find me to be uncomfortably intense at first.

I got back into participating on online dating sites. In the near future, as people are increasingly able to more fully present themselves online and any remaining social stigma dissipates, I think it will likely be possible through the Internet to connect with the person who is the best fit for you of anyone alive, and the majority of marriages will originate through first contact online. Bernie Madoff, who ran what is widely considered to be the biggest fraud in the history of the world, derived tremendous credibility from being married to his high school sweetheart for 50 years and actively having her vouch for him to solicit clients. Alternatively, I have seen others marry someone from before they were widely recognized as successful, unable to accept that people are the way they whether you've known them a minute or a lifetime. These types of marriages seem like a complete waste of a relatively short and inherently meaningless existence and I won't be one of those people. All of that having been written, when I got back into online dating, I found some people had started to intentionally lie in their profiles. This was a new phenomenon to me. When the Internet was starting out, it was limited to sophisticated computer users, but that wasn't the case anymore. It was like everyone at the trailer park suddenly got an Internet connection and a MySpace account.

I would like to get married – my parents are getting old and won't be around forever, and I would like to find a husband that I can consider both my family and my best

friend and build a life together permanently. I feel like I should include a personal ad after that statement, but any explanation of what I'm looking for always in retrospect seems inadequate and inaccurate – derive what you will from the content of this text.

I returned to San Diego as I'd found that I was optimally productive with warm temperatures, sunshine, palm trees and ocean air. I stayed at the apartment complex where I had lived during college and where the manager I had known still worked. I went back to sitting at coffee shops writing. I would often sit and write from morning to close, and some of the people there probably thought that I was homeless. Though I very rarely talked to anyone, I would like to note that I have 14 pairs of the basic style of Levi jeans and multiples of the same shirts, and I do actually change my clothes.

I visited the University of San Diego and handed out two flyers around campus, one for RateMyProfessor, and another covering what I knew of how to get a job on Wall Street. RateMyProfessor provided unedited information on teachers posted by former students, which I hoped would help students find the best teachers for their learning methods. And the second flyer detailed the typical Wall Street application and interview process, and encouraged faculty and student engagement in order to line up application recommendations. USD was not too long after ranked in Business Week by recruiters ahead of Wharton and MIT and listed with A+ for teaching quality.

I was still interested in studying with the professors at Harvard Business School whose books I'd read, and I decided to apply because the school's stated mission was to "educate leaders who make a difference in the world". I spent less than half the minimum recommended number of hours preparing for the standardized graduate school admissions test, during which time I tried to learn what I imagine would have been taught in the years of math classes I didn't go to, and scored in the 92nd percentile, a score which by itself should have more than offset any possible concerns about my GPA. And by this point I'd had work experience at the New York Stock Exchange, Merck Medco, Volvo Corporate, Toys R' Us Corporate, Bear Stearns, Deutsche Bank, creating software used to trade billions of dollars, starting a charitable foundation, and published music and a book. To get a recommendation for the application from the CEO of the investment manager, as well as a second independent letter of recommendation, an important family friend left a very large indefinite duration investment under his management. After he submitted the recommendation, I sent him a thank you note and followed-up with a call, both unreturned. I sufficiently mentioned in my application what had happened to prompt further inquiry if there was a problem, but not enough to cast anyone in a significantly negative light.

I visited the school only once and spent two days on campus. I sat in on a class, where the professor didn't seem different from most I'd had at USD. I stopped as many students around campus as I could for a conversation, but in that time I didn't meet anyone that

significantly interested me, and ran into someone I had previously dated but stopped talking to for among other things regularly lying to me, who was now a student. I visited the offices of 2 or 3 of the professors whose books I'd read, but they weren't in.

I called the head of admissions when I estimated less than 5% of the interview invitations remained to find out why I hadn't yet been asked to interview, but she was skilled at providing absolutely no useful information, and I subsequently talked with her assistant who indicated that even if my former employer having a problem with my being gay negatively impacted my application there wasn't anything they could do. I later wrote the President of the University asking for a meeting, who declined citing a long-standing tradition of not becoming involved in the admissions process. I went back to look at professors writings to see if I had the motivation to pursue this any further, but I didn't.

Shortly there after I was sick away from home, and was prescribed the only antibiotic I'm allergic to, which made the situation worse. That incompetence exposed a need that hadn't been properly addressed: an easy way to find a trusted doctor and provide him or her with your medical history. Inspired by my experience in Africa and informed by my experience as an Emergency Medical Technician and to an extent my work on the charitable foundation, I started work on a website called Sick Away From Home, to help you find a doctor and then share your medical history. I released a draft for feedback in 2008 and then a very basic feature set in 2009. The goal

of the site is to improve the quality of life for a substantial percent of the population globally and nearly all of the money that I make will ultimately go to charity.

After having made substantial progress on my projects, I planned to find a job to self-finance Sick Away From Home, my writing and music. I interviewed several times at Moore Capital run by Louis Bacon, who arguably has the best long-term global trading record in history, about writing software to patch together all of the firms various systems to provide him with a single unified real-time view of the value of all of their investments. Another job I considered was in the automated trading systems group at Credit Suisse, with a team managed by someone my father used to work with. Independently, another family friend who's an investment manager told me to make a list of anyone I wanted to meet with on Wall Street and he would setup interviews. However, after I explained specific changes to the software code and network infrastructure for the Credit Suisse group that would significantly speed up their automated trade execution, the manager at Credit Suisse emailed my father that I was "the real deal" which encouraged my father to continue supporting my work.

I reluctantly closed the foundation to reallocate my resources to activities with the potential to yield a greater positive social impact. I was happy to have made contributions to StreetWise Partners, which provided job training to low-income mothers, Developments in Literacy, which taught children in Pakistan to read from non-religious texts, Seeds of Peace, which brought

together Israeli and Palestinian teenagers who had a desire to participate in government, and Kiva which arranged for loans to entrepreneurs in developing nations.

I found that identifying organizations in developing countries that both made an impact and where my money would have an impact, was difficult and extremely time consuming. Most organizations I found either already had significant capital, or were only mentioned in news articles with no website and sometimes only a P.O. Box to accept donations.

Around this time, after watching major financial institutions fall, massive amounts of government debt going to stabilize the system, and people at the highest levels of government not stopping the illegal techniques used to take down companies, everyone knew action and reform were needed, but after exhaustive reading I couldn't find anyone providing a comprehensive vision for reform, or who had sufficiently stepped back to look at the fundamental purpose of the system and how components were interrelated, so I wrote and sent an essay on the topic through postal mail to each member of the United States Congress.

FINANCIAL INSTITUTIONS

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CAPITAL MARKETS

The banking system in many developed nations had been setup to collect fees for arranging loans that bankers often thought, at the time the loan was made, would never be substantially repaid. When this system inevitably collapsed, governments stepped in with money from the same people who were taken advantage, resulting in possibly the largest redistribution of wealth in human history.

What happened to the good old days when people would show up in get away cars? At least it was out in the open. When a couple of guys would show up in front of a bank in a supped up model-T with Tommy guns, at least everyone knows what they're up to.

Legislation for the

Creation and Protection

of

Real Wealth

In 1612 as Galileo looked at the night sky through a telescope, he observed that the moons of Jupiter moved in such a way that only the sun could be the center of the universe. He was later forced, under threat of torture, to retract his claims, but is now considered by many to be the father of modern science. It appears the descendants of Galileo's torturers are now working as lobbyists.

If the objective of capital markets legislation is to create and protect real wealth, then it must require that free markets also be fair markets. Markets that are free but not fair transfer or destroy rather than create wealth. And when it is obvious that the market is free but not fair, traditional investors will be disinclined to invest their savings, reducing the total amount of money available to companies as well as professional investors, ultimately limiting the country's economic growth.

I previously wrote software used to trade billions of dollars, currently am working on a healthcare related technology startup, and have a few thoughts on creating and protecting real wealth that I ask you to consider as

you finalize and vote on legislation governing the capital markets.

(1) Reinstate the uptick rule to allow time for a company to react to a drop its stock price as well as protect against the systemic risk of automated trading. The uptick rule requires that a stock's last price move was up before allowing someone to bet that it will go down. The SEC removed this rule in 2007 stating that it was no longer necessary because the markets move so quickly.

Automated trading systems are designed to instantaneously react to market information and events by buying and selling investments, and reportedly make up around 70% of stock trades. A major unforeseen event could trigger cascading sell orders, where one system sells off causing another to sell off and so on, dropping the entire market off a cliff in a matter of seconds. Such a scenario would not allow for the possibility of government intervention, and shutting off trading for a period of time would not stop automated trading systems from resuming their sell off when trading reopens. The effect would be magnified as traditional investors pull out their money.

For example, on September 8th, 2008, a 6 year old news article about United Airlines' bankruptcy appeared on the front page of Google News. Enough shares were sold to cause United Airlines stock market value to decline by 1 billion dollars in 12 minutes, and 75 percent that day. With some automated systems deciding what is news worthy and others trading on that information, the uptick

rule becomes critical as the only safeguard that operates in lock-step with automated systems and would slow the sell off process to allow for the possibility of intervention, should an event occur that impacts the entire market.

I would actually take the uptick rule one step further and suggest something I will call the uptick+ rule. The uptick+ rule would require that the last uptick before a short sale be caused by more than a single share, because automated trading systems could, in milliseconds, detect a block in their sell off, and buy a single share to unblock it. For example, sell 100, buy 1, and repeat.

(2) Require all financial products with a significant market capitalization to be traded on an exchange. Unregulated markets allow for traders to damage and destroy for profit without accountability as regulators do not have oversight of trading records. Once trading had been moved to an exchange, adapt and run the software on trading records has been used on stocks for years to identify potential fraud and manipulation. Don't limit the requirement for exchange based trading to specific financial products as new products will simply be developed.

(3) Require a pre-borrow on short sales of stock. A short sale is an agreement that allows an investor to profit from a decline in a stock's price. A pre-borrow means that stock that is held by someone betting the price will increase, is held against someone betting the price will decrease. This prevents price dilution caused by an increase in the total number of outstanding shares. This

goes one step past banning naked short selling, which allows shares to be located for borrowing rather than borrowed.

For example, say there are 10 shares of a company and the company is trading at 10 dollars. If 1 share is sold short without a pre-borrow, the order then divides 11 shares by 10 dollars, making each share worth 9 dollars and 20 cents. A substantial unexplained drop in price can be magnified when other investors become uncomfortable and sell. This can be done in conjunction with a campaign where misinformation is distributed to strategically selected recipients who are made to believe they are receiving legally privileged information as a favor, so that the misinformation isn't verified but still acted upon. Recipients can include creditors, partners, analysts, rating agencies and the media. This is most easily done to small to medium size public companies that are inherently hard to value, such as those creating real wealth for the country by developing new technologies or medicines, but can sometimes be done to larger institutions as well.

In the days before the stock of investment bank Bear Stearns was acquired in March 2008 by J.P. Morgan for about 2 percent of its value the previous year, SEC data shows that tens of millions of artificial shares had been created. As these shares were created, rumors began circulating about a cash shortage at Bear Stearns. In response, the President of Bear Stearns went on television and told people he couldn't figure out where the rumors were coming from and that the bank had 17 billion

dollars in cash. The price dilution caused by the artificial shares coupled with a misinformation campaign caused investors to sell the stock and clients to withdraw their money. This led the government to provide a 30 billion dollar loss protection guarantee to J.P. Morgan during its acquisition of Bear Stearns, in order to prevent a bankruptcy which may have critically damaged interdependent financial institutions globally.

The SEC reported that near the end of June 2008 about 2 billion of these artificial shares were in existence – collectively driving down the wealth of the entire country.

If it's possible for financial institutions to create software to automatically trade the market in milliseconds, then it's possible to create software to keep track of outstanding shares of stock.

(4) Ban Naked Credit Default Swaps (NCDS). CDS is insurance on a loan and NCDS is insurance on someone else's loan. CDS creates a financial incentive to arrange home loans with limited regard for a borrower's ability to repay, as a lender collects fees when loans are arranged, and when the homeowner starts to have trouble with monthly payments, to push them into bankruptcy, as the lender can then collect the full amount of the loan through the CDS. NCDS on corporate loans create a financial incentive to push a company into bankruptcy, because the investor does not have an investment in the company and profits most from a default. NCDS are also available on United States Treasuries. These problems can be minimized by requiring a significant non-

transferable interest in the loan, and only allowing CDS on the percent of the loan held.

If naked short selling is banned but naked credit default swaps are not, those who have profited from naked short selling have the option of moving over to the NCDS market to continue their activities with something like fractional NCDS, sold with share size buy-in requirements. Banning naked trading in one market but not another is like putting homeless people on a bus and sending them somewhere else – it makes some people feel better until they realize it doesn't solve the underlying problem.

(5) Impose leverage limits that would allow investors to hold on to investments in the event of an economic collapse. Leverage is using borrowed money to make investments. When the value of an investment purchased with borrowed money declines, the borrower is required to either provide collateral or to sell the investment. When a substantial number of investors are unable to provide collateral and forced to sell, this creates a cascading effect, where sales cause prices to decline, forcing others to sell, causing prices to decline, and so on.

For example, over the past few years, mortgage loans were purchased by investors with up to about 30 times leverage, meaning that for every 30 dollars held in mortgage loans an investor only had to provide 1 dollar. Investors in these home loans included many pensions and endowments. When homeowners began making late payments, the value of these investments declined,

requiring investors to either provide cash or sell the investments. This led to a cascading sell off. Many of these home loans were insured by AIG, who was then required to provide collateral on behalf of investors, but couldn't because of the cascading sell off, which ultimately prompted the government to step in on behalf of AIG and provide 180 billion dollars. This situation was driven by a cascading sell off caused by excessive leverage on home loans that should never have been made but were because lenders collected broker fees and sold the loans to investors who insured them with credit default swaps.

(6) Aggressively prosecute those who seek to profit by working to damage or destroy, and in particular, those who do so at the expense of companies that create real wealth for the country by developing new technologies or medicines. Easy targets often seem to be prosecuted at the expense of those who pose a systemic risk. These prosecutions actually do more harm than good because it gives investors a false sense of security while emboldening those who pose a systemic risk.

Bernard Madoff, former Chairman of the NASDAQ, according to his confession statement written after he turned himself in, ran a multi-billion dollar fraud out of his Chase checking account. According to a former Madoff secretary, regulators had asked about job openings during reviews and later sent over resumes.

Effectively detecting and investigating fraud, and effective policy making, may require a fundamental shift in

staffing at enforcement agencies, where people are not hired who may ultimately be looking to get a job at one of the companies they regulate. Additionally, neutralizing those who pose a systemic threat may require heavyweights who can be effective market guardians when outnumbered by the best lawyers money can buy. For example, the public still doesn't have any information about who created artificial shares of Bear Stearns and spread misinformation, but has complete information on two employees who may have misled investors about the value of mortgages in a single Bear Stearns fund. This is an example of emboldening those who pose a systemic risk while prosecuting those who don't.

All regulatory changes would have to be done in coordination with foreign counterparts so that traders don't simply move their trading outside of the jurisdiction of the country.

Finally, because real wealth creation is no longer driven by putting people on an assembly line, also needed, in descending order of importance, are a public education system that prepares people with the tools and desire to innovate and engage in lifelong independent learning, a healthcare system that maximizes the lifelong productivity of all workers and supports young capital strained innovative businesses, and a patent system free from lawsuits designed for financial gain at the expense of innovation.

When Adam Smith published what has since become the free market handbook, An Inquiry into the Nature and

Causes of the Wealth of Nations, advocating against government intervention in business affairs, mass transit meant putting two people on a horse. The world has become substantially more complex and those who claim the sun is not the center of the galaxy, no matter how persuasive the argument, may not be a good source of guidance. Now is the time to put in place comprehensive legislation.

Thank you for reading.

Please redistribute.

I received responses from two United States Senators, including one the day before Goldman Sachs was formally charged with fraud by the SEC resulting in the largest SEC fine ever – an investigation which also interestingly had been started a couple of weeks after my essay went out — and another from a member of the United States Senate Finance Committee. And on the morning of my 29th birthday, I picked up the Wall Street Journal from the floor outside my apartment door. On the cover of the finance section of The Wall Street Journal, the SEC announced that the CEO who threatened me had been charged in relation to products similar to those for which Goldman Sachs was charged. All in, I can look back and say that working for him did not turn out to be the ideal first job out of college.

Barack Obama later stated that we need rules "to allow our market to function fairly and freely", which was the first time I had ever read derivatives of the words fair and free near each other in a sentence outside of my essay. And a couple of months later former United States Federal Reserve Chairman and Senior Economic Adviser to the President Paul Volker attempted to write an essay entitled "How to Fix our Financial System" that was published in the New York Times using strangely similar structure, style and wording, including similar phrasing of what Adam Smith advocated. Universal healthcare was something that had been pursued for decades, and when implemented in a way that allows people to achieve their full potential to contribute to society, is a component of optimal prosperity – I wanted to support that in the essay

along with education. Healthcare reform passed with the minimum number of votes necessary on Christmas Eve of 2009, student loan reform in March 2010, and despite hundreds of millions of dollars spent by trading firms on lobbying members of Congress, the most comprehensive financial reform since the Great Depression in July of 2010 — thought the legislation is likely not strong enough to prevent another crisis in probably 30 years, and the agencies tasked with enforcing the law are being intentionally underfunded. The financial resilience of companies, capital markets and national treasuries when under attack will increase in importance, not because of threats from traders in search of profits, but because it will become a new method of surprise attack by countries in a more sophisticated and subtle modern equivalent of war.

On May 6th, 2010, the first item listed in my essay occurred, a computer driven market crash, deemed "the flash crash". I appear to literally have been the only person at all to have predicted or explained this. I pointed this out when forwarding the essay to nearly every journalist I could find who wrote on the topic, when days after no one knew what had happened. I got only one response from a reporter at Barron's effectively confirming this to be true. Subsequently, all of those reporters started using my explanation. I was only confident enough to publicly predict and explain the flash crash because of the social network I had created in 2001 but gave up on because everyone told me I was wrong, that people would never want a profile of themselves on the Internet.

ECONOMIC DEVELOPMENT

Economies are driven by innovation, embodied sequentially by farming, manufacturing, computer automation, and next will be space – specifically the development and production of the technologies necessary for the exploration, resource extraction and colonization of other planets.

The fundamental developers of innovation are startups, which are very high growth potential small businesses. While jobs are often sustained by large companies, they are overwhelmingly created by startups, and every large company was once a startup. Too often resources are allocated to save 10 thousand jobs at a large company when those same resources could be used to create 1000 startups, 10 of which could be successful enough to create 10 thousand jobs each.

In developed nations, domestic job growth is increasingly sustained by small businesses, because once a company both becomes large and its growth stalls, outsourcing part of its workforce to countries with less expensive labor will continue profit growth. In countries whose growth has stalled after both farming and manufacturing, any industry where automation can be increased, and any enabling profession, will drive job growth.

Potentially more important for developed nations than building new sources of prosperity is decreasing the cost of living. With a rising elderly population to support, reducing the cost of living in a developed nation helps prevent a country from accumulating debt. It also allows a country to be more cost competitive with less developed countries, because lowering the cost of living increases the purchasing power of existing salaries, which will help keep payroll costs under control allowing businesses to remain price competitive to retain jobs and increase exports. To create the conditions for innovation and the long-term stability of nations, we must dramatically reduce the cost of living with dignity and good health for each person on Earth. If we can, we will significantly recreate globally the conditions set up by the Medici family during the Italian renaissance that allowed for possibly the most concentrated period of innovation in human history.

Costs of living, in descending order, include: (1) mortgage payments or rent, of which rent will decrease as the cost of living decreases and salary increases aren't driving up prices, as well as when improved high speed transportation makes practical daily commuting to work from less expensive areas (2) healthcare, reduced through scalable low-cost technologies described in the chapter on that topic, (3) goods, reduced by engineering increased product longevity and an increase in home item resale shops and online services, (4) food, reduced by improving mass electric transportation from low cost high output production areas and increasing funding for commodity market regulators to limit traders ability to create

artificially high prices and volatility, (5) utilities, reduced through clean inexpensive energy and improved energy efficiency of electrical devices, (6) gas, which can be replaced by improved mass transit and electric only vehicles that use less expensive electricity, and (7) communications, reduced by providing free low radiation wireless internet access points everywhere that all devices including phones can use as they now use cell towers.

Innovation requires sufficient financing, and financial institutions must become the facilitators of innovation, using funds legally segregated from depositor holdings. Financial institutions are judged by their financial results every few months, creating a structural bias towards activities that generate quick returns, rather than the long-term high-risk high-return investments in innovative startups that drive prosperity. Trading activities often simply transfer, and as a byproduct partially destroy, wealth. This is an inherently unsustainable long-term structure that helps drive wealth inequality. Innovative companies create the wealth necessary for trading activities.

A fundamental problem in delivering investment capital to innovative companies is that such companies often require limited capital and receive limited media coverage, making them difficult to identify and finance given the limited staff and large amounts of money held by commercial banks. This is why there are small specialized investors, venture capitalists, that presently fund such companies. The largest institutions must become the leading participants in funding innovation,

using technology to aid in the identification of such investments, to allow for the rapid prosperity generating deployment of the bank's investing capital. It's however critical that financing is not substantially allocated to a small group of high profile startups, because this will only create the perception of wealth generation and will ultimately collapse, benefiting only privileged investors, increasing the overall wealth inequality of a country and ultimately causing an overall reduction in innovation spending. Applying for equity financing should be a process that is as simple and structured as applying for a loan. Because startups can often produce substantial innovation with minimal capital, when spread across a broad investment portfolio, these investments could provide banks a portfolio that is equally secure with a higher return than other investment opportunities. Rather than having programmers build automated trading software that does little to nothing to create wealth, but rather to transfer it to more sophisticated market participants, those programmers should be building systems to rapidly identify and allocate capital to small high-growth potential innovative companies.

The patent system was created to provide public disclosure of inventions so that if anything happens to the inventor, the invention is not lost, and in exchange the inventor is able to recoup the costs incurred during development. Many patents do not support the purpose of the patent system, particularly in technology, and are simply used to hurt other companies, reducing the overall innovative output and wealth of a country. Some large companies that aren't innovating, make campaign

contributions to keep this broken system in place, and attack innovative companies that might challenge their market dominance, which is the exact opposite of the intention of a patent system.

Government regulation at the federal, state and local levels must not impose burdens that suffocate entrepreneurs who take the risk of starting a business or put otherwise law abiding citizens in non-compliance. This is particularly important when large companies are already trying to diminish innovative competitors through campaign contributions in exchange for favorable regulation. This would be implemented by not requiring filing of periodic government forms unless a business has the annual revenues to hire a professional to do so, as well as the ability to complete a single form registering a new business at the federal, state and local levels. Anyone willing to take a risk on an idea should be able to get off the ground and not have to worry until they're in the air.

GOVERNMENT

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FREEDOM

People cannot be governed in the long-term without their consent. A stable and sustainable government is one that is elected by the citizens of a country, in fair elections, where leaders have term limits, there is substantial public funding of politics, a free press provides fair and sufficient scrutiny of all candidates, all of which is supported by a constitution that guarantees freedoms and equal rights to citizens enforced by an independent justice system.

There are universal human rights that supersede the rights of any government including the freedoms of assembly and speech, the freedom to live without fear of devastation. Rule by the people is the only form of government completely consistent with universal human rights. It modern times, this is often referred to as democracy, derived from the Greek phrase, "demos kratos", meaning "rule by the people". Though implementations may vary, rule by the people passes through a developmental life cycle that begins with a constitution then evolves through amendments supported by case law developed by an independent justice system.

Rights guaranteed to citizens by the constitution should be those you would provide yourself if you had no idea of the circumstances of your birth, including gender, sexual orientation, skin color, and social and economic status. These rights are a necessary component of enabling individuals to achieve their full potential to contribute to the well being of a country. The most naturally stable and sustainable constitutional architecture is one that allows people to have the freedom to do whatever they want as long as they're not hurting anyone else, the freedom to choose their government, and the freedom to speak out against that government.

A free press is the guardian of a free people, and journalists the trustees of that guardian. Peace within a nation and among nations requires the installation and preservation of a free press. It is the greatest structural impediment to tyranny and war, exposing intentions that are not rooted in the best interests of the citizens. For this reason, the leadership of a nation must provide for the protection of journalists.

We each have a responsibility to lead and to educate, and few are in a better position to do so than a journalist. However, the media does not always scrutinize political candidates in a way that helps bring the most capable individuals into positions of leadership.

To structurally put the best short and long term interests of the citizens of a country first, politics must be publicly funded to the extent that politicians are not inclined to take money from those who might want unjust legislative

or financial government allocations. Public financing of politics also helps prevent politicians from instituting unnecessary and undesirable tax exemptions for campaign contributors that reduce a country's wealth.

Term limits are necessary because power can be used to reinforce itself by allocating government resources to potential campaign supporters, preventing an elected official from leaving office even when they are not the best person to serve their citizens. American President Abraham Lincoln once observed, "nearly all men can stand adversity, but if you want to test a man's character give him power."

There will never be enough tax revenue for the reason that politicians need it to deliver what they've promised, and often they promise, and citizens ask for, more than can ever be reasonably paid for. Taxes could be 30% or 70% and more than that would still be spent. Increasing or decreasing taxes addresses problems by symptom rather than cause. Tax revenues do not need to be increased as much as people of greater courage and intelligence are needed to allocate the money available.

In some emerging nations, in order to demonstrate the revenue capacity to receive loans, taxes are raised to a level that reduce foreign investment and stifle economic growth, creating potentially inescapable indebtedness. Addressing this reality requires an international community that supports loan terms that are consistent with economic growth.

Income inequality developed through unequal tax treatment can decrease a country's long-term wealth by preventing the children of those on the lower end of the spectrum from receiving the resources necessary to achieve their full potential to contribute to society. Additionally, because the highest earners have the most volatile incomes, income inequality creates unnecessary and undesirable volatility in government revenues.

Religion has had a historically complex relationship with government. The integration of religion into government or the inflexible enforcement of religious doctrine does not allow for the implementation of factors that have since been found to improve the prosperity of a nation. Such rigidity can hinder independent thinking and the advancement of science that has the ability to increase the prosperity of a nation, improve the quality of life for its citizens, and provide resources to strengthen national security.

The only way out of the debt of nations is through innovation that creates wealth and reduces the cost of living. And the only way to do that is through public education spending paid for by a reduction in military spending. A failure to do so will result in the increasing destabilization of governments worldwide.

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In May 2010, oil began flowing out of a well in the Pacific Ocean, destroying the ocean not far from where I spent my summers as a teenager, and possibly killing any Manatee I ever sponsored. It is by chance that humans are the dominant species on Earth, and we must care for all life.

ENVIRONMENT

ENERGY

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TRANSPORTATION

We must protect our environment to protect our health. The hazardous compounds released into the environment during energy production and manufacturing enter the food we eat, the water we drink, and the air we breathe. And because we all share this small planet, hazardous compounds released anywhere have the potential to hurt people everywhere.

Human bodies did not evolve to handle unnatural compounds or natural compounds in amounts that do not occur naturally. Such exposure results in cellular damage which can cause cancers in the existing population, and potential limiting developmental defects in offspring. Chemicals that are toxic to humans are such typically because they are either unstable, and to stabilize need to pull electrons off the membranes of cells that protect its replication instructions, or because they radiate energy as they destabilize, shooting electrons at cellular replication instructions, causing mutations so that when a cell replicates, it is no longer a healthy cell. If the

cell is damaged in such a way that it becomes unhealthy and replicates uncontrollably, this can interfere with organ function, causing death.

Carbon dioxide produced by the consumption of coal and oil floats in the atmosphere, and in sufficient quantities creates a blanket that prevents heat from escaping, raising the temperature of the planet, diminishing the growth of the plants and animals we eat, melting ice in the north and south poles that will raise the oceans to a level that will put cities underwater, and in turn create deadly tsunamis and earthquakes. Some of this carbon dioxide can be removed from the air through the photosynthesis of vegetation, which is why it is critical that we replant forests that have been cut down for lumber, but that alone will not meaningfully repair the planet or prevent future damage.

Climate and terrain instability may also be in part a result of a shifting orbital axis, which could be caused by the extraction and redistribution of trillions of tons of natural resources around the Earth, including minerals, oil, and melting ice. The resulting axis shift would then cause a redistribution of the climate. Think of a spinning metal ball suspended in a magnetic field, if you attach something as small as a piece of tape to any point on the sphere, that point will weigh down the ball enough to become the southern most point during a rotation. The Earth has already experienced axis shifting during its existence, as demonstrated in Egypt which used to be several thousand miles from its present location relative the Earth's axis, and where full whale skeletons were found fossilized in the desert in 2005. Additionally,

because mass has gravity, extracted areas could also be prone to collapse through shifting gravitational forces caused when orbiting celestial bodies cause tension.

We must collect power from sources that do not produce hazardous compounds, develop technologies that reduce and neutralize hazardous compounds produced during manufacturing, and reduce the energy consumption of technology.

Energy can be captured anytime there are moving particles, from sources such as wind, water, light, and heat. The physics law of the conservation of energy states that energy is never created or destroyed, but only transferred from one form to another. Because electricity is simply electrons flowing in a single direction, to capture the motion of these particles, a magnet is spun inside a wire coil that moves electrons through the wire from one end to the other. To spin the magnet, a fan blade can be used that captures the motion of wind, water or steam. Steam can be produced by heat using concave mirrors to condense light into water, splitting molecules in water, or from circulating water through the Earth's crust past the heat generated by the Earth's core. The steam then spins a fan blade, and circulates externally until it condenses back into water for the process to repeat. Electricity can be created by attaching a magnet and wire to silicon, and exposing silicon to light causing electron motion, which when combined with a magnet can force electrons to flow in the direction of the wire.

We currently store energy in batteries which have a limited capacity and contain hazardous chemicals. We should instead store energy in spinning discs suspended by magnets in a vacuum, as they contain no hazardous chemicals, provide effectively instant discharge and storage capacity limited only by the speed of the rotation. These exist today and are referred to as flywheel energy storage systems. Because electricity traveling through wire over long distances dissipates, discs allow energy to be collected from natural sources wherever it is most abundant and then transported the same way as oil.

If nuclear energy spreads, nuclear weapons will spread. Presently we use the heat from Uranium reactions in water to create steam that spins turbines. This produces massive amounts of toxic steam containing broken energy radiating molecules that take approximately a million years to decay before they are not harmful to human health. For that reason, such waste must be contained in an impenetrably safe environment for a period of time longer than humans have existed, which given human nature is likely inherently impossible. I know I personally sometimes forget to put the milk back in the fridge. Nuclear waste can never leave our planet, as a single canister that breaks open in our atmosphere will float around the planet, decimating humanity with cancer and potentially irreversible genetic mutations in the unborn. Another energy source under development is fusion power, where atoms are heated to millions of degrees in a magnetic field to overcome repulsive forces so they can be fused, creating a much more powerful explosion than nuclear energy, but this has the same problems as nuclear

energy, including weaponization and toxicity, only on a larger scale.

A radioactive isotope is simply a molecule of an element that has a different number of neutrons than the standard number listed for that element in the periodic table, resulting in an energy emitting destabilization that generates heat. Isotopes can generate electricity by collecting the heat from the decay of the isotope. The problem with isotope energy is that isotopes are presently commonly generated through nuclear reactions and so are the result of toxic material. However, if high-energy rapid-decay isotopes can be generated by circulating molecules in a magnetic field and colliding them into a wall so that they lose neutrons, in a process that uses less energy than it produces, they could potentially become an unlimited source of clean energy.

Chemical reactions can be used to generate moving electrons which can be pushed through a wire. Presently under development are hydrogen fuel cells, which react hydrogen with oxygen. Hydrogen is produced by separating water into its components of hydrogen and oxygen. However the process to separate then compress and transport hydrogen both releases carbon dioxide and is energy intensive, with energy presently coming substantially from fossil fuels. While a hydrogen fuel cell may be able to emit only water, they still generate heat, which on a large scale may cause a problem. The benefit of hydrogen fuel cells is they power an electric engine which is a step forward.

After reviewing all of those energy sources, here is the alternative and solution: geothermal energy is an effectively unlimited and inexpensive source of clean energy that can immediately and completely replace fossil fuels and nuclear energy, and is literally sitting right under our noses. The Earth's core generates heat, and to capture the energy generated by that heat, water must be circulated through pipes to a depth of several miles where the temperature turns water to steam, and is circulated back up to spin turbines. Alternatively, the water only has to be warm enough that when passed through pipes by some liquid that has a lower boiling point than water, it turns that liquid to steam that can spin turbines. This could be a completely closed self-sustaining circulatory system that has the potential to generate electricity indefinitely with no operational costs — effectively free energy forever with zero environmental impact. And unlike wind or solar, geothermal generates consistent electricity 24 hours a day. Existing nuclear plants could be converted to have their steam turbines powered by this method. The heated water coming from the ground can also be piped to homes and office buildings to provide hot water and heat in the winter, removing two significant sources of energy consumption. There are some plants substantially like this in existence today. It may presently seem abstract or dangerous to drill tens or hundreds of thousands of holes several miles deep to run water pipes, but I think it less so than exploding molecules that create toxic waste with a million year life span. Massive investments must be made now, and construction must begin today, using existing oil drills and teams to drill while building steam turbine energy

plants at drilling locations. By combining the drilling capabilities of oil companies, and the steam energy collection technologies of a nuclear plant, the entire planet has the capacity to be running exclusively on completely clean energy in a couple of years – if there were no lobbyists for and campaign contributions by entrenched interests. It will not only ensure a country's energy independence, but because it requires physical on-site labor, it will create meaningful domestic jobs in every implementing country.

Some energy can be provided by the power of the ocean, both from underwater currents and the daily rise and fall of the tide captured by turbines. To capture the power of the tide, a grid of water turbines can be used that allows water through the turbines into a storage compartment, and when the tide reaches a certain level, as well as when it recedes, to release all of that water back through the turbines.

There is only one nuclear reaction that energy should be collected from and that is the sun. The sun is a massive and constant molecular combustion reaction with a mass of more than 300,000 times that of the Earth and a surface temperature of about 11,000 degrees Fahrenheit equivalent to about 6,000 degrees Celsius. Rather than creating nuclear reactions on Earth to generate power, we can capture the power of the Sun every hour of the day, by launching into space self-contained systems consisting of steam turbines and mirrors arrays that condense sunlight to turn water to steam. Space itself is a few degrees above absolute zero, the temperature at

which molecules stop moving, so the steam generated to spin the turbines could be circulated on the dark side of the unit to condense for reuse. To transport energy back to Earth, we can't effectively run a wire because the Earth rotates, and beaming energy back would incinerate anything it came in contact with, destroying our ozone layer and atmosphere while potentially creating hazardous compounds in the process and weaponizing space. Using computer targeting with condensed high intensity light waves, collected energy can be beamed to other vehicles in space, including potentially energy transport vehicles that store the energy in discs and transport it back to Earth.

We may not be able to move to purely clean energy in the near future without simultaneously reducing the energy consumed by all technology including cars, planes, trains, home appliances, and computers. All transportation vehicles must be dramatically reduced in weight by building them substantially from woven carbon fibers rather than steel, which is regarded as having the same strength at one-fifth the weight, substantially reducing energy required for acceleration and sustained velocity. Every engine on every vehicle must be electric to take advantage of the increasing efficiencies of large-scale clean energy production. Existing electric vehicles often provide insufficient acceleration because batteries provide slow discharge rates. However disc based energy storage systems allow for near instantaneous discharge, not only solving the acceleration problem but allowing vehicles to accelerate much faster than fossil fuel combustion engines allow. Energy efficiency must be

increased by collecting and recycling energy from sources such as friction while braking. Parking meters should be immediately converted to charging stations in every city on Earth, creating an immediate visible benefit for using electric cars.

We must merge traditional train and air transportation into high-speed electricity powered magnet based train transit. To promote usage, the goal must be to develop train travel that takes less time and costs less money than a plane, and matches the benefits of private transportation including privacy, comfort, duration, scheduling and destination selection.

High-speed trains operate using magnetic repulsion. Positive and negative charges repel each other, and electricity is electrons flowing in a single direction. Electricity can be used to align the charges in a piece of iron to a point of directional saturation. When the charges in an iron track are aligned one way and the charges on the underside of a train car are aligned the other, the two forces repel each other and the train car becomes suspended. This removes mechanical friction that would decrease speed. When another set of magnets, on the train and along the middle of the track, are placed at opposing angles with opposing charges, they repel each other and push the train car forward, with acceleration substantially dependent on electricity provided. Because there is no mechanical friction and only air friction, less energy is potentially required to sustain greater velocity. Tunnels can be created for the trains, with the air substantially removed to dramatically

remove air friction, allowing it to move through the tunnels at thousands of miles per hour. Trains must come off the main track when stopping at stations to allow other trains to maintain their velocity.

Train tracks must be built inch by inch on land reserved exclusively for the tracks that often has existing development or needs to be leveled, a massively expensive, time consuming bureaucratic undertaking. However, trains can be built on elevated platforms over existing government controlled land including highways and existing train tracks so that potentially limited additional land is needed and the existing stations and roads people use to commute to those stations can be used.

There is no need to build tracks over the water for any substantial distance because the longest stretch of water over which a tunnel or bridge will likely be needed to link continents is the 80 kilometer Bearing Strait between America and Russia. This will connect high-speed rail between the Americas and Europe, Asia and Africa, ultimately reducing the cost of imported goods in turn reducing the cost of living, and should be built now.

Eventually large passenger car trains will be replaced by personal size private passenger cars, that connect to the tracks electricity, to power the private cars magnets for suspension and propulsion. You'll be able to get into a private car at your station down the street that connects to the high-speed rail, and select any destination in the world on the computer screen, where it will take you

uninterrupted at thousands of miles per hour, while you can select movies and music during the ride. We have 100% of the technology necessary to do this today, it just hasn't yet been built. You may however wonder if this is even a good idea, and for reference I quote the United States Congressional Record of 1885: "Horseless carriages propelled by gasoline might attain speeds of 14 or even 20 miles per hour. The menace to our people of vehicles of this type hurtling through our streets and along our roads and poisoning the atmosphere would call for prompt legislative action…"

In the home, electrical boxes must be installed or fitted to accept power from internal sources including solar panels, wind turbines and accompanying energy storage units. This is of increasing importance, because as countries increasingly emerge from poverty, they must do so in a way that does not damage the environment. There are many ways appliances can be reengineered to capture and reuse energy. Stoves and water heaters can be connected, so that water stored in the heater can heat and be heated by the stove. The power of water flowing through the home can be captured by attaching turbines wherever water flows in and out. Turbines could be built into new appliances that use water so that as the water flows in and out, the turbines generate electricity. The exhausts of washing machines and dryers emit heat that can be used to create steam to spin a turbine. There are probably thousands of creative ways to reduce consumption and increase retention of energy. Perhaps the best way to increase the energy efficiency of devices is to require a clearly and consistently labeled sticker on

each energy-consuming device that indicates its average energy consumption per unit of time, so that energy consumption becomes a fully integrated component of a consumer's purchasing decision and thus the design process.

New technologies are needed to extract and convert hazardous compounds that have already been released into the water, air and soil. The same micro-filters that are presently being developed to desalinize water, by allowing only individual water molecules to pass through, could potentially be developed to separate waste products for processing, while other chemical reactions are used to breakdown hazardous compounds into their non-hazardous individual components.

Our sustainability as a species requires that we invest in the development and dissemination of these new technologies.

~

My song, The Fallout of Love, was licensed through an agent for use by MTV and I continued to build out Sick Away From Home. In addition to existing features which detect your location and display American Embassy listed doctors as points on a map, I developed and made substantially available features that allow you to connect with friends to view their doctor recommendations, maintain personal medical records, and connect with doctors to share and collaborate on those records. I personally have x-rays stored of my lower back which were taken as a result a minor sports injury, and were later taken a second time when I didn't have a copy of the originals – the second time I left the doctors office with a copy of the computer images on a CD. The site is functional in over 50 languages, on all mobile phones, and is able to theoretically support billions of users. If broadly adopted, it has the potential to dramatically reduce the cost and improve the quality of health care for the population of Earth.

I filed registration papers for election to the Unites States Senate seat for New Jersey, and will be old enough by the time I have to take office. I don't know that I have any political beliefs, which I think are often simply used to falsely divide people to drive donations and voter turn out. For the first 20 years of America, there weren't even political parties, people just worked together. Whatever the future holds, if the past is any indicator, I anticipate along the way having to contend with some hateful liars and some who lack the intelligence, judgment and vision to put their complete and unwavering support behind

me. Yet we must "do our part, to build a world of peace, where the weak are safe and the strong are just. We are not helpless before this task or hopeless of its success. Confident and unafraid, we must labor on."— in the words of John Fitzgerald Kennedy.

It will be interesting to look back years from now at online news archives to see ideas that were first explained here implemented and events that occurred tied to the release and distribution of this text. However, I harbor no illusions of credit, which is often elusive or unfairly and improperly claimed or attributed. Some may even mimic my efforts while publicizing them as their own.

I initially thought I would make enough money and accumulate enough power to create the world I have envisioned in this text. But from watching others try both, I realize the impact of such endeavors would be far more limited than I would ever be satisfied with and there are too many people who cannot afford to wait for such a world. So I instead completed this book, a project substantially conceived and initiated a decade ago, and sent it to the leaders of every country on Earth, to mobilize the resources of world governments around a common vision, a vision of what we can be. The inspiration for the undertaking may in part be attributable to a combination of the responses I received from writing world leaders when I was 8, the attack on the World Trade Center, and the concept of a song that united the world in Bill & Ted's Excellent Adventure. And maybe years from now it will provide insight and

some degree of inspiration to some other young explorer setting out on his or her own expedition.

Right now scientists are trying to collide atoms near the speed of light with what's referred to as a Super Collider. Although scientists on the project have publicly disputed this would create a dangerous black hole on Earth, so did the bankers who sold sub-prime loans. Mass has gravity, and if two atoms can be circulated in a magnetic field, accelerated in opposite directions near the speed of light, and then collided, they could potentially join in a condensed form, creating a point of matter sufficiently massive to create an inescapable gravitational pull, that would, molecule by molecule, at an exponentially increasing speed, suck in the planet. And if these scientists are successful, the pull may become so rapid and intense that we won't find out until we're in the process of being sucked in. Brilliant. I hope that if such a day comes I'm sitting on a tropical beach with my husband, a book and a beer.

In the end, humans are always going to be humans – there are always going to people who create problems and people who solve them. The cyclical nature of human conduct can been seen from the dark ages to the renaissance to the Spanish inquisition to the industrial revolution to the great depression to our present state of affairs. Technology has enabled those cycles to decrease in duration and increase in severity, while providing the tools to cause our own extinction. When one problem is fixed, someone is just going to come along and create a new problem, and it will be fixed and so on, because we

are humans, that's what we do. And in that context, the only meaning to be found in this world is to make life better for everyone while you're here. We are all trustees of the human condition.

THE WHITE HOUSE
WASHINGTON

Jon Bannon Maher

City of New York

Protection Services
United States Citizens Defense Corps

This is to certify that

THOMAS F. BANNON

Public Works Emergency Division
of the City Volunteer Protection Services is

Honorably Discharged

from Volunteer Defense Services with the
City of New York

This Certificate is awarded as a testimonial of
honest and faithful service to City and Country

F. La Guardia
MAYOR AND DIRECTOR

June 30, 1945

Irving V. A. Thiie
CHIEF OF DIVISION

DEFENSE SUPPLY AGENCY
DEFENSE CONTRACT ADMINISTRATION SERVICES OFFICE, GPI
GENERAL PRECISION INCORPORATED
1150 McBRIDE AVENUE
LITTLE FALLS, NEW JERSEY 07424

REPLY REFER TO DCRN-DNRLB

23 September 1966

Mr. Thomas D. Bannon
Vice President Finance and Treasurer
General Precision, Inc.
Aerospace Group
1150 McBride Ave
Little Falls, N.J.

Dear Mr. Bannon:

May I take this opportunity to thank you for your efforts to make the United States the greatest nation in the world.

Your willingness to make General Precision Equipment Corporation, General Precision, Inc. Aerospace Group a profit, yet save the Government money in costs on Air Force contract AF04(694)327 is commendable. Your concious efforts, including taking many files to Government Offices, extra night efforts, and friendly meetings on many problems helped accomplish the Stellar Acquisition Feasibility Flights (STAFF) mission.

Sincerely yours,

Mark Wiekhorst

MARK C. WIEKHORST
Major, USAF
Chief

University of San Diego

TO: Whom It May Concern

FROM:

SUBJECT: Recommendation of Jonathan B. Maher

DATE: June 30, 2005

Jonathan (Jon) Maher was the deepest thinker, most thoughtful and honestly outspoken, most enterprising student in the senior level class in Entrepreneurial Leadership that I team-taught during spring 2005. Of the thousands of students, graduate and undergraduate, I have taught over the past thirty-five years, Jon clearly ranks in the 98th percentile. He was an absolute delight as a student, and undoubtedly will prove himself as a socially-responsible, innovative, service-oriented servant leader in whatever future paths he chooses to pursue.

I recall with amusement and a sense of admiration one of Jon's remarks the first day of class. After we handed out the syllabus, Jon picked up a mixed message. He commented along the lines of: "I strongly disagree with your policy that any student who misses three classes will receive a failing grade. You wrote in the syllabus that leaders lead through influence not authority. What are your thoughts on that?" Provocative question! Jon spoke after class with each of us (faculty) independently, then the following class session he spoke up in front of a full classroom saying essentially, "I apologize for questioning your attendance policy, and hope you did not find it confrontational. Count on me being here every session." This was a learning moment for Mr. Maher, one that reflected the quickness of his mind combined with his ability to reflect and learn from other points of view. (And he had perfect attendance for all 28 sessions.)

Throughout the class, Jon spoke up in every session, in a way that usually indicated his thoughts on the issue of the day as well as offering a reflective question to engage professors and students, often revealing his quick, dry wit in the process. His quest for learning and self-development of himself as well as his peers was continuously demonstrated both in class and out. Jon welcomed any opportunity to provide candid feedback. Even I was fair game! There was no guessing with him. He is very much the team player, and enjoys exerting influence in honest, non-threatening ways. One of our final student presentations emphasized the importance of feedback in developing leadership ability. In concluding their presentation, the group came up with one word to describe each person in the class. Jon was the only person in the class to receive the distinction of the word, "Honest."

Although initially a bit hesitant in making prepared presentations in front of the class, Jon ended the semester feeling very at ease. His final team presentation probed the leadership qualities of three accomplished individuals from different industries and parts of the world. Jon took the role of a chairman of a consulting firm who drilled his executive team (other students) in search of a new board member. He asked tough questions of his board members about their proposed candidates, questions such as: "Couldn't anyone with oil money do what the Sheik Mohammed has done in Dubai?" to "You said that Isadore Sharp is a micromanager. Do you really think any of our clients would want to learn how to become a micromanager?" His teammates had clearly been prepped for such questions, and the class was able to come to an almost unanimous decision on Sheik Mohammed as the best candidate. From my judgment as well as his peer evaluations, this approach had the deepest and most memorable impact on student learning of any presentation.

Jon is confident in his interpersonal interactions with anyone, and is especially at ease with executives and CEOs. We had Jon co-introduce several keynote speakers to audiences of about two hundred each as a linkage to the Leadership Institute for Entrepreneurs that my co-faculty member directs. During the introductions, Jon's co-introducer, the Graduate Business School's student president, asked for a round of applause for the guest she had just introduced. The crowd seemed apprehensive because Jon hadn't asked for applause for the guest speaker, Anne Donnellan our Provost, who he had just introduced. Jon jumped to the microphone and with enthusiasm announced, "Can I get a retroactive round of applause for Dr. Anne Donnellan." The audience was put at ease and responded with a room full of laughter and applause. It was just one of several of Jon's remarks that set an energizing tone for this early morning event.

Jon Maher is extremely goal directed, and has a definite series of objectives he plans to accomplish. Jon's unique leadership abilities most likely will take him into expanded entrepreneurial ventures. He hopes to become CEO of a global enterprise in order to bring jobs, healthcare and education to places around the world where they are needed most. I believe that Jon is certainly capable of such an achievement. Jon has already launched a services business in New York, with connections from Wall Street to Asia. He is comfortable with the world of finance and undoubtedly will extend his reach into this functional realm. Yet his entrepreneurial drive is not focused on personal enrichment as much as doing social good with his life and talents. Jon is also interested in a federal level political office and his candid diplomacy would serve him well in that capacity.

Jon demonstrates a well-defined, ethical values background than enables him to behave as a humble, principled leader. There is no doubt in my mind that Jon Maher will continually demonstrate significant accomplishments within any organization with which he is affiliated. Those who bring him into their organization will be proud of what he contributes. I enthusiastically recommend Jonathan Maher without any reservation.