

The Biogeochemical Effect of Culture

by Megan Beets

The following presentation was given on Nov. 2 at the Los Angeles [New Paradigm Conference](#) of the Schiller Institute.¹ A video of Beets' presentation can be found at <http://www.youtube.com/watch?v=OZsDFNsnAc8>.

I will be discussing, with more focus, something that we've touched on so far, obviously with the musical presentations, but also with what [Mrs. \[Helga Zepp\] La-Rouche](#) touched on this morning, which is the issue of culture and beauty, and the necessity, if we're going to win this current political fight, of a global Renaissance. And I'd just like to say that there's no way that we will win the current political fight, and there's no way that the projects that we've been discussing, and the cooperation and the national agreements that will take place and move forward, for very long at all, if we hold onto a depraved culture.



Courtesy of Edwin W. Walter

Beauty and culture and music are not the aftereffects of a great scientific revolution," said Beets. "Beautiful culture is actually the necessary driver of both politics and scientific discovery."

The one cannot accompany the other.

So, we stand at a truly great moment of human freedom, on a scale which has never been possible for mankind, *ever* before, in his history.

So what I'd like to discuss is the fact that beauty and culture and music are not the aftereffects of a great scientific revolution, or political revolution. They're not an accompaniment, an also-ran. They're not something that comes in the wake of having a great breakdown in political freedom, but beautiful culture is actually the necessary driver of both politics and scientific discovery.

But first, I will point out something which all of you already know, which is that today's culture,

increasingly since the assassination of President Kennedy, is a depraved culture, globally. While you have pockets which are not depraved, which are very precious, as a whole, mankind has been reduced to the level of a beast. And his leisure time, his entertainment culture, that which gives him pleasure, has been de-

1. Previous coverage of the conference can be found in *EIR*, Nov. 15, Nov. 22, and Nov. 29, 2013.

signed to appeal to the most base instincts of man, the most basic physical sensations, the most basic senses of pleasure, which we share with animals. And a population in that condition, cannot carry on a fight for political freedom.

Obviously, what we are discussing with the implementation of a new paradigm, and the revival of the trajectory that mankind was on before the assassination of Kennedy, and what happened during that decade, is the creation of a new civilization, in a sense. And Mr. LaRouche has spent quite a bit of effort in the recent year, publishing a series of writings addressing exactly the issue of what it is that makes mankind unique: What is it that we can call truly human? And something that he focuses on as the core of that, is the issue that mankind is not an animal, and what separates us from animals is that we have not just the ability, but it is our nature to have an experience and existence which is beyond sense perception, beyond the here and now, beyond what can be known by the experience of the senses.

I want to read a short passage from his newest document, which is called “The Search for a Mislaid Truth.”² He says, at the very beginning: “The old habits of sense-perception are challenged by our species’ ‘toe-in-the-water’ gestures in the direction of a relatively nearby part of solar space. Now, just as Nicholas of Cusa had demanded an escape from the Atlantic boundaries of Europe, to enter a new world whose reach had lain beyond the habitats of the old-Europe-centered continent, it may now be said, that nearby space is not to be contained by the habituated, old fantasies of the human species, nor by fantasies whose rude view of life had been confined to Earth....”

So, in a very real way, Mr. LaRouche was calling on the human species now, to escape the oligarchical grip of a culture which is dominated by an oligarchical system of sense-perception. And we can do that by

Music seems to me to be the deepest expression of human consciousness, for even in poetry, in science, and in philosophy, where we are operating with logical concepts and words, man involuntarily and always limits, and often distorts, that which he experiences and understands.... It would be quite interesting to follow, in a concrete way, the obvious influence of music on scientific thought.



Vladimir Ivanovich Vernadsky

creating for ourselves a culture with a new kind of experience, which is the experience of the knowledge of the truth. And so, what I’d like to offer is thoughts from some of the greatest thinkers of the past, on what that is: How does the experience of the truth occur to man?

Vernadsky: ‘What Does Life Do?’

I want to start with Vladimir Vernadsky, who was a great Russian-Ukrainian biogeochemist, and who had a lifelong career of building up a science of the history of the development of the organization of planet Earth, as it has been shaped by chemical, energetic, and human life processes.

Vernadsky studied the billions of years’ history of the Earth, and the unique kinds of chemical and geological formations that have come about, and he studied life in this context. And he took the study of life out of the hands of the biologist, who would look at the living creature as it exists in the here and now, its form, its lifespan, other characteristics which distinguish that particular form of life as it exists in the here and now, and the search for life in that way. And Vernadsky said that the way we must study life, is we must study *what*

2. *EIR*, Nov. 1, 2013.

does life do. He recognized that life is not a fixed thing that exists at one moment in time. It's not a fixed thing—obviously, over evolutionary time, we see the change-over of species—but it's also not a fixed thing in current time. You are not made up of the same materials that you were one year ago, two years ago, five years ago. There's nothing in your body that was there 15, 20 years ago. You're a completely different piece of physical matter.

And this is true of all living things. So, what is permanent about the living organism? Well, what Vernadsky said is, what's permanent is what he called the “biogenic migration of atoms,” which is that we look at the action of the living thing upon the environment around us. How it is that the living thing pulls materials from the surrounding environment, into its body, transforms those materials, turning them into different kinds of chemical compounds that don't exist outside of life—even the possibility of transmutation, the kind of transmutation that wouldn't occur outside of life. And then the leaving of those chemicals, either by exhalation, excretion, or death, and the depositing of that material that was once living, to now become part of the geological history of the planet.

What Vernadsky determined is that, more than any non-living process that we know of—and you think of all of the non-living processes that cause change on the planet: earthquakes, volcanic eruptions, tornadoes, hurricanes, different kinds of extreme weather—these are extremely powerful forces. And yet, the existence of life on the planet has had a more powerful, more energetic effect; has actually moved more material through the biosphere than any non-living process that we can document.

Life is the most powerful force on the planet.

Now, this process, which had always been increasing in intensity, over the course of biological time and evolutionary time on Earth, culminated in the appearance of man. And man is a very unique species. We seem to have an animal body, and we surely eat and breathe, and have to fulfill the kinds of material needs that animals also have to fulfill.

However, man does something completely unique in the biosphere, which is that man's biogenic migration, the significant impact of man's biogenic migration of materials, is not biological. In fact, what we contribute to the change of the planet by what we

ingest, and leave behind with our bodies, is extremely insignificant when you compare us to something like bacteria.

However, the impact of the biogenic migration of atoms by technology, the power of the biogenic migration of materials due to the forces of culture, has actually surpassed that which is possible within the biosphere. Man is the most powerful force for changing and shaping the potential power and organization and energy of planet Earth, and beyond.

Now, how do we do this?

Because man's body, as Vernadsky himself notes, has almost not changed at all, over the course of his existence. Man's brain, even, has not changed in its physical structure very much at all over the course of his existence. And yet, if you examined the materials that the human species uses today, what materials we ingest, not only into our bodies, but into our economies, what materials are present, what processes we shape on the planet, where we are on the planet: if you compare us to 100 years, 200 years ago, 1,000 years ago, you would say that those snapshots are looking at different biological species.

What you would see is the equivalent of different species of the biosphere. And yet mankind has been a single continuous species over that time.

How has mankind accomplished this?

The Noösphere

Vernadsky writes a very short writing in 1945, titled “Some Words about the Noösphere.” And the Noösphere is the term that he gives to the sphere of human influence, and the effect of human scientific thought on the changes on the planet. In “Some Words about the Noösphere,” he poses a question, which is that human scientific thought is not a form of energy. It has no mass. Scientific thought has no measurable energy. How is it that it has caused such tremendous change?

So, where does this capacity lie? What is the root of this capacity?

Vernadsky has a very interesting entry in his journal. He says: “Music seems to me to be the deepest expression of human consciousness, for even in poetry, in science, and in philosophy, where we are operating with logical concepts and words, man involuntarily and always limits, and often distorts, that which he experiences and understands. Within the bounds of Tyutchev's ‘a thought, once uttered, is untrue,’ in music we main-



Albert Einstein

The theory of relativity occurred to me by intuition. And music is the driving force behind this intuition. My parents had me study the violin from the time that I was six. My new discovery is the result of musical perception.

tain unuttered thoughts.³ It would be quite interesting to follow, in a concrete way, the obvious influence of music on scientific thought.”

Vernadsky writes in his treatise “Scientific Thought as a Planetary Phenomenon”: “During the past 10,000 years, a new form of energy has been created within the realm of living substance, even more intense and complex, and rapidly growing in importance. This new form of energy, associated with the vital activities of human societies, of the genus *Homo* and other closely related genera (hominids), while preserving the expression of ordinary biogeochemical energy, brings about simultaneously *new forms of migration of chemical elements, which, in their diversity and power, leave the ordinary biogeochemical energy of the living matter of the planet far behind.* This new form of biogeochemical energy, which might be called the energy of human culture or *cultural biogeochemical energy*, is that form of biogeochemical energy which creates at the present time the Noösphere.”

Now, he makes a very interesting observation in the same work, which is that, just as in the biosphere, the

3. Fyodor Ivanovich Tyutchev (1803-73) was one of the three great 19th-Century Russian poets, along with Alexander Pushkin and Mikhail Lermontov.

organisms are not conscious that, as a collective whole, including the members of all life that have existed before them, they are contributing to the greatest force of change on the planet. No animal thinks about that. To the animal, he’s fulfilling his everyday material needs for survival. That’s why he’s ingesting material. That’s why he’s migrating. That’s why he’s following the magnetic-field lines to migrate to a distant part of the globe.

The animal doesn’t realize that he’s part of a large cumulative effect.

Well, Vernadsky notes, it’s been similar with most members of the human species—which is actually pretty incredible when you consider it. Most members of the human species, even when you consider large political developments, historical developments, have not had within their aim, the bringing about of the Noösphere as a whole; the domination of the planet by cultural biogeochemical energy. The bringing of the geochemistry of the planet to the highest potential that’s yet existed. That’s not been in the minds of most people, or most political leaders, and yet that has been the cumulative effect.

So, there is a force, or a condition, outside of any current condition, current state of existence of mankind, toward which mankind as a species is moving. And Vernadsky is very optimistic that for the first time in the 20th Century, we can become conscious that this is what we are as a species.

Now, those are the views of a physical scientist. What I’d like to do is bring in some observations on the same characteristic of man, but from a different standpoint, which is from the standpoint of the artist. And I’d like to start with this passage, and I’ll tell you who the artist is, when I finish. He says:

The Domain of Artistic Imagination

“When I examine myself, and my methods of

Throughout its whole composition, the physicist's picture of the external universe must be free from everything in the nature of a logical incoherence. Otherwise, the researcher has an entirely free hand. He may give rein to his own spirit of initiative, and allow the constructive powers of the imagination to come into play, without let or hindrance.



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Max Planck

thought, I come close to the conclusion that the gift of imagination has meant more to me than any talent for absorbing absolute knowledge. All great achievements of science must start from intuitive knowledge. I believe in intuition, and inspiration. At times, I feel certain that I am right, while not knowing the reason. Imagination is more important than knowledge.”

In a different place, he says:

“If what is seen and experienced is portrayed in the language of logic, then it is science. If it is communicated through forms whose constructions are not accessible to the conscious mind, but are recognized intuitively, then it is art.”

And then this third one should probably give away who this person is, to you:

“The theory of relativity occurred to me by intuition. And music is the driving force behind this intuition. My parents had me study the violin from the time that I was six. My new discovery is the result of musical perception.”

That was Albert Einstein, who’s not typically classified as an artist, but who would probably would rather classify himself as an artist.

Einstein’s great friend and colleague, Max Planck, who really established where we are today in science—his discovery of the quantum—that’s still where we are in terms of our scientific platform. And Planck, when he was a young man, had to choose between becoming a physicist and a concert pianist. It’s probably good that he chose to become a physicist, but it gives you the sense of who he was.

I’m going to read a couple of passages from Planck—they’re a bit long, so I just ask that people really try to follow them, because it gives, I think, very crucial insight from the mind of somebody who made a completely fundamental discovery, and who also had the kind of connection that Einstein had to the domain of the artistic imagination.

This is from a book titled *Where Is Science Going?*:

“Throughout its whole composition, the physicist’s picture of the external universe must be free from everything in the nature of a logical incoherence. Otherwise, the researcher has an entirely free hand. He may give rein to his own spirit of initiative, and allow the constructive powers of the imagination to come into play, without let or hindrance. This naturally means that

he has a significant measure of freedom, in making his mental constructions.

“But it must be remembered, that this freedom is only for the sake of a specific purpose, and is a constructive application of the imaginative powers. It is not a mere arbitrary flight into the realms of fancy.

“The physicist is bound, by the very nature of the task at hand, to use his imaginative faculties at the very first step he takes. For the first stage of his work must be to take the results furnished by a series of experimental measurements, and try to organize these under one law. That is to say: He must select, according to a plan which will in the first instance be hypothetical, and therefore a construction of the imagination. And when he finds that the given results will not fit into one plan, he discards it and tries another.

“This means that his imaginative powers must always be speculating on the significance of the data which has been furnished through experimental measurements.”

And later, in the same work, he makes the point, in refutation of the reductionists, who say that nothing can be certain except what you experience. And he points out that even taking experimental measurements involves a hypothesis about the nature of what you’re dealing with, because a hypothesis had go into the design of the experimental apparatus in the first place. So, it’s always the human mind which is on top.

Here is one from the same work. I really like this one. He says:

“The truth of the whole matter is that the inventor of a hypothesis has unlimited scope in the choice of whatever means he may deem helpful to his ultimate purpose. He is not hindered by the physiological tendencies toward constructive picturing which are a feature of the activity of his own sense organs. Nor is he restricted by the guiding hands of the physical measuring gear. With the eye of the spirit, he penetrates and super-vises the most delicate processes that unfold themselves in the pattern of the physical universe which unrolls before him.

“He follows the movements of every electron, and watches the frequency and form of every wave. He even invents his own geometry as he goes along. And so, with his spiritual working here, with these instruments of ideal exactitude, he takes a personal part, as it were, in every physical process that happens before him.

“And all this is for the purpose of pushing through

these difficult thought experiments, which are a factor of every research process, to the final establishment of conclusions that will be of wide application.”

So, it’s something from the creative artistic imagination, from the soul of the physical scientist, which, some of them we find to be valid, and to have wide application to change and control of the physical universe.

Schiller: The Aesthetical Education of Man

Now, how do we develop this?

What I’d like to do now is zero in on, how do we develop this artistic imagination? How do we build a culture, or, what is the importance of building a culture in which the artistic imagination, and a sense of beauty and goodness, dominates the thinking of every member? Not as some beautiful, fantastical, lovely thought, but as something which is absolutely necessary for the future of civilization.

So, I’d like to bring in some thoughts from somebody who spent probably more time and focus on bringing this to light than anybody else that I can think of—Friedrich Schiller. And he is somebody who is officially classified as an artist, as a poet, and as a dramatist.

Now, Schiller lived at a completely tumultuous time for mankind. He was born in 1759, and he died in 1805, so he lived through the incredible promise of the American Revolution, and the incredible optimism that this sparked globally about the possibility for the freedom of mankind: the creation of political freedom for the first time.

He also lived through the French Revolution, where he saw the first attempt at replicating this incredible victory fail, dramatically. So, he takes up, in many of his works, the discussion of the aesthetical education of the population. And in his work, the “Aesthetical Letters,” he says of the French Revolution, that a great moment had found a little people.

Now, Schiller also wrote—and Mrs. LaRouche referenced it this morning—one of the most powerful tools that an artist, or anybody, could have to transform a people from a state of depravity to a state of morality, to an ennobled state: the stage, drama, and, as we’ve added in, Classical film. Now, why? Because in a drama, you can parade before the audience member, you can parade great beautiful thoughts; you can parade his own follies; you can parade the follies of his time, which he is unwilling to think about in his day-to-day life—you can parade them before him in a poetical



Friedrich Schiller

Ideal art must abandon reality, and elevate itself with sufficient boldness above need. For art is the daughter of freedom. And she receives her rules from the necessity of the spirit, not from the pressing need of matter.

with sufficient boldness above need. For art is the daughter of freedom. And she receives her rules from the necessity of the spirit, not from the pressing need of matter.”

Later, in the “Aesthetical Letters”—he’s confronting the reader with the paradox between the sensuous man, the man of nature, the man of his day-to-day instincts, who is completely shaped by the world, and contrasting that with the man of form, with the never-changing man, which we tend to call the personality, that which persists through all successive conditions of the individual. And what he says is that these two aspects of man, the one cannot affect the other. They’re completely separate spheres. And so, it’s the task of art to overcome the separation and create an ability for a harmonization of these two conditions of man. And he says:

“The task of culture is to guard

sense, and, at a distance, such that he can reflect on them. You put him into a state of play, in which the ordinary, perhaps usually depraved citizen, is able to spend some time passing great moral judgment over the action of kings. Which, for a time, puts him in an uplifted and ennobled state, which hopefully lasts with him when he leaves the theater.

In great drama, it does.

And Schiller wrote a very short essay entitled “On the Use of Chorus in Tragedy.” He says:

“Art has for its object not merely to afford a transient pleasure, to excite a momentary dream of liberty; its aim is to make us absolutely free. And this it accomplishes by awakening, exercising, and perfecting in us, a power to remove to an objective distance the sensible world (which otherwise only burdens us as rugged matter, and presses us down with a brute influence); to transform it into the free working of our spirit, and thus acquire a dominion over the material by means of ideas.

“For the very reason also that true art requires somewhat of the objective and the real, it is not satisfied with a show of truth. It rears its ideal edifice on truth itself—on the solid and deep foundations of nature.”

In the “Aesthetical Letters,” he writes:

“Ideal art must abandon reality, and elevate itself

over these [two] instincts, and to secure the limits for each. Hence, culture owes an equal justice to both, and defends not only the rational instinct against the sensuous, but also the latter against the former. Therefore, its business is twofold: first, to guard sensuousness against the encroachments of freedom; second to guard the personality against the power of sensation. It achieves the first by the education of the power of emotion, or sense, the latter by education of the power of reason.”

And it’s for this reason that Schiller says that the artist, before he dare to attempt to move his audience, must, at least in that moment, himself be an ideal individual. He has such a responsibility for the soul of others in his hands, that he shouldn’t dare to try to move them unless he is sure that he, at least at the moment, is ideal.

An Unending Global Renaissance

So, to bring this to a close, I think I’ll just state, that these ideas of Schiller, though he lived at a particular time, are universal. These aren’t limited to a particular country, or a particular cultural thread, but these are ideas of how you move the human species from a condition of beasts, to a condition where man can truly shape the activities of the globe, as a unique species,

which can access the power of creativity, and not live in the now, not live in the moment, but place his identity in what process it can unfold—in perpetuity into the future. And to place forever, the power of mind above the power of sense.

This morning, Mrs. LaRouche stated that she was not sure that we can save civilization. It does hang by a thread. But I think that we can say that if we do succeed, if we do win this fight today, this will not be a partial victory. This will be a *complete* victory, and with the potential of cooperation of the United States with the powers of the Pacific, and all of the incredibly beautiful Classical cultural traditions of these nations, we have the potential today for a Renaissance on a global scale, which has *never* happened before.

Vernadsky actually stated, truly, that only in the beginning of the 20th Century, did mankind gain the power to live anywhere he wanted on the globe. And it was only in the 20th Century, that we developed powers of communication and technology to communicate and act as a single coordinated species over the globe. But, it was in the beginning of the 20th Century, that we had the unleashing of a century of warfare and collapse.

And so I think that we should take on our shoulders, as our legacy, to make these first moves for what will be mankind's first, perpetual, unending global Renaissance.

I will end by reading the last paragraph of the article by Mr. LaRouche that I began with, "The Search for a Mislaidd Truth":

"There is one particular concern to be examined on such accounts: the underlying role of only truly Classical artistic composition, its mystery, and its performance, as for the mysteries required for truly Classical musical composition, drama, painting, and sculpture, as a medium of subtleties freed from what passes for the implicit beat of the inherent state of those acts of lurking drunkenness, of what is marked as merely popular entertainments. For that purpose, Classical artistic composition and its performance must carry our very souls as if into a greater universe, beyond any ordinary apprehension of the universe which we must experience as the higher reality enveloping our innermost experience of a truly Classical intention, an actual apprehension of immortality."

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