

The Inventive Spirit

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The internal good relates to the virtue in human activity, and perhaps nowhere does this fact more prominently subsist than in those activities that directly relate to our aspiration to create something beyond ourselves. I am not speaking about procreation, although certainly many parents elevate raising children to the heights that would be included in this category. I assume that invention stems from our needs, wants and choices. With invention comes that “internal quality”, although whether we see it any particular invention depends of on our willingness to accept that such a value exists. To advance this point requires us to examine our ambition to self-actualize in this fundamental way, to essentially “be” in the existential sense.

Paul Tillich wrote: “...the self is self only because it has a world, a structured universe to which it belongs and from which it is separated at the same time...being a part of something from which one is, at the same time, separated...”

We close the gap in this separation by sowing and harvesting our available power: personal, impersonal and interpersonal. We find our worth in the things we own, or in how we succeed, in our relationships, in our careers or in things we create.

Regardless of the act, or series of acts we commit ourselves to throughout our lives, we generally recognize our achievements (for the good of society or against it) or bring closure to this issue at some point in life, or we risk passing out of this world feeling worthless. For without a regard for our self worth, our soul dies and often--actual death follows. The fortunate will find the end point in some state of self-actualization. The less fortunate in degrees of lesser anxiety, despair and ultimately disappear within the midst of us, who turn our backs on the insignificant.

We find that our worth sits close to fulfilling our purpose. The mother takes pride, when her child grows up strong and healthy. The father delights, when the child successfully reaches independence. And, in other endeavors we find our worth in careers, accomplishments, in our devotion to the Almighty and good deeds. So, the farmer feels fulfilled by a good harvest, the blacksmith powerful in pounding hot steel into submission, the baker satisfied in the knowledge that his bread supplies the sustenance in our daily life. In every case it's a feeling of self control, of contribution and finally of external forces submitting to our will and reciprocally, we to them.

But, our quest for immortality and its corollary survival might and often does confound our search for personal purpose. We cannot be sure which force contributes to the struggle for recognition, power of position, a relationship or other of countless goals. Goals of which, somehow never seem to be reached and that when viewed upon reflection would have offered little satisfaction anyway. Regardless why we behave the way we do, on a typical day most of us slug it out because what we do fills up our day, helps earn a living or provides at least a subterfuge for living--if we do not lose hope. For most of what we do everyday would not be characterized it in terms of a life purpose.

Clearly, most of what we do directly relates to our quintessential objective, survival. This fact bears remembering when we speak in terms of the sanctity of the preservation of forms of life.

If you observe any of earth's creatures up close, you might conclude that creativity, innovation and evolution both organically and environmentally define life itself and the means for survival. This truth likely applies for the embryo or stem cell they constitute forms of the human organism. Each of us therefore contains the seeds for our own daily survival and evolution. But, in this process of surviving and evolving each of us absorbs nature's requirements and feeds back responses into the environment, differently. At the level of molecular life a DNA, RNA, protein or enzyme have different repertoires of behaviors than does the fully formed organism.

In humans, regardless of legal, political or social constraints, each of us remains highly individualistic and when moved by necessity we will create solutions for survival. Our intrinsic worth as human beings stems from this individuality—both psychologically and from that fact, politically. Tillich claimed that this fact implies our spirituality: “Spiritual self-affirmation occurs in every moment in which man lives creatively in the various spheres of meaning...not of original creativity as performed by genius but of living spontaneously, in action and reaction, with the contents of one's cultural life.”

According to Abraham Maslow, our most basic needs are physiological; primarily food, shelter and clothing and once satisfied we seek to fulfill the psychological chasm with the elements of belonging, self-esteem and finally, self-actualization. Hegel like Kant explored the human dimensions as they related to the justification for ownership. He expressed the view that authors artists and inventors seek to achieve self-actualization.³⁸ Property, he said, “makes objective my personal, individual will.”³⁹ Not coincidentally, this attitude as adopted from the Prussian culture of the eighteenth century laid the conceptual framework for what became the European and by extension the American notion of copyright protection.

When we consider what impresses us to move creatively, we find ourselves delving into the psychology of motivation. Psychologists have found that motivation stems from needs for approval, affiliation, achievement and power. However, regardless what drives us from one state to another, our needs make us who we appear to be. Sometimes we think of what motivates us as who we are. The most frequently asked question of a stranger is “What do you do?” If we need approval, then that which brings us the approval becomes a cherished life value. We are portrayed as individuals having purpose by virtue of what we do. The public bestows praise for the individual over their accomplishments. In large measure, these motivations serve to define who we are but often find their actualization in the intellectual property interest that we protect. It was not always this way, and surprisingly, this kind of thinking dates back only a few hundred years.⁴⁰

In the U.S. the prevailing view has been that those that create do so out of a sense of fulfilling a need. This certainly does not answer whether that justifies a special protection

against someone else using the by-product of ideas that flow from such efforts. But, the old saw “need is the mother of invention” has been a driving factor in the development of intellectual property and concomitant protection. Invention must satisfy a need. In patent law this idea embodies itself in the requirement for utility. Each of these combined notions point to evidence that our system of protecting intellectual property grounds itself on something akin to rewarding the creative effort provided it has a degree of utility or some redeeming cultural value. This brings us to classical utilitarianism, a subject we will deal with in subsequent chapters. However, regardless of whether our drive to create stems from utilitarianism or notions of self-actualization, in either instance it reflects a personal aspiration, not one driven by the corporate will but by the will to find a means of personal expression.⁴¹ In regards to creative undertakings such as demonstrated in the arts, music, or science, the individual whom created the subject deserves and often demands recognition. We act upon our need for approval, love and self-esteem in this way.

On the other hand, there may well be yet an ulterior motive for much of what we regard as creative efforts at the corporate and institution level. Commercial ends quickly come to mind as motivating creative efforts. If we consider that most science today is practiced in one or another institution where the inventor or author has assigned their intellectual property rights, job security bolstered by good job performance and high contribution to the corporate inventory add significantly to the factors we should consider. Inventions typically are capitalized on by the institution and except for a small token of corporate appreciation, inventors get little actual recognition.

So, query, does our ingenuity belong to us in the sense that we can prevent others from benefiting from it, from capitalizing on it, or from profiting by it?⁴² It is in this respect, that intellectual property has come to the fore and in its wake foments great debate. The war among competitors on this score has always been vicious and in many cases lacks equity on all sides.

We cannot be sure if or how animals reason but, human’s employ an abstract logic we refer to as thought, a perception involving intuition and the senses that carry forward a progression of ideas. This requires a memory and some ability to make the connection between cause and effect. Humans have evolved by applying the biological assets of feeling and intellect to solving personal and environmental problems—essentially, how we have survived. We have a brain that systematically thinks through options. But, many options are not novel, they simply exercise one of many possibilities that exist and have existed for some time. The law does not quickly come to assist the protection of such options. However, novelty and uniqueness are two features of the kinds of intellectual property for which the law does consider offering protection for a limited time or under special circumstances.

The Big Bang or Genesis aside, every major social upheaval, scientific unfolding or technological breakthrough has had its roots in a past and its present in a collection of propitious events, material order and imagination. As Lyotard says: “Revolutions, wars, crises, deliberations, inventions, and discoveries are not the ‘work of the human being’

but effects and conditions of complexifying [the cosmic process of the expansion and differentiation of the universe since its origin].”⁴³

What nature introduces into the world comes fully formed; “it”, the world and all its parts exist as a fact of nature. “Its” place in the world depends again on nature and we being part of nature play a role in that future. We merely reorder and interpret the world through our imagination and our actions. It may be true that imagination has no material form but its effects light the fires of invention. Common to every inventor is that fire. To some it comes in a flash and to others it comes during the course of hard work. Some foster it. Einstein would set up mind experiments. I have watched inventors who follow a line where one or more ideas in the form of discoveries, theories, or other inventions prompts curiosity to ask how can the problem be expressed, how can the objective be bridged, how can combining two disparate things change how something functions. If what manifests has never been done before, then we refer to this as novelty. However, we find that even novelty derives from antecedent conditions.

We catch a sense of this from how humans constantly invent their way out of extinction. While prehistoric animals and humans alike smashed shells against rocks to get at the food inside, Homo Sapiens eventually substituted thought for instinct to solve the harder problems in the acquisition of food. For early peoples much of the diet was made up of what could be gathered without the aid of tools and traps. Mollusks and turtles are found in relative abundance among early archaeological artifacts, because we theorized, they were easy catch. However, killing a tiny percentage of a tortoise population threatens survival of this particular specie.⁴⁴

So long as the human population was small, sources of food such as were slow and close to the ground or surface of the water were adequate and did not affect an animal’s existence. However, as the human population increased, it affected both these conditions and new diets had to form. The choices in food supply, although many, tended towards prey that were difficult to catch by simply out running them or through stealth. The shift from hunting as opposed to gathering required tools, weapons and traps. So as populations increased we find evidence of snares, barbed spear tips and nets.⁴⁵ Humans then and now have to constantly invent their way out of extinction. To insure that there are few impediments to this imperative, when we have a choice between the free exchange of technology and the monopolization of technology, we must choose the former.

In a celebrated court case involving Samuel Morse, the historical painter and developer of the telegraph we get a fair picture of what every inventor sees, ideas that need to be disassembled and reassembled into an imaginative order to bring it into focus. In 1853, in a patent infringement case, the U.S. Supreme Court wrote an opinion recapping his testimony that implied that the invention so conceived was not done in a vacuum. The idea of the telegraph had been around for sometime. Morse’s fame came from the idea of putting together a code that made the machine practical.⁴⁶

Although Morse might have left history with the thought that he invented the telegraph, in the forty years before Morse's 1837 invention, more than one telegraph system had been in existence.⁴⁷ In 1747, William Watson showed that electrostatically generated signals could be transmitted via wire that returned the signal through ground. Five years later, a magazine reported that by using one wire for each of the twenty-six letters of the alphabet one could effectively communicate over large distances. Yet, the idea of a code transmitted along a single wire did not emerge until 1774, when Lesage devised such a scheme. In 1823, Francis Ronalds offers a telegraph system to the British military.

Morse was familiar with the various telegraph systems available in his day. He used electricity in combination with signs representing figures, letters, or words, to be legibly recorded at a distance. He brought an electrical current in contact with paper saturated with saline solution to a “technology” already existed, but for an incremental touch. Morse got credit for the telegraph because he invented one of many codes that would catch the eye of the commercial world. He like most inventors accumulated the knowledge existing at the time into a logical whole that worked more efficaciously than perhaps a predecessor system. Something seen or felt resulted in a unique code imprinting a personal imprimatur on the telegraph.

Creative people such as Morse, share a spiritual and intellectual eye. They share the internal good of which I write. Ruth Nanda Ashen describes it as: “...the in-sight of this inner Eye that purifies and makes sacred our understanding of the nature of things; for that which was shut fast has been opened by the command of the inner Eye. And we become aware that to believe is to see.”

Under what stimulus does that personal creative vision manifest, when one perceives the ideal subject, and brings forth what lacks an antecedent or hides in an obscure complexity? When and how does an artist imagine the eternal woman and then sculpt Venus de Milo, or hear the eternal haunting polyphony and compose The Requiem, or dreams of that eternal journey, the one that presages Homer and pens Ulysses? Euclid's elucidation of geometry, Galileo's idea of focusing light through a glass, or Fresnel's idea that the imposition of glass between two light bearing mediums could be described with geometrical certainty and through the genius of LaPlace and Fourier could take the equations of complex wave fronts to an abstraction beyond abstraction into the core of a computer's imagination. The love of the feel of the cold glass that to its progenitor symbolizes not a piece of glass but what one has come to love, the poetry of the laws of science and the language of mathematics. When do one among us experience that epiphany? Do we all carry the senses for seeing, hearing and communicating that moment, and as Plato suggests, it only need be drawn out?

Technological progress begets technological progress. It persists, unbounded provided we include the human element to keep the fires that light our imagination stoked. The Dark Ages were such because the “powers to be” stifled radical ideas and therefore invention. Part of the process of drawing out comes from our exposure, but if we are kept ignorant, the light dims not only for each of us, but for society, too. Given the opportunity, we will each see the world differently, approach creativity differently and thus light the world

differently. But, truly only for a few of the worlds most profound thinkers, the vast majority of each of us only harvests that which has fallen at our feet.

Newton's remark that he stands on the shoulders of others states most precisely where the so-called innovator most often stands. The inventor's stake rarely if ever penetrates a virgin soil. Every creative genius owes a debt of gratitude to his or her forebears. We give homage to the foundations laid every day, for without that there would be no innovation. Does this fact alter the basic proposition that what we spin anew, belongs to us and us alone? Can we always justify dominion and control over a piece of property when there may be an over powering moral interest to divest ourselves? If so what serves as that overpowering moral interest? We will answer this question in due course.

Differing perspectives foster creativity often through the cross-fertilization of ideas. We might speak eloquently to such cross-fertilization in science, but often we leave unsaid that it can have both good and bad consequences, for in science most discoveries can as quickly sink humanity as elevate it. We must admonish ourselves against the ease with which we benefit from our inventive mind and its ability to fashion new prescriptions, but create monsters in the back room. In the late 1930's we knew the potential of the atom to provide a perpetual source of energy and of its destructive power. We learned too well that the smallest particle could hold our lives in the balance. We now await how stem cells, expressed tag sequences, and cloning technology unravels and what dangers lay in the offing.

In *Gifts Differing*, Isabel Myers said: "We often see different perspectives because each of us looks at the territory from different orientations."⁴⁸ In the next article Gregor Wolbring, University of Calgary looks at technology from the perspective of those who may have a disease, disability or birth defect.