

# In music, there is a scientific principle which ennobles the soul

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This started back many years ago. It started actually in the late 1940s, after the war, and came as a byproduct of a scientific venture which I undertook with considerable passion.

There was a book published first in 1947, but then published in a paperbound edition in the United States, which was called *Cybernetics*. It was written by a gentleman by the name of Prof. Norbert Wiener, who was one of the chief exponents of a fraudulent dogma called information theory: the idea that you could reduce the content of ideas in communication among human beings to a statistical procedure. That's the well-known theory of information theory today, which dehumanizes people. And it's fraudulent in the respect that it pretends to represent something that it does not.

So I was sufficiently angered. I was determined to refute this gentleman, and also to refute another gentleman by the name of John Von Neumann, who is probably known to you as the father of the computer. I don't know exactly how the act of conception was performed, but he's supposedly the father of the computer. And he's famous also for game theory, which is one of the reasons why the entire international financial and monetary system we now have is about to collapse. It's off playing in a casino with our money, and nothing is at home to feed the children. So it's not working too well.

But in any case, in refuting this, after considering mathematical biophysics as one approach to refuting and discrediting Mr. Wiener and his crazy ideas, I happened to choose economics, because it's easier to prove the case in economics.

## **Situating the fundamental issue of creativity**

Now let me just take you very briefly through an excursion, to show you exactly where the issues of music as they arise here are situated.

Music, I should say, *is a very serious business*. It is done sometimes in a playful spirit, but it's *a very serious business*. It's a scientific business. It's not something that goes on the side, or is simply recreation. It's an essential part of language; it's an essential part of developing the moral and intellectual capabilities of those who participate in it. I'll indicate why.

The way an economy grows, which we take for granted,

is actually a very sacred thing. There is no animal which ever existed, which can do what man does. If we were animals, we would be something like the baboons or chimpanzees. We would be no more numerous on this planet than baboons and chimpanzees, and we would probably act, as some people do, like baboons or chimpanzees. We had a President recently who showed those propensities.

But mankind has the power of creativity, as Moses put it in the first book of Genesis. We are created *in the image of God the Creator*, as Philo of Alexandria demonstrated. We have the creative power to change ourselves, to change our relationship to nature and the universe, so that we may exert dominion *over it*, for a higher purpose. Mankind creates.

Today we think of valid, fundamental scientific discovery in the past 550 years, as the image of creativity. Well, it's a good image to begin with, but it is not the *limit* of creativity, which is the point to which I wish to get.

Now, how does an economy work? How does a modern economy work?

Up until about 600 years ago and somewhat later, in any part of the world, to sustain a people, over 95-98% of the population worked in agriculture in a very primitive way, just producing sufficient nourishment to maintain the population as a whole.

Today, the situation in countries which have been developed technologically, is somewhat reversed. Less than 2% of the total population is required to be engaged directly in agriculture, to provide an abundance for the entire population, provided they are given the technology to do this. The rest of the population is otherwise employed in producing infrastructure, rail systems, canal systems, power systems, sanitation systems, schools, medical systems—the things which are necessary to improve the condition of life, and to preserve the health and longevity of people. The education to develop people as people, but also to increase their power to use technology, to generate, to assimilate, and to apply ideas of a more advanced kind.

These are the conditions which have enabled mankind—which, up until 600 years ago, had never exceeded 3-400 million people on this planet—to reach 5.3 billion today.

If we applied these technologies, which we already have, we could easily sustain 25 billion. If we improved, we could sustain more, in a standard of living which is higher than that

we enjoyed, say, in 1968, about the time we began to go downhill.

We are also on the verge of exploring and colonizing space—not next year, but over the decades to come. These are our potentialities.

Man is God's creature in the universe, for a mission which we do not know fully, but we know we have to go in a certain direction; and so we should go happily in that direction. And we are able to do so. Because unlike any other living creature, we have the creative power of reason to change ourselves for the better, to increase our mastery of nature, and to solve the problems that face man, with creatively directed efforts.

Now this occurs normally. We have scientists in laboratories who discover things. They go to the laboratory. They make a proof-of-principle experiment. When they perfect the experiment, you take it to the machine-tool shop and you develop a machine-tool principle. And if, in the meantime, you've educated your population, people can go to work and use a machine which involves that machine-tool principle and we increase the productive powers of labor, and thus man is able to better his condition—if he wishes to do so. And if you don't have baboons running government, you are more likely to do so.

Now, this was easy to demonstrate from the standpoint of economic facts back in the 1940s. But what it demonstrated, without going into the details, which are published in various locations, was that no existing mathematics in the general form which is taught in universities, could represent the kind of process which occurs when economies function well. That is why no general mathematical theory of economics works, because it will make an economy break. If you try to make a living person act like a dead person, you may get a corpse. If you try to make a living economy function on the basis of mathematical theories like those of Wiener or Von Neumann, you'll ruin the economy, as has been demonstrated recently by game theory and speculation and derivatives and so forth.

Therefore, on this basis, with some advanced researches in some very fundamental areas of mathematics, I presented what this is all about, and what the solutions are, and came up with some discoveries in mathematics and other areas. But that's not adequate to refute Norbert Wiener, because Wiener said there are some corners of the mind, at least, which are not creative, which can be explained by a very simple statistical theory.

So I said, "Well, we've got to show other aspects besides discovery in physical science which pertain to the demonstration that man is in the image of God—as a scientific fact, as well as a fact we should otherwise know."

So, I chose music.

### **Music shows that man is in the image of God**

Since I had been something of a poet, and knew something of music, I took a study which was later replicated by

some friends of mine in the 1980s. I took a study of a number of composers from about the period of 1780 through the late work of Brahms. And I took a number of good composers, such as the famous ones, and a number of competent but bad composers, like Reichert. And I included Hugo Wolf, who is a very interesting example of this.

So from the standpoint of poetry, I was able to show, in music as well as in science, that the same principle of discovery is the essence of great art, as typified by the lied [German art-song]. The principle is one which is much discussed nowadays among us, to which I was helped by the very commitment I made some years ago, on music. Some friends of mine, on my persuasion, decided that they themselves would work through and learn how tuning was determined, why it was determined; why Bach was right, why the people who attacked Bach were wrong. And they did it largely through the lied.

So they learned that the most efficient way is to start with *bel canto* singing, which is the most natural way to sing, because it's the most efficient. You're given the potential of a voice, you develop it, and you wish to be able to project what you wish to project at the maximum, with the relatively least amount of wasted energy. You want to do something; and therefore the best way to use the equipment you have and to train it and develop it, is obviously the correct one.

Now if you start with *bel canto* methods of training of the Florentine type, which are recorded for us, as by engraving in stone, in the 1430s in the choir area in the famous cathedral in Florence; if you sing in that way, and train children to sing in that way, and continue with this *bel canto* discipline, you discover you have things called voice registers. You discover that the adult voice is divided among species, which are separated from one another in lawful ways—that is, the registration is separated. Then you try to sing harmonically, to bring voices into agreement in composition; and you find you have certain limitations, as Bach did.

Then you find that you have a natural scale, which is called the well-tempered scale, which is the scale you have to use if you're going to bring these voices into agreement for purposes of polyphony. And thus we have a natural way of singing, which is demonstrated perfectly, if we take any Bach chorale and relate it to the accompaniment by the organ or other instruments as designated: a perfectly natural system.

We can also show, on certain physical principles, which pertain to living processes, that—as Plato already understood this in his own way, and as Kepler also understood this—this is part of the natural way of singing. It's related to the laws of the universe as they actually exist.

There's another advanced part about this, because I knew something about music to begin with. You always cheat a little bit; you look at the back of the book to determine what direction you're going to go into, to find the answer.



Baritone William Warfield (left) and Lyndon LaRouche (right).

Having been doing some creative work rather successfully, I was rather aware of those circumstances under which I was more creative and less so. Anyone who works seriously recognizes that. And I found that if I would engage myself with my beloved music for a certain part of the day, and would particularly engage myself whenever I became frustrated or angry, or otherwise disturbed or dull, I would find that my creative powers in other fields were restored to me. And therefore I understood from the beginning, that the art of great composition, particularly as exemplified by the songs of Mozart, Beethoven, Schubert, particularly Schumann, but especially Brahms in the end—that these were the kinds of music, as otherwise reflected in the compositions of these composers, which ennoble the soul, which enhance the creative powers of those who participate in them, in their performance—as audiences, as performers, as amateurs, or whatnot.

These are the powers which bring joy when a performer does a particularly insightful performance of a work, when a performer has mastered the *integrity* of a work, so that there's an unbroken idea from the beginning to the conclusion. There is a tension, a perfection.

Let me say that you find weaker performers, who tend to chop a composition into parts, like a mosaic, and paste it together. They don't create the tension. The ones who do the excessive rubato and the other things that lose the composition, in trying to get a little sensuous effect in the middle or

something.

But that wonderful, glorious tension where, from the beginning of a composition to its end, you are gripped, which is a principle, of course, in performance which accords with thorough composition and Classical composition. Whenever I felt dull, whenever the world was too ugly, wherever there was rage and anger about me, that particular kind of music for me was like a wellspring of spiritual nourishment which would enable me to restore my powers of concentration, get back to my desk and my studies, and come up with some fruitful work.

### **The first step toward freedom**

In the history of people coming out of slavery around the world, because many people lived under various kinds of serfdom and slavery, music was an integral part of their liberation. The music began in all kinds of places. It settled in churches. It settled among children singing in churches, and other forms of this sort of entertainment. It grew up.

Out of this came composers, closely related to poets, who took poetic expression of ideas, recognized the natural musicality, the natural vocalization, which permeates the utterance of the vowel in language; and used that connection between the composition of good Classical poetry and singing to simply sing poetry. And in the singing of poetry, because a poem is done again and again, the poem is selected to be sung in a certain way which conveys the celebration of

the idea associated with the poetry, in the person who's hearing it, in the person who's singing it.

And out of this, we had instruments, because all of the great instruments were developed on the model of the singing voice. The stringed instruments. In the beginning of the Bach *Inventions*, the purpose of the Invention, says Bach, is to instruct the student to learn to cause the instrument to sing—the instrument should sing *bel canto*, the best stringed performers make their instruments sing *bel canto*. The wind player who has a *bel canto* idea of musicality in the mind, mysteriously produces a better tone, a better, cleaner performance.

These things are all interrelated.

And also, if I examine, as we are doing now in our continuing project, the greatest compositions of music from the standpoint of what I know about the mathematics of creativity, I can point out to you features of composition, especially thorough composition, which are based precisely on the most profound principles of scientific creativity.

The best example of that is in the great mysterious works which are usually badly performed because people don't usually understand them: the last string quartets of Beethoven, the greatest jewel in all musical composition to date, which is poorly understood because people think they're supposed to be the pioneering road to dissonance, or Stockhausen, or something like that. And they're not.

But there is a scientific principle which ennobles the soul.

Rightly have we found music in the churches, where we need to transform the message into a form of expression which touches the soul. Classical music in Europe was built on the churches. It was built because children learned to sing, others learned to sing. Training in singing built a pyramid, where you had the mass of the population, which were participating in music, beginning with singing as children in churches and similar locations, and out of this you had the pinnacles of the great orchestras, the great opera houses, the great singers, who represented a distillation of this process of singing in music. And the great performers would perform for the people and the people would say, "Here is the best exposition of music." And the music would come up the ladder, up the pyramid, to the most skilled performers, and then back to the people at the base, who were the audiences.

This is an essential moral part of life.

During slavery, it was said that literacy was the first step to freedom, because it was mental freedom. I would say also: Music is the first step to freedom.

In the history of Mexico under the Spaniards, singing was a crucial part of the development of the Indians, which is what most Mexicans are—you can't talk about Indians; Mexicans are generally Indians. They are the descendants of the inhabitants of Mexico, when Cortés arrived. They are descendants of the Indians whom, in fact, Cortés helped liberate from the Aztec oppressors. It was through music, and singing of music in churches, that the Mexican people

developed a culture.

This is similar throughout the world.

We now have in this country, and throughout the world, oppression. But the worst oppression is the oppression of the soul. Worse than mediocrity, the destruction of the sense of personality, the destruction of the ability to concentrate, the destruction of the recognition that one's own self is in the image of God. The inability to recognize one's own creativity. The inability to relive the experience of discovery of a great discoverer of the past, even simply the Pythagorean Theorem or something of that sort, where, by knowing that the child has himself or herself replicated the experience of discovery of a great discoverer, the child knows: "I, too, have that power of creativity." And when the child does that with a number of cases, the child says, "I have this creative power which I associate with God the Creator! I am in the image of God! It is true. Moses is right. I'm in the image of God—and so is he, and so is she."

And then the child wants to celebrate it. And what better celebration than a poem? And what better poem than one that is sung properly?

And we require music. It's a part of our mind. It's proximate to our powers of creativity.

If we can take poor, desolate people, or children from desolate families, and bring them into music, given to them by people who are qualified in the pyramid, so to speak, to instruct them, if we can create a center which is dedicated to this purpose, if we can catalyze this process, then we can take some of these poor creatures, and take their children, and teach their children that they are really human; and teach their children what their minds are capable of doing.

## Our Sodom and Gomorrah culture

Look at what we have today around the world.

The respect for the dignity and sacredness of human life has gone. We have the image of this evil man who is a Hitler-admirer personally, Dr. Jack Kevorkian, in Michigan, who is running around conning people into killing themselves.

I'll just give you one little sidelight on that, which I know from my medical friends.

One of the results of the insurance companies' control of medicine today, is that a doctor is at risk if he tries to treat a patient who has extreme pain. So someone comes in, a patient, who is in extreme pain, say back pain or some other kind of pain, chronic, severe pain. And physicians are reluctant to give relief.

Also today, the insurance companies and others say: "Catastrophic medical care costs too much. Let us stop trying to treat people with catastrophic medical problems. Let us let them die."

Then along comes a Jack Kevorkian. And he comes to some children, adults maybe in their 30s or 40s. They have a parent in the 50s or 60s or 70s, who has a little nest egg of money. And one day, the children say—the children of that

parent, that parent who raised them lovingly—"Mommy's spending our inheritance on medical care and food!"

That's becoming a pattern around this country. And the Jack Kevorkians come into that situation, and they go up to someone: "Don't you realize you're a burden to your family? Wouldn't you rather have it over with? Can you stand this pain?"

We talk of holocaust; but we have holocaust all over this world. We are murdering people in the name of population control. We are murdering people in Africa and other parts of the world through a stroke of the pen, by creating the conditions in which famine and epidemic disease, as well as homicide, depopulate whole continents, whole regions of the world.

Not only do we do that to remote countries, or we say we don't want to think about those countries; we're doing it *here*, to ourselves, in this country.

In our zeal not only to get the church out of the state, but to get God out of the state, we've brought the devil in. We see it in our schools, we see it in our culture, we see it in our children. We have become like Sodom and Gomorrah, because we have lost our sense that *every human being* has this power which we can recognize through science, through music. That power which makes every baby in the living image of God.

That is the reality. That power which binds us to people dead thousands of years before us, because we have an intimate, direct relationship to them through the ideas they have contributed to make our lives possible. We become aware of the link we have to people thousands of years to come. Because if our life is going to amount to anything, we have to further those contributions which reach across the millennia, to people yet to come, and help to make a better future for those yet to be born.

When we lose that sense, we're gone.

You look at our school system, you look at our culture, you look at our television sets, you look at our entertainment generally; and you see the answer of why we're being *self*-destroyed by our bending to this rotten, decadent, Sodom and Gomorrah culture, which is destroying not only our nation, but destroying the souls of our people, so that children raised by loving parents, among many yuppies, will say those ugly words: "Look, mother had her run. And she's now in pain. *Wouldn't it be better. . . ?*" Or: "So-and-so, that child, is crippled. *Wouldn't it be better. . . ?*"

Those are the hallmarks of evil.

One of the reasons that we've lost the power to resist that as a nation, is that there's no science in our schools. In many cases, I can tell you, there's no science among our scientists: They're frauds! They will do anything for a buck, for an appointment.

There's no music in our schools. There's no music in the minds or the heads of our children. Music is a "this" or a "that." There is no understanding of the richness, the joy,

that many children of my generation had in a good performance, even if we didn't understand what it was. We were reached by something that gripped us from the beginning to the end. We were transported away from the circumstances in which we were sitting or standing. The music transported us, because we were focused upon it. We came out of the hearing of that music feeling good. We wanted more of it. That's why most of them went into music, not because they understood it. What child understands music?

Why do they choose music? Because of that kind of experience. We have to preserve it for them.

### **The principles of creativity are intelligible**

We have to do something else, which is the last point I want to make. The thing that had put me into conflict with many professional musical groups and others, those who teach so-called "aesthetics," is that I insist, for reasons which I've indicated, that the key element is the creative powers which are associated with great Classical art, whether the work of a da Vinci or a Raphael in painting—or also in music, by the way, with da Vinci; in great music, in great architecture, in great drama, great tragedy, all these things which exemplify the creative principle and express it, which ennoble the minds of the audiences as well as the participants. The lack of that kind of environment, that kind of education, deprives society of the ability to "do science," as they might say.

The principles of scientific discovery and the principles of artistic creativity, are identical. They are also complementary. I know of very few creative scientists generally, who are not involved, usually in Classical music in some way or other, or in some form of art. It's the most natural thing in the world. Not to have music with science, is like having only one-half of yourself. It completes you, just as it nourished me.

And I've insisted that music is intelligible. It's hard work, but it's intelligible. I've insisted that it's communicable, that if we start with children and teach them to sing, and teach them instruments on the basis of understanding simply singing beautifully, that if we do that, we can make it comprehensible, in the same way we make science comprehensible.

Yes, we don't know all the principles. But if we work at it, we keep uncovering new principles, just the way some associates of mine and I are having a great time with what has been a 50-55 year dedication of my life to understand what the last quartets of Beethoven are, and why they're so great. And today, I'm beginning to understand that.

For me, that illustrates the fact, that all art is intrinsically intelligible. There is no intuitive, magical thing about it. It's hard work, but hard work evoking those creative powers of the mind which teach us that we are each in the image of God and that we require a form of society, a form of relationship among human beings, which recognizes that we're all brothers and sisters, as children, in the image of God.