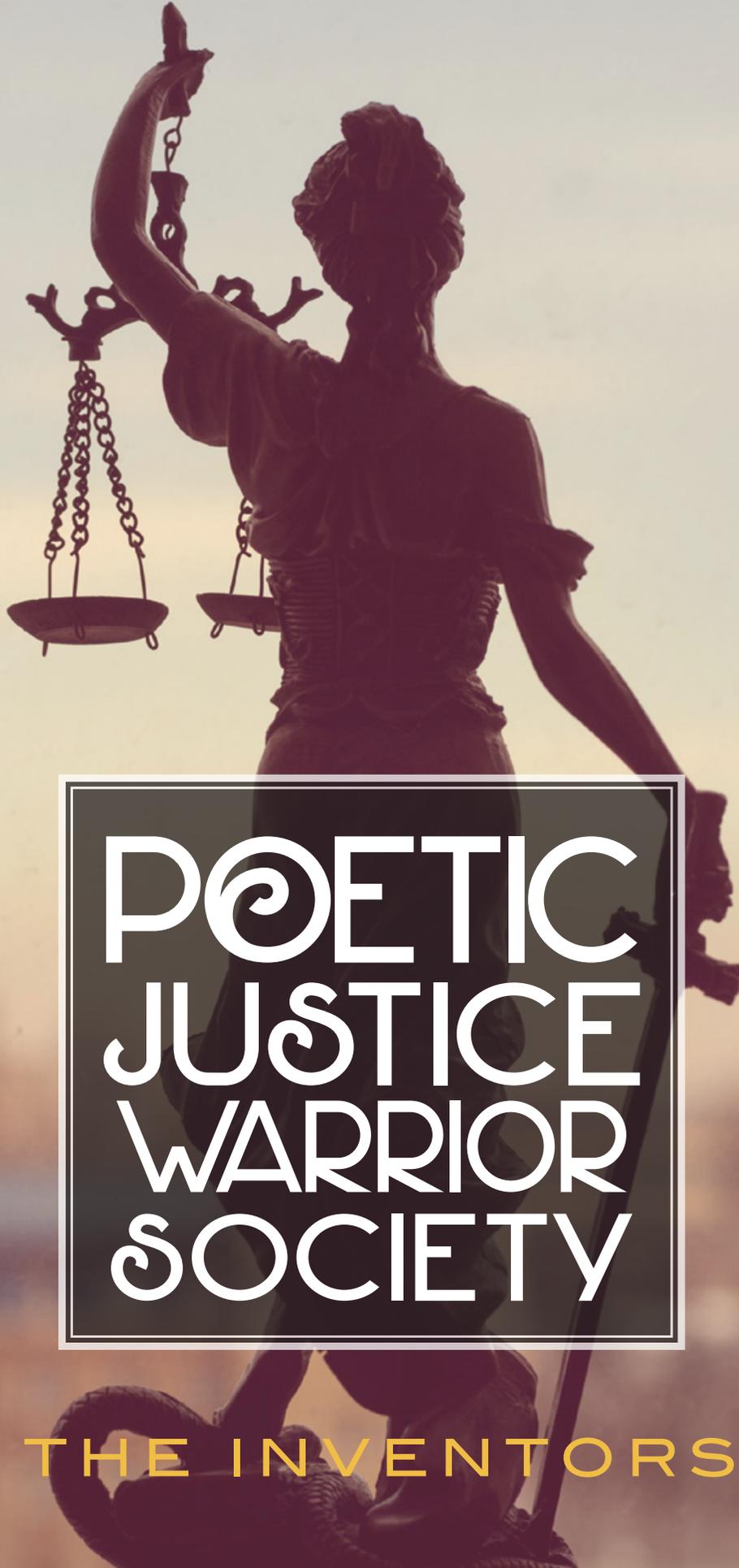


MARK T SHUPE



POETIC
JUSTICE
WARRIOR
SOCIETY

THE INVENTORS

Contents - The Inventors

Preface: About Mark Shupe and the Poetic Justice Warrior Society	3
Who Are The Inventors?	4
Johannes Gutenberg: The Medieval Inventor and Entrepreneur Who Sparked the Motor of the World	5
John Harrison: How Today's GPS Breakthroughs Were Brought To Us By a Dedicated 18th Century Clockmaker	8
Nikola Tesla: The Serbian Futurist Who Showed How the World Can Be Yours	11
Conclusion	14

To Learn More:

GUTENBERG

Johannes Gutenberg: Printing Press Innovator

Sue Vander Hook

HARRISON

Longitude

Dava Sobel

TESLA

Nikola Tesla: Prophet of the Modern Technological Age

Michael W. Simmons

My Inventions and Other Writings

Nikola Tesla



About Mark Shupe and the Poetic Justice Warrior Society

*Poetic justice spontaneously rewards virtue and punishes vice.
Social justice is capricious and requires force.*

As a ten-year-old growing up in the 1960s, Poetic Justice Warrior author Mark Shupe noticed a stark contradiction. Affluent young people were debasing their good fortune. They were expressing their individuality by protesting the establishment, dressing alike, producing nothing, and making demands for immediate gratification.

He noticed how dependent they were on the very materialism they were condemning. They had no appreciation for our historically extraordinary lifestyles, or from whence it came. Their age of absurdity now dominates the media, education, entertainment, and political establishment that loots America to enrich themselves in the name of social justice.

The Poetic Justice Warrior series is meant to express gratitude, crush short-term thinking, set the record straight, and give our readers a renewed sense of life.



Who Are The Inventors?

There are thousands of inventors that deserve our recognition, and the most worthy would be an interesting and robust debate.

All living things exist to live. Plants have photosynthesis, animals have instincts, and human beings have reason. Inventors use their power of reason to transform the natural world for the benefit of everyone, and every generation builds on their discoveries. The unimaginable prosperity we enjoy today is the result of their profound human action.

There are thousands of inventors that deserve our recognition, and the most worthy would be an interesting and robust debate. Only three have been chosen for the Poetic Justice Warrior Spotlight series - so far, and their contributions were singular in their impact on human flourishing.

The first one harnessed human knowledge, and this achievement was directly responsible for the liberty movement of the late 18th century. The second harnessed the fourth dimension, and this was literally instrumental for the peaceful exchange of products and cultures across the globe. The third harnessed the electro-magnetic universe to create the most plentiful and under appreciated commodity since water.



The Medieval Inventor and Entrepreneur Who Sparked the Motor of the World

Mass literacy begat the knowledge economy, the Age of Reason, individualism, the consent of the governed, capitalism, and the Industrial Revolution. It all happened because of Johannes Gutenberg

In Medieval Europe, economic mobility was determined by heredity, and since no one chooses their parents, opportunities were limited and pathways for improving one's lot in life were pre-determined. The feudal system favored the nobility who extracted rents and taxes from the peasants and craftsmen. To limit the abuse and keep more of what they earned, merchants and craftsmen formed guilds, meaning labor unions, to negotiate prices, manage quality, and enforce rules of conduct among guild members.

The only language used for communication across Europe was Latin, and all printed material was manufactured by hand, so illiteracy was nearly everyone's lot in life. The most literate were the monks who transcribed Bibles. Such was the power of the Church, which was safeguarded by illiteracy, until the year 1522. Over a two year period, 300,000 printed copies of Martin Luther's 95 Theses were distributed throughout Germany and Europe. Luther's goal was to kneecap the power of church leaders in their selling of indulgences, which they did in order to enrich themselves further. This was the first shot fired in the Protestant Reformation, and the first widespread distribution of mass produced pamphlets and ideas.

And the gun that fired the shot was the recently developed printing press, the one created by the entrepreneur, inventor, and Poetic Justice Warrior Johannes Gutenberg.

The Invention That Changed Everything

While its not clear when Gutenberg came up with the idea for mass printing using moveable type, most likely it was around the year 1440. At the same time, it is believed that Dutchman Laurens Jansz Koster also built a printing press. While it is not rare that two independent minds come up with the same groundbreaking discovery simultaneously, the preponderance of evidence suggests the honor rightfully belongs to Gutenberg.

While the records are sparse, it seems Gutenberg was testing prototype presses while living in Strasbourg, and then in Mainz, while he was experimenting with copper engraved printing. In 1448 Gutenberg took out a loan, presumably to begin construction of a fully working press with all the necessary tools. In 1450, he took out another loan from a wealthy investor, Johann Fust, who along with his son in law Peter Schoffer, joined Gutenberg's printing enterprise. It makes sense that Schoffer, who had experience as a scribe, created the first typefaces.

In 1452, after taking out a third loan, production began on Gutenberg's Bible project, and in 1455 they printed 180 copies of the infamous 42 line Gutenberg Bible. During this period Gutenberg accepted commissions for much more profitable printing projects, and as poetic justice would have it, the Church ordered thousands of indulgences to bestow upon their wealthy sinners, er, generous donors.

The Modern Period

The Gutenberg press is a singularity in human history, which means dramatic and irreversible change, and ushered in the modern era. Besides the Reformation, it included the grand achievements of the Renaissance and the Age of Discovery. But at the personal level, it meant growing literacy and the rise of vernacular language, meaning that people could read and learn in the language of their local population. This led to new cultural cohesion among people of the same language and borders, and the emergence of the middle class.

The late modern period was also one of grand achievements. It was the Age of Reason which inspired the Shot Heard Round the World – the American Revolution – and the Industrial Revolution. It was the dawning of the knowledge economy. Literacy soared, ideas and information were mass distributed, and the premodern hierarchies of nobility, church, and guilds were leveled. The power of the human mind was unleashed for the first time in history. The difference between Modernism and the Classicism of ancient Greece and Rome is that they didn't share our reverence for natural law and natural rights. What is essential to understand is that in the millennia that preceded the knowledge economy, human life routinely meant disease and

despair, only to be interrupted by horrid cruelty. Human life was cheap. As historian Jay Winik explains in his book *The Great Upheaval*:

“Torture was universally employed for all manner of crimes. Rarely was there mercy. One might be hanged, drawn, and quartered. Ordinary criminals and political dissidents alike were routinely beheaded, burned, or broken alive on a wheel. Counterfeiters were punished by pouring molten metal down their throats”.

This did not end until mass literacy begat the knowledge economy, the Age of Reason, individualism, the consent of the governed, capitalism, and the Industrial Revolution. Roughly in that order. The Industrial Revolution was central to the end of slavery in the Western world, and unimaginable global prosperity.

The Knowledge Problem

Johannes Gutenberg was patient and peaceful, and had an unusually low time preference, meaning a long-term vision, but not even he could have predicted the amazing consequences of two phenomena: the mass dispersion of all human knowledge, and the massive increase in all human knowledge. As economist Friedrich Hayek explained, “The mind cannot foresee its own advance.”

However, Gutenberg did solve the knowledge problem. Like the creation of money was the catalyst for humanity to escape the tribal, hunter-gatherer mode of living, and provided the tool for mutual, peaceful exchange, the creation of the printing press was the catalyst for organically derived knowledge at the local level, and the universality of knowledge for individual self-creation.

Hayek described the impossibility of any group of people to possess sufficient knowledge for managing human resources more efficiently and peacefully than free markets. In the most cited article in the second half of the 20th century, *The Use of Knowledge in Society*:

“The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess.”

One of the greatest achievements of Gutenberg’s ingenuity was that economic mobility was liberalized. Anyone engaged in self-creation, who live lives of reason, purpose, and pride, can work their way into any economic strata they aspire to. Such is the legacy of Poetic Justice Warrior Johannes Gutenberg.



How Today's GPS Breakthroughs Were Brought To Us By A Dedicated 18th Century Clockmaker

Poetic justice warriors solve problems previously deemed insoluble, providing new openings in the fabric of time and place to create possibilities for all. John Harrison solved one of the biggest problems in history.

In the address line of this blogpost you see the Universal Resource Locator (URL). The device on which you are reading this article has its own Internet Protocol (IP) address on your local area network (LAN). And you can use your device to find your exact geographical location, almost instantly, using global positioning technology (GPS) software connected to a communications satellite in geosynchronous orbit (GEO) a few miles overhead.

While it's only natural to take all of this for granted, it is also natural for Poetic Justice Warriors to ask, was it even possible to know my global address before all of these marvels that require electricity? The answer is no, except for a few decades immediately prior to electricity. And not only was it impossible, it posed the most important and perplexing scientific problem in the world for 1600 years. Something that could only be solved through reason applied to reality, by an inventor. By an entrepreneur.

A Perplexing Scientific Problem for the Ages

In 150 AD, a Greco-Roman mathematician and astronomer by the name of Ptolemy created the imaginary fabric that covers the globe. Like a fine cloth, the strands were precisely woven

into a geometric grid. The lines of latitude that mark north and south are concentric circles, they never intersect, so the distance between one parallel circle and another never changes. The meridians of longitude that mark east and west are different, they intersect at the poles, meaning the space between them expands as they get closer to the equator.

Because the earth spins on its axis and faces the sun, it is natural to assign the equator as zero degrees latitude. For longitude, there is no naturally self-evident zero degree meridian. As such, assigning any meridian the zero degree starting point is purely arbitrary. And it eventually became a political issue. A much bigger difference is that while an experienced astronomer on land or navigator at sea could easily measure latitude based on celestial observations such as the Sun and the North Star, measuring longitude by the stars was impossible. One reason for that may be that angles of longitude are measured from the center of the earth.

Because of the lives and treasure lost over many centuries, merchant ships, explorers, and navies were desperate to find a solution to the problem of longitude. Without land based markers, they never knew precisely where they were, and too much of the time they were lost. For example, Ferdinand Magellan's scribe Pigafetta reported, "The captain spends many hours studying the problem of the longitude but the pilots content themselves with the knowledge of the latitude."

Bureaucracies and the Mechanical GPS

In 1714, 200 years after Magellan and 1600 years after Ptolemy, the British Parliament passed the Longitude Act and funded a \$2.9 million prize (in today's dollars) for a reliable and repeatable solution. And while this created additional incentives for scientists and inventors, it also created another obstacle – politics and bureaucracy. Certain academic elites were determined to discover the celestial clock that would earn them the prize, but a mechanical clock won the millennium.

The challenge was to devise an extremely accurate and reliable timepiece, especially under conditions of wild temperature and humidity changes, and the roiling of the sea. When elapsed time was combined with changes in latitude derived by celestial means, longitude could be calculated. Such a clock would be central to humanity's first global positioning system (GPS).

Its inventor was the watchmaker, carpenter, and choirmaster John Harrison. According to Dava Sobel in her book *Longitude*, Harrison was "a mechanical genius with no formal education or apprenticeship to any watchmaker, he nevertheless constructed a series of virtually friction-free clocks that required no lubrication or cleaning, made from materials impervious to rust."

Not only did Harrison invest 40 years of his life in the problem, submitting the first of five prototypes in 1730, there was significant skepticism that delayed Harrison's award. As Sobel describes,

"In 1773, John Harrison finally collected his prize, despite decades of political intrigue, the backbiting of academic elites, and scientific revolution. With his marine clocks, John Harrison tested the waters of space-time. He succeeded against all odds, in using the fourth dimension to link points on the three dimensional globe. He wrested the world's whereabouts from the stars, and locked the secret in a pocket watch."

The Prime Meridian, which has been firmly established as zero degrees longitude, is located in Greenwich, England. Specifically, it runs directly through the Flamsteed House. It was by commissioned by King Charles II in 1675 to be a celestial observatory, and its purpose was to "find out the so-much desired longitude at sea for perfecting the art of navigation." The observatory is now the home of John Harrison's prototype maritime clocks. According to astronaut Neil Armstrong, "It is ironic that the clocks, at the time of this writing, should reside in the laboratory of the clock's greatest critics. The astronomers." Poetic justice served.

Standing on the Shoulders of Giants

John Harrison died three years after being officially recognized for his achievement, but the prize itself was merely symbolic of something more personally satisfying. As Sobel explains, "for decades he had stood apart, virtually alone, as the only person in the world seriously pursuing a timekeeper solution to the longitude problem." Utilizing his capacity for reason, and combining it with a life of purpose, he could say with pride, it's mine. But was it? Like any life-fulfilling invention released into a capitalist system, the value it creates expands exponentially and cannot be measured.

In the aftermath of Harrison's success, legions of watchmakers joined in the new boom industry of maritime timepieces; creating more, and better, and cheaper product. It's Say's Law: producers create consumers. Then producers become the consumers created by other producers. Its a beautiful thing, so says Say.

And what a marvelous example of the spontaneous order of poetic justice. Harrison's chronometer was essential to the expansion of international trade throughout the 19th century, and contributed mightily to its life-changing economic and technological achievements. Lower transportation risks leads to lower prices, more production, more consumers, greater wealth, and a higher quality of life spread far and wide. This breeds more capital accumulation, new technology, flourishing arts, and leisure time to sit around coffee houses connected to a GEO through a LAN while reading this URL on your IP address, and asking – how can I be a PJW?



The Serbian Futurist Who Showed How the World Can Be Yours

Nikola Tesla was a showman, a futurist and a producer - a precursor of the combination we applaud in entrepreneurial giants of today.

In 1943, in a stunning example of poetic and legal justice, the United States Supreme Court vacated all of Guglielmo Marconi's patents for radio and awarded them to Nikola Tesla, who had died six months earlier.

However, it's important to note that there is no one individual who is entitled to sole credit for the development of radio. While Tesla had invented the idea in 1892, there are others who deserve mention for laying the groundwork. German physicist Heinrich Hertz had demonstrated Ultra High Frequency (UHF) wireless transmission following mathematician James Maxwell's proof of radio waves. Also essential was French physicist Edouard Branly's invention of the radio wave detector. However Tesla, with his photographic memory and ability to do integral calculus in his head, was able to transform pure science into practical applications for the benefit of mankind. That's what entrepreneurs do.

The Showman

"All that was great in the past was ridiculed, condemned, combated, suppressed — only to emerge all the more powerfully, all the more triumphantly from the struggle. Let the future tell the truth, and evaluate each one according to his work and accomplishments. The present is theirs; the future, for which I really worked, is mine."

- Nikola Tesla

In 1898, Tesla built a radio-controlled robotic boat, and from a set of controls in Madison Square Garden, he drove his boat remotely around the waters of Manhattan. The first aquatic drone. By this time, Tesla had become a veteran of public demonstrations and the practical uses for his high tech inventions. Five years earlier, at The World's Columbian Exposition, Tesla had demonstrated the effects of both his high voltage, high frequency alternating current, as well as his wireless gas discharge lamps for every day use. This was a major breakthrough for widespread acceptance by the American public for alternating current as a safe, efficient, and reliable solution.

The significance of this cannot be overstated. The Exposition was the culmination of a period of intense competition and cut-throat propagandizing. It became known as the War of the Currents. Between the late 1880s and early 1890s, the alternating current (AC) Tesla Polyphase System being developed by Westinghouse Electric was in direct opposition to the direct current (DC) systems of Edison Electric Light Company. Ironically, Tesla had been in Edison's employ in Paris starting in 1882, and then in New York City in 1884. But Tesla resigned after only six months, and the split was contentious. Tesla was convinced that his AC motor was the future of high voltage, long-distance electricity distribution, not Edison's DC.

By resigning from Edison Machine Works to start Tesla Light and Manufacturing, Nikola Tesla was telling the world that his was a life of purpose, that he could see the future, and that he had immense confidence in his ability to realize his vision. His judgment about what the future could be was all that mattered.

The Futurist

"In my youth, I was fascinated by a description of Niagara Falls, and pictured in my imagination a big wheel run by the Falls. I told my uncle that I would go to America and carry out this scheme. Thirty years later I saw my ideas carried out at Niagara and marveled at the unfathomable mystery of the mind." - Nikola Tesla

It is from Europe that Tesla brought his affinity for demonstrations of electrical effects. His sense of wonder for the possibilities of electric power for human needs was inspired by his high school physics professor in Croatia.

But as soon as he left Higher Real Gymnasium he contracted cholera and was bedridden for nine months. Tesla gives credit for his recovery to reading Mark Twain's fiction. As poetic justice would have it, 25 years later Twain and Tesla became good friends, and they were both showmen.

In fact, Twain's 1889 early sci-fi classic, *A Connecticut Yankee in King Arthur's Court*, ostensibly includes the Tesla inspired lead character, Hank Morgan. Morgan's mission was to modernize, Americanize, and improve the lives of medieval people suffering under the repression of mysticism and anarchy. Twain transported Tesla's vision to the past, which begs the question, what could have been?

Ironically, Tesla became a naturalized American citizen two years later, the same year that he patented the Tesla Coil, the transformer design that was critical to delivering alternating current to all of America, and the world.

And Tesla's ideas were not limited to visible light and the distribution of electricity. There is evidence he had experimented with X-Ray imaging before Roentgen, but perhaps his most prescient vision has to do with falling water. As a result of Tesla's consulting work for the Niagara Cataract Construction Company, and his demonstrations at the Columbian Exposition, Westinghouse Electric was awarded the contract for the two phase AC generating system at Niagara Falls, realizing his boyhood vision.

The Producer

"Invention is the most important product of man's creative brain. The ultimate purpose is the complete mastery of mind over the material world, the harnessing of human nature to human needs." - Nikola Tesla

Nikola Tesla was a tireless worker; and to him, working was mostly thinking and was most rewarding. For every new idea for an invention, he invested only mental energy until every conceivable conflict was solved. Only then, would he apply money and material to bring the invention to reality. According to Tesla, that was the big difference between him and Edison. And the object of his research was simple – the secrets of the universe. He believed they could all be found in energy, frequency, and vibration.

Besides harnessing his own human nature, Tesla harnessed nature, and transformed it. How perfectly human. His ideas transformed the kinetic energy of falling water, the thermal energy of steam, and the energy of magnetic fields into electricity and light. Besides air, earth and water, nothing is more plentiful and cheap.

In fact, this e-book is nothing but electrons and protons transformed into photons so that your neurons can perceive and comprehend it. Nikola Tesla's contribution to the patient pursuit of peaceful human progress is incalculable. For his application of reason to reality, his singular purpose to marry science to practical uses, and his confidence in his ability to do it, Nikola Tesla is revered as one of the Poetic Justice Warriors of Western Civilization, and deserving of our gratitude.



The Inventors - Conclusion

Our motivation is gratitude. We stand on the shoulders of these giants in economics, science, business, politics, the arts, and education.

Our society takes for granted these marvelous achievements. Too many people believe that central planners could have accomplished this and more, which is insane. The fact is, they are the result of individual human ideas, perseverance, and risk-taking. One purpose of The Inventors eBook is to explain that most human life existed without electricity, global trade's wealth creation, or literacy.

However, as Poetic Justice Warriors we are optimists. The printing press freed humanity from the premodern hierarchies of monarchs and potentates. The first GPS allowed producers to create more, better, and cheaper. And electricity paved the way for today's amazing technological revolution.

Likewise, the internet, and perhaps Blockchain, will free human beings from the post-modern hierarchies that rely on the political way, and towards the economic way of voluntary human action.

Please consider joining the Poetic Justice Warrior Society.
There is no obligation, except to yourself and those you love. The first step is to take our 8-question self-assessment and see where you stand at:

centerforindividualism.org/pjw

We'll see you there!