



**Societas Rosicruciana in Civitatibus Foederatis
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Conservation of Life Energy

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Perhaps the quest for knowledge about oneself can be summarized by the following questions: Who am I? Why am I here? And, where do I go when I die? I don't know about you, but the older I become, the more I think about these questions. As a more intellectually prone person like yourself, you probably ask more complex questions, such as, "Where am I, What is "here", and is there a message in the this domain and my surroundings that sheds some light on my existence, creation overall, and how this physical universe is constructed, that is, where am I? Are there messages in nature and science that tells me about how we are created and our creator? How to live? Personal behavior? How to interact with others? I think so. That is the Rosicrucian endeavor, as I understand it.

As an engineer and student of science and mathematics, I have come to realize that there are certain characteristics and mathematical formulae that characterize the universe as we know and observe it. It is truly amazing how the basics of electricity, mechanics, kinetics, dynamics, structures, chemistry, electromagnetic, and the physics of our universe all share common mathematical models. I want to give you a few examples that all have first order differential and integral similarities. As you likely know, integration in calculus is the "summing" process of an algebraic expression. It computes the area beneath the curve. The first integral of a simple function of:

$$y=kx \quad \text{is} \quad y=\int kf(x) dx = \frac{1}{2}kx^2$$

This simple square-law expression finds itself in defining the physical universe in many disciplines. Consider motion. The distance an object travels when influenced by gravity or other acceleration is: $D = \frac{1}{2}gt^2$ where D is distance, g is gravitational acceleration, and t is time. Here are more:

Momentum: $p = \frac{1}{2}mv^2$ where m is mass and v is velocity

Energy in a capacitor: $E = \frac{1}{2}cV^2$ where c is capacitance and V is voltage

Energy in an inductor or transformer: $E = \frac{1}{2}Li^2$ where L is inductance and "i" is current
Force in a column: $F = \frac{1}{2}\alpha h^2$ where α is density and h is height. This is why water towers are built high because if you double the height, you quadruple the water pressure at the base of the tower. The pressure has nothing to do with the width of the tower- only height and density of the liquid.

Energy in a spring (compression or expansion): $E = \frac{1}{2}kx^2$ where k is the spring constant and x is the distance compressed or expanded. Think about the area of a circle: $A = \pi R^2$ or Einstein's formula for converting energy and mass: $E = mc^2$ I can give you dozens more. Are you getting the picture here?

This square-law relationship also exists in the inverse. Think about light intensity as it diminishes with the square of the distance, or $I = 1/d^2$.

I had an engineering professor in control systems theory who made the statement "the whole world is a second order differential equation". I believe it.

All of the engineering disciplines use the same formulas. The formulas to calculate electrical current in a wire are identical to those used to calculate water flow in a pipe, or airflow in a duct or heat transfer in any medium. The exponential and logarithmic characteristics related to charged particles and exponential rise and decay correspond with the dilution formulas in chemical processes. It's all related to the formula of $y = e^x$ or $y = e^{-x}$

I want to talk a bit about energy. There are lots of forms of energy: kinetic energy, potential energy, electrical energy, nuclear and chemical energy, among others. And we have come to agree that energy in the universe is a constant when considering transformation to and from matter, which is a form of converted energy, as we mentioned earlier. I believe that life itself is a form of energy and that when we die, our life energy is converted to another form, but it does not cease to exist. There is a spiritual energy. And the relationship between life and spiritual energy are the same as the relationship between potential and kinetic energy. Just as electrical energy can be converted to heat or light, our life energy is transformed. We can absorb or deplete our life energy by our interactions with those around us. And our life energy can be replenished from our spiritual reserves. In the square law expressions we discussed earlier, constants are unchanging characteristics such as mass or density or inductance. The variables are time and distance and velocity. For us, I believe our constants are opportunity, intelligence and our God given talents, and the variables in our lives are time and experience and knowledge and acquaintances.

So, from a Rosicrucian perspective, what are some of the lessons in life we can learn from nature and the physical universe? There are many, but I'll limit them to a few, starting with the most simple.

1. Magnetism: Opposites attract. Likes repel. Poles of a magnet act just as people with opposite perspectives, whether it is a matter of politics or male/female relations.
2. Current Flow in a wire: The higher the frequency, the more current flow is distributed on the periphery of a conductor. It's called skin effect. Since high frequency transmitters in high-powered radio stations have the current traveling substantially on the skin of the conductors, we use tubing rather than solid conductors to save copper, and cool the conductors by having water flow in the tubes to dissipate heat. This concept of skin effect suggests that the faster we permit our lives to go, the less we absorb or know about the deeper meaning of things.
3. Maxwell's 9 Equations on Electromagnetism: The characteristics of a waveguide or transmission medium are such that energy is either propagated or attenuated. In other words, we are either growing or dying. There is no steady state when it comes to life. Things are always changing. We can either make things happen or we can watch what happens, or we can wonder what happened.
4. Boolean Algebra is all around us. It's the digital world of "1's" and "0's". In life, there is truth and false. Unfortunately, we as people tend to migrate to the "gray" things in life, and that is where we get in trouble. There is right and wrong- no in between.
5. In all communications systems, transmissions can be expressed in either the time domain or the frequency domain. Electrical or sound energy have signals that have corresponding bandwidth in the frequency domain. One can convert or transform time or frequency domain information back and forth using Fourier or Laplace Transform mathematical methods. There is always more than one way to look at a problem in life, is the lesson here.

In summary, we all have a life energy that can be increased by study and experience and interaction. We should focus on positive things that make us happy and benefit those around us. When we act to increase another's life energy, we do not deplete our own; rather we draw from an inexhaustible source of spiritual energy that feeds and nourishes us all. And some day, be it ever so distant, we will be transformed to a higher level of existence according to our deeds where we will understand more, live more, and love more.