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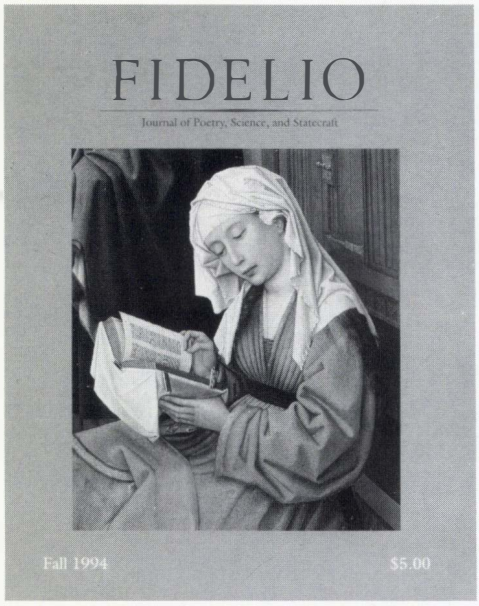

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FIDELIO

"It is through beauty that one proceeds to freedom."
—Friedrich Schiller

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On the Cover
Domenico Ghirlandaio, *An Old Man and His Grandson* (c.1480), Louvre, Paris. SEE inside back cover for analysis. (© Photo Réunion des Musées Nationaux)

SYMPOSIUM

The Creative Principle in Art and Science

FID 94-004

Creativity Will Defeat The 'Conservative Revolution'

EDITORIAL

Whereas many people might tend to see the results of the November 1994 elections in the United States as a "conservative revolution" against New Age liberalism, the fact of the matter is that the "conservative revolution" shares many of the same axiomatic assumptions as the New Age, and both are committed in their own ways to destroying those institutions of the United States which we have inherited from the Fifteenth-Century Golden Renaissance. Those institutions, as discussed in this issue's article by William F. Wertz, Jr. on the transformation of the traditional notion of natural law effected by Nicolaus of Cusa, are as follows:

1. *The idea of the modern sovereign nation-state republic;*
2. *The obligation of the state to foster scientific and technological progress; and*
3. *The role of the state in promoting the education and related cultural development of persons, in order to make possible a form of society committed to scientific and technological betterment of the condition of both the individual and the family.*

Everything positive that has been accomplished by mankind in the last 550 years, has been the result of the introduction of these institutional commitments, especially as those found expression in the American Revolution. However, because modern society has thus far failed to completely free itself from the grip of those "conservative," usurious families centered in oligarchical Venice beginning six hundred years ago (and most recently radiating from the institution of the British monarchy), the world as a whole is now lurching toward a collapse which could become a "new Dark Ages."

To remove this cancer from our midst, we must understand what it is we must defend, what we must save and revive.

Thus, the purpose of this issue of *Fidelio* is to render intelligible to you, our readers, that aspect of humanity which underlies the institutions introduced by the Renaissance, which the "conservative revolution" would destroy. That unique quality of humanity which we must campaign to save, is nothing less than human *creativity* itself.

As Lyndon H. LaRouche, Jr. has written: "In all pro-oligarchical, or related 'conservative' campaigns to destroy modern European civilization, the essential target selected for destruction is the Mosaic notion that each individual person is in the living image of God the Creator. In that Mosaic tradition, against which this feudalist-like 'conservatism' directs its bitterest hatreds, the individual person is proven to be in the image of God *the Creator* by the fact that each possesses a non-deductive, Socratic form of creative intellectual power. This power is a 'divine spark of reason,' which sets each person apart from and above all lower forms of life."

Moreover, as LaRouche stresses in his article this issue on "The Fraud of Algebraic Causality": "Creative reason is *imago Dei,* is *capax Dei;* without it, there is no *imago Dei,* no *capax Dei.*"

The oligarchical pagan's contrary view, is that man is a talking species of lower beast. The oligarch, for whom Aristotle is the paradigmatic philosopher, will not permit his subject slaves or other lower social classes to

even know that creativity exists. For purposes of political control, he insists that the human mind is capable only of sense-perception and deductive logic. He keeps his subjects enslaved in the world of the senses, of passions, and denies them access to the higher intellectual faculties that make them truly human.

To defeat the "conservative revolution" and its New Age confederates, our citizens must become wittingly *imago Dei,* i.e., self-consciously creative. This can only be accomplished to the extent that the difference between creativity, and mere logical deduction, is rendered intelligible to the mind of every citizen.

We present here a symposium of articles which demonstrate the principle of creativity at work in poetry, music, and physical science. It was commissioned by Lyndon LaRouche, as a demonstration of his assertion that "[e]ducation of the citizen requires a secondary education in not only the principle of creative discovery in physical science, but also the same principle found in all great Classical forms of poetry, tragedy, music and painting."

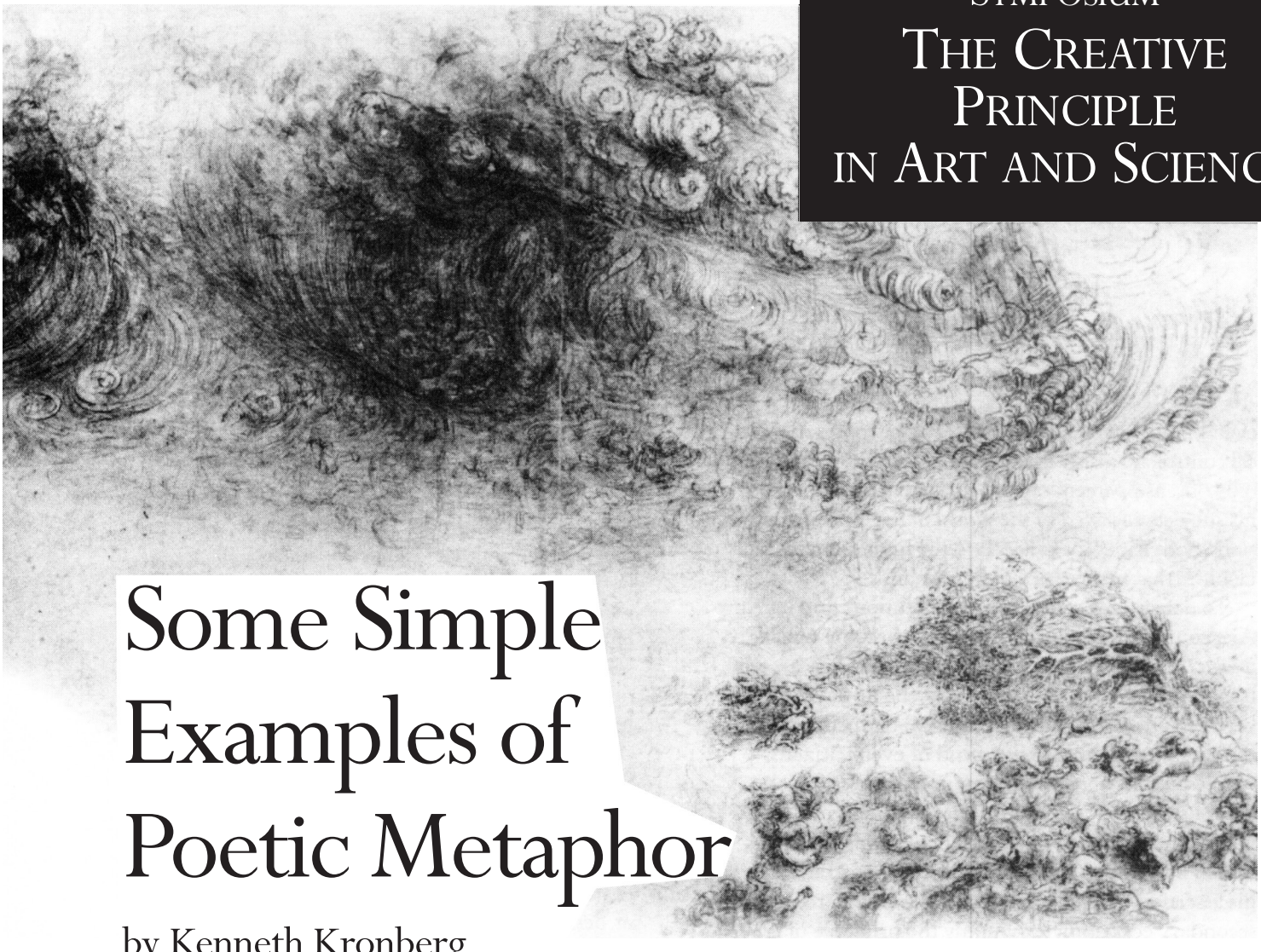
In addition to LaRouche on creativity in the physical sciences, the symposium includes an article by Helga Zepp-LaRouche entitled, "Beauty as a Necessary Condition of Humanity," and works by Kenneth Kronberg ("Some Simple Examples of Poetic Metaphor"), Dennis Speed ("African-American Spirituals and the Classical Setting of Strophic Poetry"), and Bruce Director ("What Mathematics Can Learn from Classical Music").

The "conservative revolution" can be defeated; our nation, and the contributions of Western Civilization to all humanity, can be saved. An Age of Reason can be achieved. We must merely educate ourselves and our compatriots to become living images of the Creator. Only then will we have the capacity to build and perpetuate free societies. In the process, we shall free ourselves of the oligarchical parasites who have brought the world to the edge of chaos and destruction.

On the Theater

The stage is the institution where instruction and pleasure, exertion and repose, culture and amusement are wed; where no one power of the soul need strain against the others, and no pleasure is enjoyed at the expense of the whole. When grief gnaws at our heart, when melancholy poisons our solitary hours; when we are revolted by the world and its affairs; when a thousand troubles weigh upon our souls, and our sensibilities are about to be snuffed out underneath our professional burdens—then the theater takes us in, and within its imaginary world we dream the real one away; we are given back to ourselves; our sensibilities are reawakened; salutary emotions agitate our slumbering nature, and set our hearts pulsating with greater vigor. Here the unfortunate, seeing another's grief, can cry out his own; the jolly will be sobered, and the secure will grow concerned. The delicate weakling becomes hardened into manhood, and here the first tender emotions are awakened within the barbarian's breast. And then, at last—O Nature! what a triumph for you!—Nature, so frequently trodden to the ground, so frequently risen from its ashes!—when man at last, in all districts and regions and classes, with all his chains of fad and fashion cast away, and every bond of destiny rent asunder—when man becomes his brother's brother with a *single* all-embracing sympathy, resolved once again into a *single* species, forgetting himself and the world, and reapproaching his own heavenly origin. Each takes joy in others' delights, which then, magnified in beauty and strength, are reflected back to him from a hundred eyes, and now his bosom has room for a *single* sentiment, and this is: to be truly *human*.

—Friedrich Schiller,
from "Theater Considered As a Moral Institution"



Some Simple Examples of Poetic Metaphor

by Kenneth Kronberg

Anyone who has ever attempted to teach someone something, that is, to *communicate a concept,* learns very early on that the difficulty is wholly other than that encountered when engaged in passing along "information": because the teacher is immediately confronted with the requirement that the student be made to understand the concept for himself.

This problem is addressed time and again in Plato's dialogues, where the question of whether "teaching" and "learning" are possible at all is held up to the most penetrating sort of *Socratic* scrutiny. In the dialogue *Meno,* for example, Socrates engages in a discussion with a group of aristocrats spearheaded by the greedy and self-seeking Meno, over the issue of whether "virtue" itself can be taught; that is, whether it is a teachable thing, or if it is perhaps innate, or comes to be present in some people mysteriously, or by accident. In other words, how can you make someone virtuous, internally, in his own character and psychological make-up? Because as human beings, we are interested in having virtuous people, and not merely in people who have the most up-to-date available information about what someone or other says about "virtue." And Socrates of course, wielding his characteristic irony, or negative dialectic, demonstrates that none of the dialogue's participants has a clue concerning what "virtue" is, let alone how to teach it.

It is critical that the problem of how to teach a concept which the student must understand for himself—

Leonardo da Vinci, "Hurricane over Horsemen and Trees."

"virtue" in this case—leads directly to the dialogue's investigation of the concept itself, because it demonstrates Plato's insistence that the nature of ideas, of creative thought, is explicated by analogy to the method of teaching or *communication*. Thus, for Plato, both the science of knowledge (epistemology), and the science of being (ontology: what *is*), are studies whose subject matter is of the same sort as the subject matter of the teaching process itself: the Socratic *method*. Because, it turns out, upon reflection in many of the dialogues, that creative ideas can neither be, nor be understood, as if they were things; they are instead processes, generative, reflective of the fact that the substance of our world is transformation and change. The problem of how change can be ordered, what is the reason that underlies change, becomes, for example, the subject of the *Parmenides* dialogue's development of the paradoxical relationship between the One and the Many. But it is worth noting that it is in the *Meno,* that there occurs Socrates' celebrated exchange with the young slave boy, in which Socrates demonstrates the universal accessibility of the concept of *species difference* among cardinalities of the infinite, by leading this uneducated youth to recognize the geometrical incommensurability of the side of a square with its diagonal.

Lyndon LaRouche is the most recent representative of the tradition reaching back to Plato, to investigate and shed new light on these issues. Beginning in 1948-52, he recognized in the works of the Nineteenth-Century mathematicians Bernhard Riemann and Georg Cantor—especially in Cantor's notion of the *Transfinite*—the seeds of mathematical representations of processes identical, in their species nature, to the process of creative thought. During the same period, he recognized in William Empson's *Seven Types of Ambiguity,* a contemporary study of the use of ambiguity in Classical poetry, a demonstration of a more narrowly understood representation of what LaRouche came to call *metaphor* in questions of creativity and human communication. LaRouche's own contribution on the principles of poetry has been reported by him in such locations as "Poe's Conception of Poetry" (1978), "Why Poetry Must Supersede Mathematics in Physics" (1978), "Beethoven as a Physical Scientist" (1988), and most recently the "Metaphor" essay series in *Fidelio* magazine, beginning with "On the Subject of Metaphor" (1992).

In this last cited work, LaRouche addresses the problem of teaching, of communicating a concept, in the subject of geometry:

> At an appropriate place in the secondary curriculum, the traditionalist teacher of secondary school geometry introduced the Pythagorean Theorem. The pupils of that class were guided to re-experience the mental act of the original discovery by Pythagoras himself, thus to reconstruct a copy of that aspect of Pythagoras' creative mental processes within the mind of each of the pupils. This new existence within the pupil's own mind is itself an object of a special kind, a thought-object identified by the *metaphorical* name "Pythagorean Theorem." The crux of this example is the fact, that the thought-object associated with the metphorical name "Pythagorean Theorem," is neither an object of the outward senses, nor an object which can exist explicitly within any medium of communication.

And again, in describing the Classical Humanist form of education:

> In each case, first of all, the pupil replicates an original discovery. Within the student's own intellect, there is approximately a replication of the mental processes of that creative discovery which was experienced earlier by the original discoverer.

(We recognize Socrates' slave boy in these two examples. LaRouche goes on to highlight the ongoing process.)

> Later, the pupil experiences another such crucial discovery, by an original source who depended, in turn, as the student does, upon the prior of these two original sources considered. So it continues. [SEE Figure 1]

LaRouche describes a particular type or species of discovery, requiring a revolutionary change in axiomatic assumptions, typified by that of Nicolaus of Cusa's investigation of the paradoxical effort to measure a curved line with straight line segments—the smaller the segment, the greater the number of points of difference between the two lines—which led to the identification of non-algebraic or transcendental functions, in addition to the arithmetical or algebraic functions known to previous mathematics, as

> solutions to real problems for the case that there exists no solution solely by means of deductive methods of argument. Those non-deductive solutions, solutions by methods which cannot be represented explicitly by any linear medium, such as communications media, typify the class of thought-objects to which belong the pupil's reliving of Pythagoras' discovery . . . .

LaRouche characterizes such a solution-concept as

> a leap of consciousness . . . required to discover the alternative to such a concatenation of merely negative [paradoxical] considerations. . . . [A]n apparent solution leaps into the mind of the successful discoverer. That solution, as a thought-object, cannot be directly depicted in terms of communications media available.

How can this indirect communication of such a thought-object (the Platonic idea [*eidos*] or Leibnizian *Monad*), take place? It must

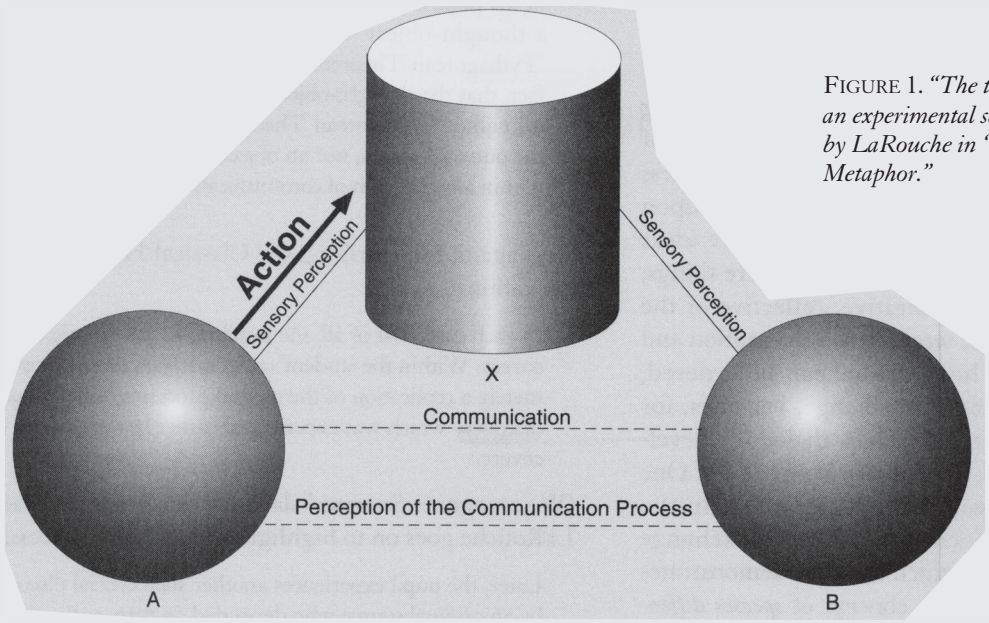


FIGURE 1. *"The teacher and pupil in an experimental setting," as presented by LaRouche in "On the Subject of Metaphor."*

LaRouche writes: "We have person A, a secondary-school teacher, and also an experimenter. We have person B, a student, and an observer of the experiment being performed. There is the experimental subject, X. A acts upon X. Student B observes X, and also observes A's actions upon X throughout the experiment. A communicates, reciprocally, with B, a communication which precedes and accompanies the experiment, and which continues after the experiment's completion.

"A, beginning from a thought-object in his own mind, provokes the replication of that thought-object within the mind of student B. This occurs through the method of Socratic negation, as applicable to a case which meets the requirement to be a true paradox. Consider an example, related to the Cusa isoperimetric paradox, which illustrates this phase of the transactions among A, B, and X, in this illustration; consider the proof of the uniqueness of the five Platonic solids."

> occur either by causing, dialectically, the creation of that [thought-object] in the mind of the hearer, or by prompting the hearer to recall such an earlier experiencing of the generation of that thought-object.

The accomplishment of this task is assigned to *metaphor.* Not the transmission of "information," but the communication of that class of concepts reflective of the paradoxes associated with change or transformation, in which the experience of creative discovery must be re-created indirectly in the other. In poetry, this is done by juxtaposing irreconcilable sense objects, two sensual (literal) effects, such that the creative discovery is generated in consciousness as a third, *intellectual* thought-object. Metaphor must play this role not only in artistic expression, but

> as the essential poetic characteristic of any scientific or similarly rigorous communication. *Metaphor* is the key, the only possible means by which the unutterable is rendered *perfectly intelligible* in communication among two or more persons.

In Plato's lesser-known dialogue *Cratylus,* a humorous effort to link the poetic sound of words to the concepts they represent results in a game of fanciful etymologies where the point is made, that the meaning of words resides not in their literal denotations, but in the broader, shadowy connotative penumbra of unspoken associations and poetic images which bound them. In the middle of this game, Socrates, recalling the philosopher Heraclitus, reminds us that "all things are in motion, and nothing at rest." In the simple poetic examples that follow, we will examine *metaphor* as the form of unspoken communication of that class of thought-objects which reflect the paradoxes to be derived from this simple dictum of Heraclitus.

Two Examples from the Nursery

Singing

Of speckled eggs the birdie sings
And nests among the trees;

The sailor sings of ropes and things
In ships upon the seas.

The children sing in far Japan,
The children sing in Spain;
The organ with the organ man
Is singing in the rain.

—*Robert Louis Stevenson*

Despite its simple, childish subject matter, this strophic poem is constructed along Classical lines, by an author who lived when these principles, although unspoken, were assumed to be the simple bedrock of composition. It comes from the best-known favorite amongst anthologies of children's poems in English, *A Child's Garden of Verse,* by the author who created the great adventures *Treasure Island* and *Kidnapped*.

The direct, literal subject is the universality of singing, that is, of music, and the lesson is a good one for young children. It proceeds through a series of examples of singing, organized geometrically in a sequence of ever-expanding concentric circles, beginning with the most familiar, and progressing to the increasingly exotic. Thus, (1) the nearby birdie (a mommy) sings of her eggs while cozying within a small, familiar home; later (2), the sailor (a grown-up) sings of ropes (that is, implements) in the unfamiliar environment of ocean and adventure. The pace of expansion doubles in the second strophe, increasing the density of transformations, where only a single line apiece is given to the mention of far-off destinations like Japan and Spain (3), places so different from home that singing itself must occur in a completely foreign language.

Thus far, the poem resembles many others in the collection, which are meant to focus the child's imagination on the act of discovery, by presenting contrasting relationships of the familiar and the unknown. But suddenly, the last two lines create a complex, telescoped irony, a metaphor, which lifts us out of the literal meaning and forces the discovery upon us: because, all of a sudden, the direction of motion changes. We are no longer traveling farther and farther to far-off lands; instead, the exotic organ man, the "far-away," is thrust right in front of us: we can see him on the street as we look from the window of our house on a rainy (mundane) day.

Thus, the irony has turned everything "inside out," like a glove that gets pulled off the wrong way! The far-off is suddenly the familiar, and *vice versa*. The irony here is itself the metaphor, the thought-object, of this little children's poem, authored by a man who went from a bedridden, tubercular English childhood to explore the wonders of the California Gold Coast and the Pacific South Seas.

Who Has Seen the Wind?

Who has seen the wind?
Neither I nor you:
But when the leaves hang trembling,
The wind is passing through.

Who has seen the wind?
Neither you nor I:
But when the trees bow down their heads,
The wind is passing by.

—*Christina Rossetti*

Clearly, this simple, strophic poem is for somewhat older children, because the literal subject matter presents a concept that cannot be addressed verbally at too young an age: the certain existence of non-material things, things we cannot see, or hear, or taste, or feel. These are the things of the spirit: thought, hope, goodness, love, and the God whom man imitates in consciousness. And in this poem, the devotional tone ("bow down their heads") most certainly is intended to imply reverence for the Almighty.

Many readers will immediately recognize the use of the wind as an image for such things, because it is used this way in one of the greatest and most familiar poems in English, Percy Bysshe Shelley's "Ode to the West Wind." In fact, it is likely that the author conceived this poem as an adaptation of the idea expressed at the very beginning of Shelley's "West Wind," of the wind's "unseen presence" driving the dead leaves of autumn.

At first glance, the two strophes seem almost so identical as to deny the possibility of development, without which metaphor is impossible. But this is the trick used in the poem to focus its meaning. Because so little changes, the inversion (irony) from the first strophe's answer

Who has seen the wind?
Neither I nor you:

to the second strophe's answer

Who has seen the wind?
Neither you nor I:

is unmistakable, almost joking; and the shifting of the rhyme ("you-through" to "I-by") is virtually the poem's entire musical content.

Now, what does this irony tell us? That I know that you know something, and that you know that I know something; that is, that "I know that you know that I know . . . ," and that "you know that I know that you

know . . . ." Which means that between the two of us, there exists some third thing. We experience this third thing immediately, in the ironic inversion of the lines; but can we touch, or see, or taste this third thing, this *communication of ideas,* which we share, but which exists spiritually and not materially? Here again, the ironic juxtaposition creates the metaphor, and we experience the thought-object above the poem's literal subject matter.

Two Growing Up Poems

A Widow Bird

A widow bird sat mourning for her love
  Upon a wintry bough;
The frozen wind crept on above,
  The freezing stream below.

There was no leaf upon the forest bare,
  No flower upon the ground,
And little motion in the air
  Except the mill-wheel's sound.

—*Percy Bysshe Shelley*

It goes without saying, that although this is a minor strophic poem with a limited subject, we are dealing here with a composer of infinitely greater power than the two previous poets. (There are many short, oftentimes fragmentary bits of poems in Shelley's collected works, which show the poet working through ideas which reappear transformed in mature, developed form in the larger compositions. But in this case, this short work is itself a fully-composed poem.)

As *per* its title, the subject of the poem appears to be a meditation about loss. Death has come to the bird's mate, just as it has come, through the change of seasons, to all nature: tree, wind, stream, forest, all are bleak. The widow bird is suffering. This is what the poet sees on his solitary walk through the woods; but although it is sad, the picture in itself does not constitute the true subject-matter of poetry, which is to say, metaphor.

But then, through the winter stillness, there penetrates a sound, and it is a sound of civilization, man-made and human. But the poet dismisses it with a bitter irony:

> And little motion in the air
> Except the mill-wheel's sound.

Why? Because it is the repetitive sound of an indifferent machine. Consider the situation from the poet's standpoint. The bird is suffering, and the poet knows it, but no one else cares, or thinks to come to her aid; mankind, in the person of the mill-wheel, is indifferent. Now, death is part of life, and nature cannot be unjust; but man's indifference to suffering, that is injustice. The poet knows, immediately, that mankind must be roused from this indifference by a sense of justice; mankind must be mobilized! Remember, the poet is Percy Shelley, the sworn enemy of oligarchism and the murderous Castlereagh, who as a young man journeyed to the streets of Dublin to leaflet his revolutionary tracts among the oppressed populace.

The author does not explain this to us, because he wants us to understand it for ourselves. Instead, he creates an irony between the nature-picture which begins the poem, and its last line; and this irony creates the metaphor—the urgent need to rouse mankind—which is the thought-object of this short work. It is, incidentally, a metaphor which may be found in other famous works; for example, in *The History of the Ingenious Gentleman, Don Quixote de la Mancha*.

A Green Cornfield

The earth was green, the sky was blue:
  I saw and heard one sunny morn
A skylark hang between the two,
  A singing speck above the corn.

A stage below, in gay accord,
  White butterflies danced on the wing,
And still the singing skylark soared,
  And silent sank and soared to sing.

The cornfield stretched a tender green
  To right and left beside my walks;
I knew he had a nest unseen
  Somewhere among the million stalks.

And as I paused to hear his song
  While swift the sunny moments slid,
Perhaps his mate sat listening long,
  And listened longer than I did.

—*Christina Rosetti*

Structurally, from a literal standpoint this poem by Christina Rosetti is almost the inverse of Shelley's "Widow Bird." After all, whereas Shelley took a walk in winter and found a bird mourning, Rosetti takes a walk in the spring and finds a bird singing and soaring with life-giving energy. The mood is quite joyous, and the playful freedom of the lark, who dips and soars as butterflies dance between him and the stalks below, expresses the optimism of tender, green youth. But, as in the case of the

"Widow Bird," this springtime joyfulness cannot by itself constitute a poetic subject; it is not a metaphor, but a sort of simile, a soap-opera mood piece.

The poet is led to hypothesize the presence of an unseen love nesting below, if for no other reason than that the springtime demands it, and that the lark's exuberant acrobatics must be directed to another, because joy and hope cannot be solitary, but must be reciprocated. (We saw in "Who Has Seen the Wind?" that the author is attuned to the invisible causes of visible effects.) Suddenly, as when a summer storm approaches, things become unsettled:

> . . . swift the sunny moments slid,
> Perhaps his mate sat listening long,
> And listened longer than I did.

Coming as it does at the end of a happy poem about spring, the abrupt end line speaks an unspoken bitterness. But why? Is it just that the hour has grown late, the sun is sinking, and the poet must get home for dinner? Is that why she cannot stay to listen, as the lark's mate listens? Or is it that she is suddenly overwhelmed by loneliness, by the absence of love in her own life, by her jealousy and rage at an unseen bird who joys in the songs and dances her husband makes for her?

For you see, the poet has no husband to love.

But the poet does not complain, literally; she is not looking for sympathy, but to communicate a concept. It is possible to understand love, real love, as taking joy in another's accomplishments, and still to live without it. That is the metaphor generated by the ironic ending to this poem.*

Adolescence, and Beyond

May Song *[metrical crib]*	***Mailied***
How glorious nature	Wie herrlich leuchtet
Illumines me!	Mir die Natur!
How the sun sparkles!	Wie glänzt die Sonne!
How the meads laugh!	Wie lacht die Flur!
The blossoms break forth	Es dringen Blüten
From every branch,	Aus jedem Zweig
A thousand voices	Und tausend Stimmen
From out the bush	Aus dem Gesträuch
And joy and delight	Und Freud und Wonne
From every breast.	Aus jeder Brust.
O Earth, O sun!	O Erd, o Sonne!
O bliss, O romance!	O Glück, o Lust!
O Love, O loved one!	O Lieb, o Liebe!
So golden fair,	So golden schön,
Like the morning clouds	Wie Morgenwolken
On hilltops there!	Auf jenen Hön!
You bless in splendor	Du segnest herrlich
The freshly field,	Das frische Feld,
With breath of flowers	Im Blütendampfe
The profuse world.	Die volle Welt.
O maiden, maiden,	O Mädchen, Mädchen,
How I love you!	Wie lieb ich dich!
How your eyes dazzle!	Wie blickt dein Auge!
How you love me!	Wie liebst du mich!
Just as the lark loves	So liebt die Lerche
Singing and air,	Gesang und Luft,
And morning blossoms	Und Morgenblumen
The scent of sky	Den Himmelsduft,
So love I you	Wie ich dich liebe
Warmbloodedly,	Mit warmem Blut,
Who give me the youth	Die du mir Jugend
And joy and strength	Und Freud und Mut
To dare new poems	Zu neuen Liedern
And dancing too.	Und Tänzen gibst.
Be ever blissful,	Sei ewig glücklich,
As you love me!	Wie du mich liebst!

—J.W. von Goethe

What an exuberant song of young love! All of nature, the whole of the May, is organizing itself to enhance this young man's joy. Everything is morning fresh, sparkling, the sun warms him and the birds sing for him. He is like the skylark, ready to dare new dips and pivots as he soars through the air. He is in love with his sweetheart, he is in love with Love!

Everyone should, at least once, be where this youth finds himself.

And yet, in itself, this mood of infatuation is not itself

---

* Readers who are worried about Miss Rosetti, should consult her later poem "A Birthday," in which she announces

> My heart is like a singing bird
> . . .
> Because the birthday of my life
> Is come, my love is come to me.

a subject for Classical poetry; and Goethe, who knows what a poem is, does not settle for it.

Let us examine the structure of the poem, which is composed of three strophic groups of equal length. Part I (strophes 1-3), presents the youth's infatuation, and the fact that all nature participates in it; this is summarized by the culminating exclamations

> O Erd, o Sonne!
> O Glück, o Lust!

which conjoin nature and his love. (Readers who do not know German should consult the line-for-line crib supplied to the left of the poem. A recent English-language verse translation, which gives something of the musical sense of the original, is appended at the end of this article.)

Part II (strophes 4-6) advances on to introduce through direct address the loved one, who now takes the place of nature's sun in lighting and nourishing the world. It culminates in an ironic inversion

> Wie lieb ich dich!
> . . .
> Wie liebst du mich!

reminiscent of what we saw in "Who Has Seen the Wind":

> Neither I nor you:
> . . .
> Neither you nor I:

which subsumed metaphor asserts the presence of a third, unseen existence, different from both boy and girl, which is the love they share; although here, it is being loved, that is, being the recipient of love, which is what is important. (The English-language translation at the article's end nicely captures the exuberance of this inversion.)

Part III (strophes 7-9) gives us yet another skylark, advancing the poem further through a single sentence whose geometrically complex (dense) set of comparisons or analogies illustrate how his love gives him the freedom to be joyous and creative. And then Goethe gives us the final "zinger" that reaffirms and elevates our understanding of love, by turning the perspective inside out:

> Sei ewig glücklich,
> Wie du mich liebst!

Despite the playful similarity, this is not the merely exuberant "How you love me!" that concluded part II. There is a double meaning that is difficult to successfully represent in the cognate four English words, because the youth is simultaneously telling his beloved to remain forever happy as she continues to love him, but also that she should be forever happy "with this happiness in which you love me"—that is, it is the act of loving another (and not of being loved) that *brings* happiness. This is what the lovers share, what each "knows the other knows." The poet has set us up for this inversion with the final rhyme "gibst/liebst" (gives/loves), which conjoins together *giving* and *loving* at the moment the youth rises above his concern for himself, to reveal the joy of mutual love.

What is the gift love gives? It is the courage to create new songs and new dances: that is, love transforms the other, it *changes* the other and nurtures the other's creative powers. We experience this gift as joyful liberation. Goethe's irony creates the metaphor that lifts us to understand this, and distinguishes the poem as a Classical composition.

To My Mother

Because I feel that, in the Heavens above,
  The angels, whispering to one another,
Can find, among their burning terms of love,
  None so devotional as that of "Mother,"
Therefore by that dear name I long have called you—
  You who are more than mother unto me,
And fill my heart of hearts, where Death installed you
  In setting my Virginia's spirit free.
My mother—my own mother, who died early,
  Was but the mother of myself; but you
Are mother to the one I loved so dearly,
  And thus are dearer than the mother I knew
By that infinity with which my wife
  Was dearer to my soul than its soul-life.

—Edgar Allan Poe

There is something mysterious about this sonnet. It is, literally, a mystery story, in which the author adopts the role of detective in an effort to discover the truth; he is a veritable poetic C. Auguste Dupin, sifting through the unreal to uncover the real. But while the action is driven relentlessly by the need to peel off layers of falsity, there seems to be an almost physical sensation that we are descending; so that, rather than rising upward with each new discovery, we appear to be being sucked deeper and deeper downward into a murky pit or confused, swirling maelstrom.

Of the two major variants of the strophic sonnet form, this one—the "Shakespearean"—is composed of three quatrains (four-line stanzas), followed by a final couplet that often presents in condensed form a metaphor which

summarizes the thought-object developed through the poem. Formally, however, Poe has grouped the sonnet into two parts that mimic the "Italian" sonnet division of initial eight-line octet, followed by a six-line sextet; this is clear from the division into two sentences, and in the shift in tone that occurs when the sextet begins

My mother—my own mother, who died early . . . .

The poem's title, "To My Mother," is wholly deceptive. For we learn in the octet that the poem is addressed to someone who is actually

. . . more than a mother unto me,

whom the poet has installed in his affections following the death of Virginia. So, rather than the sort of "bird's death" we encountered earlier, symbolic of earthly nature and the unavoidable passing of time, we are dealing here with a literal subject that is much closer to us: the death of our own flesh and blood. But it is also clear that Poe's investigation is not of fleshly matters and sensory things, but of things spiritual.

An initial irony is presented, as the poet portrays the liberation of one (Virginia's spirit) as bringing about the imprisonment (installation) of the other. Thus begins, in the sextet, a series of seeming paradoxes, interleaved with revelations and complicated geometrical relationships measured by a metric of "dearness" that simultaneously implies both love and valuation. Thus, the mother addressed in the poem is not the poet's real ("own") mother, but the mother of his loved one, while his "own" (real) mother—the mother whom he "knew"—is *merely* the mother of himself. And so on, culminating in the final paradox, that

. . . my wife
Was dearer to my soul than its soul-life.

So it now appears that the poem's subject is not anyone's mother, but the poet's wife. Not his wife actually, but the spiritual relationship between man and wife. We are dealing with familiar ground here, having learned about such unseen relationships in "Who Has Seen the Wind?," "The Green Cornfield," and "Mailied." But the solution to this spiritual investigation seems to end in a conundrum, for how can something be dearer than the life which gives us the consciousness to experience it? How can something be closer to the soul, than the soul itself?

To overcome this paradox, the path of investigation forces the detective to jettison the familiar Euclidean metric of *greater than/less than* ("more" than a mother; "dearer") with which he began: because the truth proves to reside in a realm of "infinity"—the transfinite—where such metrics have no meaning, where quantity must give way to cardinality and the truth is found in what Plato called the *eidē,* in the *types* or *species* of existence. In speaking of the soul, our detective must enter the realm of Leibniz's *Monads*.

To recapitulate. The poet, beset by a sense of loss, initially set out to recapture his lost wife. The effort to recapture her has forced a spiritual, that is *Psyche*-logical, journey of discovery, in which the subject matter becomes increasingly the method of investigation itself. The drive that propels the accelerating rhythms of the sextet with an almost desperate grasping to get *closer* to the truth, ends in paradox, which can only be resolved by leaping to a wholly different realm of thought. The investigation's subject becomes the investigator; the subject of the metaphor, metaphor itself. The poet is freed when a self-discovered, crucial truth about the soul is realized: that it is a transfinite, generative process. This is the thought-object, the swirling maelstrom, captured in Poe's sonnet.

In Conclusion

Music

Music, when soft voices die,
Vibrates in the memory—
Odors, when sweet violets sicken,
Live within the sense they quicken.

Rose leaves, when the rose is dead,
Are heaped for the belovèd's bed;
And so thy thoughts, when thou art gone,
Love itself shall slumber on.

—Percy Bysshe Shelley

We began our examples with music in the nursery, the universal music of children. Here we have music again, but it is grown-up music; neither the full-rounded exuberance of Goethe, nor the dark mystery of Poe, but the clear, precise, Italianate English singing voice of Shelley. And we find in this little Classical poem variations on many of the characteristic philosophical themes developed by Shelley in his larger works: the delicate balance between sensibility and sense, our appreciation of nature's beauty, memory, death, and the affirmation of the primacy of man's intellectual powers.

This is no longer such a simple example. The density of things happening artistically in these eight lines, of

doubly-charged words and secondary compositional elements and secondary voices, is more than we can describe in our illustration summary. But the bare bones of the poem go like this:

Strophe I: Two precisely parallel examples of the same literal idea are given, each a couplet in length (the couplet is the shortest poetic unit of a fully expressed idea), developing a parallelism between the sense of hearing and the sense of smell:

> Music, when . . .
> . . .
> Odors, when . . . .

(The second couplet seems to develop beyond the first, because the lines are a syllable longer, the last trochaic foot having been filled out with the feminine rhyme "sicken/quicken.") The idea is straightforward: We can recall in memory a sound or scent, after the source of the sensation has ceased. The philosophical principle: the causes that stimulate and give life to ("quicken") the sensations recorded in our thoughts, continue to live on in our thoughts after the material demise of the cause.

Strophe II: At first glance, the second strophe appears to be repeating the exact same form as the first, with a slight re-ordering of the syntax:

> Roses leaves, . . .
> . . .
> . . .
> Love . . . ,

yielding two sets of parallels, Music-Odors and Roses-Love, and perhaps a linear sequence: Music-Odors-Roses-Love. (This sense is reinforced by the changed patterns of line length and scansion, which tend to unite musically the first and last lines of strophe II.) This would make the relationship between the two strophes similar to what we saw earlier in the children's poem about the wind, in which two identical forms highlighted a seemingly minor inversion. But this isn't true at all. It is, instead, a strongly felt misdirection, an ambiguity set up by the poet for the purpose of increasing the tension associated with the actual meaning of the poem, by confusing the geometrical relationship between strophe I and strophe II.

Closer examination shows that strophe II does not contain two examples, each a couplet in length, of the same idea (as does strophe I), but that instead, there is only one literal idea, albeit itself an analogy or comparison between two parallel things, presented in the second strophe's four lines. Geometrically speaking, this means that the second strophe has telescoped or projected out the couplet of strophe I into a quatrain; that is, there is an expansion process taking place, in which a greater density of relations appear in the same (condensed) space, and not a mere linear repetition.

What is this expanded literal idea? Just as rose petals (A) can, after the death of the rose (B), become a bed on which one's beloved (C) sleeps, so a beloved's ("thy") thoughts (A) can, after her (B) death, become a bed on which Love (C) sleeps. I am labeling this analogy as a geometrical diagram for clarity, but also to convey how complicated it really is. Alas, however, it is even more complicated than that. Because the expression "thy thoughts" can mean both directly her thoughts, but also, the poet's thoughts about her; in fact, if we look back at strophe I and the couplets out of which this quatrain is projected, we would conclude that the thoughts in the mind of the beloved are the stimulant that quickens the thoughts of her in the mind of the poet, and that the expression means both things simultaneously. This ambiguity is not accidental.

So now, as a result of this geometry lesson, we can state the literal gist of the poem: Even after her death, my beloved will live on (and my love for her will live on) in my thoughts, which is the true location of love.

Now, this is a lovely sentiment, but it is not a poem; for we have not yet shown a thought-object, some communication to the reader that lives for the reader's mind as it lives for the poet's.

Let us abandon our initial attempt as having been necessary, but not sufficient. Let us begin not at the poem's beginning, but at its end.

Some readers may note an eerie effect of the poem's concluding line. It presents, apparently, a simple, straightforward literal meaning—Love will continue to slumber, that is, live on—while at the same time it seems wholly unsatisfying, as if the meaning of the previous line remains incomplete, or unanswered. This eerie effect is actually written into the poem, because the seeming simple meaning is not the grammatical meaning at all (see the geometrical description of the grammar above); that is, the last line actually seems to mean two different things simultaneously. Shelley has built this ambiguity out of a pun on the verbal action "slumber on," whose preposition can indicate both the meaning "slumber on [in time]," i.e., "continue to slumber," and also the meaning "slumber on top of," in this case, "slumber on top of a bed made of thoughts, like a bed made of rose leaves." In fact, the double meaning of "slumber on" unites the two strophes; it defines the transformation in meaning from the couplets of strophe I, to the more complicated, expanded figure of strophe II.

This ironic double meaning is only the beginning of

the powderkeg loaded into that delicate "slumber on," however. Think about it: what is the image evoked by Shelley in this line, which, although unspoken, we cannot help imagining? It is the picture of his beloved lying softly asleep beside him. Her face is calm; and as the poet gazes, watching her eyes move animated by dreams, he is suddenly overwhelmed by the desire to get *closer* to the silent thoughts he sees, to reach out for them and to grasp them. But he cannot possess these thoughts. They are elusive, fleeting, like the double-meaning of the verbal "slumber on." Sometimes, he can re-create these thoughts within his own thoughts, he can make them live for him even though he cannot hold them or possess them: for they are like fragrant music. This elusive metaphor is the thought-object that animates the complex philosophical grammar of these two simple strophes, and that makes them live forever in the recollection of the reader.

Shelley addresses this issue of thoughts in very many locations, often using the same image of leaves he uses here. In the previously mentioned "Ode to the West Wind," for example, in which all the elemental forces of nature are presented, he introduces the dying leaves of autumn, which the Wind scatters

> . . . like ghosts from an enchanter fleeing.

But in that larger work, his purpose is to explore the more profound issue of thoughts in relationship to the creative energy of mind which conceives them. The Wind is that creative energy of transformation, that wild spirit (*maelstrom*) which simultaneously destroys and preserves, which brings wintry death as it sows the seeds of spring. It is the principle of true change, of generation, which is as pitiless toward the *status quo* as it is toward the past, and the poet appeals to it for unlimited access to its elusive, unseen power:

> Make me thy lyre, even as the forest is:
> . . .
> . . . Be thou, Spirit fierce,
> My spirit! Be thou me, impetuous one!

such that the fruit of metaphor might plant new thoughts in others:

> Drive my dead thoughts over the universe
> Like withered leaves to quicken a new birth!

("quicken"!), and

> Scatter, as from an unextinguished hearth
> Ashes and sparks, my words among mankind!

—so that the poet might become the agency of world justice, the Platonic "legislator" in Shelley's phrase elsewhere, who can fulfill the responsibility he feels *to give* the gift of transfinite intellectual power known to him from his own mental process, to all humanity, and thus liberate mankind through the power of metaphor to break free from the dead axioms that shape and constrain man's imagination, so that man may at last become truly human, to be able to act truly *in the image of God.*

Dr. Frederick Wills, the now-deceased Justice Minister of Guyana who campaigned courageously in the international political arena for the economic development of the Third World, and who was one of the founding leaders of the worldwide Schiller Institute, once commented to me on first-reading of a poem, that it was successful because it inspired in him new thoughts and the desire to write new poems himself. This is where the simple examples we have investigated lead us; and it is why the study of Classical poetry must serve as the starting point in our quest to make the principle of creative discovery once again central to the artistic and scientific endeavors upon which the future, and past, of mankind's civilization depend.

May Song*
by J.W. von Goethe

How fine a light on
Nature today!
The sun's in glory!
The fields at play!

What feats of blossom
A twig achieves!
A thousand voices
Delight the leaves!

And every pleasure
For girl, for boy!
The sun-warm country
Of joy on joy!

Oh love! O lovely!
My golden girl!
Like clouds at morning
Your rose and pearl!

You lean in blessing
On earth's cool bloom,
The world a richness of
Dense perfume!

O darling, darling!
I'm wild for you!
Your lashes dazzle:
You love me too!

The lark loves singing
Away up there;
The flowers at morning
Delight in the air,

As I adore you, with
Blood a-thrill!
It's youth you give me,
Ecstatic will

For newer music
And dancing! Be
In bliss forever,
As you love me!

translated by John Frederick Nims

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Symposium

The Creative Principle in Art and Science

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SCALA/ Art Resource, NY

'Cast off the fear of the earthly…'

Beauty as a Necessary Condition of Humanity

by Helga Zepp-LaRouche

Were we to look upon mankind today with the eyes of Friedrich Schiller, what would we see? The wishes and desires of the majority of our contemporaries, the way they paint themselves in the kind of "entertainment" they prefer—just consider the aggrandizement of bestial violence and sexual perversion of the video industry, or the unbearable banality of soap-operas and the game-shows—people manifest themselves as thoroughly corrupted egoists, brutalized to an astonishing degree and fundamentally completely uncreative.

While, on the one hand, the world has become a village through the effect of the electronic mass media, and we can see catastrophes in the most distant continents in our own living rooms, the complete indifference toward the blatant genocide, on the other hand, be it in Bosnia or Rwanda, shows that this reality means nothing to most people, and that they have lost the capacity for compassion.

The old and the sick, poor people, are denied medical care with a shamelessness which would make the Nazis pale with envy—in Holland or Oregon there are even laws which legitimate assisting someone to commit suicide—and rich people simply buy the organs of the poor, who usually give them up by no means voluntarily.

No, to be sure, it is not a pretty picture which our human society gives of itself today. And in spite of the various forms of progress in different areas of life, we must ask ourselves today the same question which Friedrich Schiller posed, as an indictment, two hundred years ago: "Why is it, that we are still barbarians?"

Schiller posed this question in the *Letters on the Aesthet-*

Leonardo da Vinci, "Pointing Lady in a Landscape," "Profiles of an Old Man and a Youth."

ic Education of Man, which he wrote in 1793 to Duke Christian of Schleswig-Holstein-Augustenburg. At that time, the terror of the Jacobins had just destroyed the hopes of all the republican forces in Europe, that the example of the anti-oligarchical revolution in America might be repeated in France, and the inalienable rights of *all* people, including those on the European continent, could be realized in a constitutional republic. Schiller wrote:

> The edifice of the natural state is wavering, its brittle foundations are cracking, and there seems to be a *physical* possibility to put the Law upon the throne, to finally honor man as an end unto himself and to make true freedom into the foundation of a political union. Vain hope! The *moral* possibility is lacking, and the generous moment finds an unresponsive people.

In retrospect, we have to observe that unfortunately it was not only the "generous moment" of the French Revolution which was missed; for it was also that which had rightly been called the great historical opportunity for Europe, the opening of the borders and the collapse of communism in the year 1989.

Instead of fulfilling the hopes of the people in the East with a grand design for reconstruction, combined with a cultural Renaissance, there was the economic devastation of the so-called "Free Market" economy, purely oriented to the policy of quick money. As a consequence of that policy, we are facing today economic ruin and threatening social explosion in the East. Unfortunately, the "*moral* possibility" to exploit the historical moment and to give history a new, more positive direction was lacking here too—and this is true both for governments as well as for the populations, although for different reasons.

It is therefore urgent that we investigate the reasons for this subjective failure in the face of an objectively so unique opportunity, for the collapse of the Soviet Union will in all likelihood, despite the enormous upheavals there, represent only the first and mild wave of an epochal shift that is currently underway.

To put it more precisely, the historical cycle of the so-called modern period of some six hundred years, which began with the Golden Renaissance in Italy, and the conflict since then between the humanistic, Renaissance idea of mankind, which conceives of *all* people as *imago Dei,* as in the image of God, and the oligarchical system spreading outward from Venice, and its irreconcilable enmity, is now coming to an irreversible end.

What is at stake is the question of whether a worldwide Dark Ages, with many regional wars, the proliferation of old and new epidemics, starvation catastrophes, annihilation of entire geographical areas, and a degeneration into a far more profound barbarism will emerge out of the end of this era of mankind, or whether we will shape political conditions upon this earth in a way which finally corresponds to human dignity. Since the answer to this question will decide the issue of whether we will still find something which deserves to be called "human civilization," it is worth thinking about how we can create the "*moral* possibility" in the people of our time.

The answer to his question of why "we are still barbarians," for Schiller, lay in the separation of theoretical reason (and by that he meant the notion of Reason of the Enlightenment of the Eighteenth Century) and its legislation, from the emotions and character of people. Schiller saw it as his particular pedagogical task to "ennoble" the "fragmented" human beings toward a completeness of character, and thus to intervene into the crisis of his time, and to show a way out of the crisis for a "disjoined society."

Schiller took it as self-evident, that events had proven that any improvement in political conditions would only be possible by ennobling individual people. What were the conditions under which he wrote that?

The French Revolution represented a radical collapse of the philosophy of the Enlightenment, which had dominated France in the Eighteenth Century, despite some republican tendencies here and there. This collapse was no less dramatic than the failure of communism in our time, i.e., it confronted the thinking people in the population with the fact that, obviously, the entire system of axioms upon which the thought of the Enlightenment had been based since Descartes, was based on entirely false premises.

How else could it have happened that the area of enlightened Reason, which pretended to liberate people, nevertheless ended in the bestial slaughter by blind forces, in the Jacobin terror and the Thermidor, so that Reason had actually no political application at all?

The conclusion which Schiller drew from this collapse of the Enlightenment, was that he had to develop a completely new conception of Reason, one based on his ideal of Art and aesthetics, and thus a notion of Reason with a qualitatively different meaning. For Kant, who wrote his *Critiques* of pure and practical reason at approximately the same time, the Enlightenment was the release of individuals from their "unencumbered minority." Schiller, to the contrary, connected his notion of aesthetic Reason once again directly to the tradition of Cusanus and Leibniz, namely, the tradition in which Reason is the source of creativity.

For the very reason that the "genius" of the time was moving in a direction which threatened to take it further away from the "Art of the Ideal," Art, according to Schiller, as he demanded in his Second Aesthetic Letter, would have to take

> leave of reality and elevate itself above want with honest boldness; for Art is a daughter of Freedom, and it will

> receive its prescriptions from the necessity of the mind and not from urgent need. Now, however, need rules, and sunken humanity bends under its tyrannical yoke. *Utility* is the great idol of the time, to which all powers should be enslaved and all talents should pay homage. Upon this coarse balance the intellectual merit of Art has no weight, and deprived of all encouragement, it disappears from the noisy market of the century.

In poetically beautiful language, Schiller here describes the spirit of the time which was dominated by the ideas of Bentham and utilitarianism, which he condemns as the "yoke of mankind." Is Schiller only talking about his own time, or he is talking about the materialism and the cost-benefit thinking of our time?

As a consequence of the tyranny of these ideologies, Schiller wrote in the Fifth Letter, "in the lower and most numerous classes" the most crude and lawless drives proliferate, "which unleash themselves once the bonds of civil society have been loosened, and with unbridled rage hurry toward their bestial satisfaction." Is he talking about the *sans culottes* of his time, or the uninhibited pleasure-addicts of our own present time?

"On the other hand, the civilized classes give us a most digusting sight of torpidity and a depravity of character, which is all the more outrageous, because culture itself is its source. I no longer recall which of the ancient or modern philosophers made the remark, that the more noble is the more horrible in its destruction, but one will find it confirmed in the area of morals as well." Is Schiller here talking about the degenerate Voltaire, or is he talking about the Jet-Set lifestyle of today's money-elite?

Does not Schiller's description sound similar to the problems of today? Where is the ennoblement of the individual—and in this I agree with Schiller, the *only* possibility to improve conditions politically—where is this supposed to come from, if the masses are brutalized and the elites are degenerate?

Contrary to the debased image of mankind of the French and English Enlightenment, which views the human being as a beast which can only be constrained with a social contract, seeking pleasure and avoiding pain without a will, Schiller establishes an image of mankind which defines the human being in the highest possible way: "*Every* individual man, one can say, carries by predisposition and destiny, a purely ideal man within himself, to agree with whose immutable unity in all his alterations is the great task of his existence."

The question of the meaning of life—which would later drive the existentialist philosophers like Heidegger and the nihilists of all sorts out of their minds—Schiller here answers with an immensely culturally optimistic concept of man, which essentially accepts man as genius and as a beautiful soul, that this is the only condition corresponding to his inborn dignity.

That human being is a beautiful soul, who has so educated his emotions to the high level of Reason, that he can blindly trust all of his impulses, because for him Reason and Passion, Necessity and Freedom, have become one. A beautiful soul is the Good Samaritan, who, without caring for his own advantage, does what is necessary.

Since the present is fragmented, Schiller observes, people themselves develop only fragmentarily, and never develop the harmony of their being; " . . . instead of expressing humanity in his nature, [man] becomes merely an expression of his business, his science."

Schiller criticizes societies which value human beings only by utilitarian criteria—the one person is valued only for his memory, the other only for his thinking in columns of numbers, and another for his mechanical talents, and the society is completely indifferent with respect to the character of people as long as they demonstrate that they know something, even praising the crassest brutality of mind if only law and order are respected. The consequence is, that individuals become cripples, "the abstract thinker often has a *cold heart,*" and the businessman a *narrow* one.

"But can it be the purpose of man to fail himself for the sake of some other purpose?" Schiller asks. "Is it possible that Nature, for the sake of her purposes, shall deprive us of a perfection which Reason, for the sake of its own purposes, prescribes to us? It must therefore be wrong, that the development of the particular capacities of a person makes it necessary to sacrifice the whole; or, even if the Law of Nature thrust in that direction, we must nevertheless be capable of restoring, by means of a higher art, this wholeness in our nature, which art has destroyed."

In order that people who are either too tired and exhausted from battling with material need, or who are impeded by the inertia of nature and by cowardice of heart, may nevertheless find their way to this goal, the heart must be opened, which is the prerequisite for their being able not only to recognize Reason, but also to learn to love it. "Development of the capacity of feeling is therefore the most urgent requirement of the time," says Schiller, "not only because it becomes a means to make improved understanding effective in life, but just because it awakens this improvement of understanding."

Since the constitution of the state is of a barbaric character, this ennoblement of character must issue from a different source, one which can keep itself free of political corruption, and this, according to Schiller, is fine art, since both art and science can preserve to themselves "an absolute immunity against the arbitrariness of men."

For the artist, if he really deserves the name, must not serve the spirit of the time, he must be guided by the uni-

versal truths of Classical periods, in order then to return into his own century as a "foreign form," "not to make his time happy with his appearance, but to purify it terribly, like the son of Agamemnon."

Of course, Schiller concedes, in ancient times there were also people like ours of today, people who close themselves off from the efficacy of beautiful art: "I do not speak of them, the people who despise the Graces only because they have never been favored by them." And in a renewed attack upon utilitarianism and pragmatism, he continues:

> Those who know no other standard of value than the work it takes to obtain something and the profit they can lay their hands on, how should they be capable of doing justice to the quiet work of aesthetic taste upon the outer and inner human being, and how should they not lose sight of the fundamental advantages of beautiful culture in the sight of its incidental disadvantages? The human being who lacks form, despises all grace as if it were bribery, all elegance of manners as if it were a disguise, all delicacy and greatness of behavior as exaggeration and affectation.

But, for beautiful art to be able to fulfill the immense task it has, although it addresses itself to emotional capacities, and to capacities which are in the area of sensuality, it must not be based upon sensuous experience as its source, because it is just that which has to be tested: i.e., whether what one experiences as beautiful, really is beautiful.

With that, with this kind of testing, Schiller prepares the way for defining a new "Legislation for the Aesthetic World," not only to reply to the bankruptcy of aesthetics of people like Shaftesbury, which collapsed along with the philosophy of the Enlightenment, but Schiller picks up the feud started by Kant, who had claimed in his *Critique of Judgment* that there can be objective standards for Reason, but not for aesthetic taste. Kant went so far as to claim that it would denigrate a work of art if we could recognize in it the plan of the artist, and an arabesque arbitrarily thrown upon the wall would be superior in any case to such a work of art.

So, a valid notion of beauty cannot be derived from the field of sensuous experience, according to Schiller's requirements. He writes:

> This notion of beauty, derived from pure *reason,* if such a notion can be demonstrated, must be sought in an abstraction—because it cannot be derived from any concretely given example, but, instead, this abstract notion must justify and guide our judgment of each concrete case—and this abstract notion must be capable of demonstration out of the possibility of sensuously reasoning nature. In a word: it must be demonstrable that beauty is a necessary condition of humanity.

What Schiller expresses here, is nothing less than that humanity cannot actually exist without beauty, at least not in any way which does justice to the idea of humanity. By defining anew a purely rational notion of beauty, and, connected with that, the notion of Aesthetic Reason, he simultaneously achieves a completely new point of departure for initiating political change.

Schiller continues:

> We must therefore elevate ourselves to the pure notion of humanity, and since experience demonstrates to us only particular circumstances of particular people, but never humanity as such, we must discover that which is Absolute and Lasting out of these individual and changeable forms of appearances, and, by casting away all of the fortuitous limits, seek to empower ourselves with the necessary conditions of our existence.

And he makes a characteristically Platonic remark with respect to this requirement: " . . . he who does not dare to supersede reality [by which he means the world of sensuous experience], will never conquer the truth!"

This is Schiller's discussion of the necessity for the aesthetic education of mankind in the first ten letters. From Letter XI to XXVII, he generates this notion of Aesthetic Reason philosophically. When he uses the terms "material-instinct," "form-instinct," and "play-instinct"—terms he had newly coined—these terms have nothing whatsoever to do with "instinct" or "drive" theory in psychology.

In Schiller's use of these terms, they characterize various ways in which people behave. "Material-instinct," for example, is by no means sensuous experience understood only negatively; for instead, it describes the capability to encompass a growing richness of phenomena. Every assimilation of reality depends upon such an openness to the outside, and were the material-instinct to be realized in its extreme potentialities, the human being would realize himself entirely, and ultimately become part of the phenomenal world in time.

Nevertheless, the material-instinct, the way Schiller conceives of it, is an essential feature of the human personality:

> However laudable our principles be, how can we be just, kind, and human toward others if this capacity is missing, to be able to assimilate foreign natures in our own, appropriate foreign situations, and make foreign emotions into our own? But this capacity is suppressed in the education we receive, as well as in that we provide ourselves to the extent that one seeks to break the power of desires and make the character firm by means of principles. Since it takes some effort to remain true to one's principles amidst the excitement of emotion, one grasps upon the more comfortable means of procuring security for character by blunting the emotions; for it is obviously infinitely easier to be

> calm in the face of a disarmed opponent than to prevail over a courageous and robust adversary.

Thus, the material-instinct should not be suppressed (quite the contrary, as our capacity to have human emotions depends upon it), but we do have to counter-steer it, nevertheless, which we do by means of the "form-instinct." Schiller does not mean by this the area of artistic forming, but rather, that feature in a person in which the idea of the Absolute, that existence which is founded upon itself, is situated: the absolute capacity of freedom based in Reason. Form-instinct signifies the lawful inner development of the human being, by means of which he participates in the species.

Between these two direction-vectors of his personality, the human being seems initially torn this way and that. Either he is receptive of the wealth of emotions, thus running the danger of losing his relationship to the species and his spiritual development, or, as a creature endowed with Reason, he tends more in the direction of giving priority to the ordering power of Reason, and all too often thereby sacrificing the multiplicity of phenomena in the process.

In the Thirteenth Letter, Schiller describes how progress in the natural sciences depends upon this openness with respect to phenomena, and also the damage which is done by systematizing the phenomena too quickly:

> This premature striving for harmony, before one has collected the individual tones which ought to constitute the harmony, this violent usurpation of the power of thought in an area where it is not its prerogative to rule unconditionally, is the reason for the sterility of so many thinking minds for the best of science, and it is difficult to say whether it is sensuousness, which takes on no form, or Reason, which awaits no content, which has done more damage to the expansion of our knowledge.

In order to attain to Schiller's idea of the whole personality, it is by no means necessary to seek a bad compromise between lowest common denominators of these two tendencies; again, on the contrary, both of them must be realized to the extreme of their potentiality. He writes: "For the very reason, that both are necessary, and yet both strive for contrary objects, the Will maintains a complete freedom between the two."

Only now, in this condition of double, mutually balancing tension, is there the possibility of real human Freedom, only here is it possible for the individual to realize his human-beingness.

Schiller calls that which develops out of the reciprocal effect between these two "instincts" or "drives," the "play-drive," and what he means by that, is the aesthetical condition which alone permits the human being to find wholeness at a higher level. He writes:

> Were there cases, however, where [man] has this double experience simultaneously, where he is at once aware of his freedom and perceives his thinking, where he senses himself as material and also comes to know himself as spirit, then in these cases, and only in these cases, he would have a complete vision of his humanity, and the object which provided him this vision would become a symbol for him of his fulfilled destiny (since this is only to be attained in the totality of time), and it would serve him as a representation of the Infinite.

The process of becoming conscious of this aesthetic condition, by which—as we will soon see—Schiller means the spiritual attitude from which alone the creative act is possible, signifies for the human being the recognition of his humanity, his "fulfilled destiny," and thus serves as a "representation of the Infinite." By that he says nothing other, than that the creative act itself is the key to the actual infinite.

The "play-drive," the power which realizes all of the potentials of a person in reciprocal effect, is, according to Schiller, aimed at "suspending time within time, reconciling Becoming with Absolute Being, Change with Identity." With that, he says nothing else than that the play-drive, as the source of creativity, is capable of producing transfinite ideas in a coherent way, whose changing predicates are held together by a higher level which connects all Becoming into Unity. The play-drive, so defined, is thus the key to Plato's idea of change as the primary reality, which is the issue in the *Parmenides* dialogue. Schiller speaks of the "play-drive" as "freedom in general," which suspends the "compulsion of perception" as well as the compulsion of reason."

In Letter XXI, Schiller calls this aesthetic state of mind the "consummated Infinity"; only here, in play, is there complete freedom for human beings. This aesthetic conception of freedom is different from the purely political conception, which is already realized in the human being who governs himself as a sovereign citizen. Schiller speaks of an "aesthetic supersession of duty," which he calls "noble," and which he obviously esteems more highly than mere moral fulfillment of duty.

On the one hand, only the aesthetic freedom of the playing, creative human being allows him to be entirely human. But, on the other hand, this is limited to art. In Letter XV, Schiller expresses it this way: "To finally say it straightforwardly: man plays only where he is man in the fullest sense of the word, and he is only fully man where he plays."

What does Schiller mean by that? And why should this aesthetic condition have any effect in the political arena? Play is the realm of the Ideal, and here the human

being creates rules freely, and by fulfilling these rules in play, he thus wants *voluntarily* that which he should want according to Reason. Thus, he anticipates in his individual life what ought to be so in the state. For in the state, too, a condition is to be achieved, in which the human being no longer perceives his duty as a compulsion, but wills it passionately.

In the Ninth Letter, Schiller discussed the issue of how to deal with the fact that a person who is still barbaric, cannot be reached with appeals, and that it is therefore the task of the artist to seek to educate him by different means.

To the artist he writes:

> The seriousness of your principles will frighten them away from you, but they will accept them in play; their taste is more chaste than their heart, and that is where you must take hold of the shy one who is fleeing you. You will besiege their maxims in vain, to no avail will you condemn their deeds, but you can try your formative hand with their indolence. Chase away what is arbitrary, the frivolity, the crudeness from their pleasures, and in that way you shall banish these, unnoticed, from their deeds and finally their beliefs. Wherever you find them, surround them with noble, with grand, with brilliant forms, surround them with symbols of what is excellent, until the appearance vanquishes reality, and art vanquishes nature.

Is this not a fundamental problem of our time? One might demonstrate, with a chronology of the past thirty years, how the negative paradigm shift, which has occurred in this span of time, has brought about an erosion and transformation of values in the so-called entertainment industry, which Schiller calls "pleasures." The Sex-Rock-Drug counterculture has worked in precisely the opposite direction from that which Schiller laid out: it has let what is arbitrary, frivolous, and crude grow into unprecedented dimensions.

Everyone knows that countless youth have been seduced by perverse violence-videos to commit their own crimes; and that, not so much because of the practiced examples provided, but because the sight of such brutality causes a brutalization of the emotions of the viewers, which tears down the previously existing moral barriers.

It is Schiller's main idea in his concept of aesthetic education, that beautiful art, in that it takes hold of people exactly at the point where the creative act is demonstrated in the work of art, sets free a positive power in the audience, which remains even after the experience of the work of art—as he explains in the prologue to *The Bride of Messina:*

> The self-activity of Reason is opened upon the field of sensuousness by the aesthetic state of mind, the power of feeling is broken within its own limits, and the physical human being is ennobled to such an extent, that the spiritual human being need only develop out of the same, according to the laws of freedom.

Thus, "ennoblement" occurs, in that the spiritual part of the person has already become effective in the area of sensuousness. The human being, says Schiller, "must learn to desire more nobly, so that it will not be necessary for him to desire sublimely."

If the human being, through the experience of beautiful art, learns to "suspend time within time," and to replace "Becoming with Absolute Being," then he can return to reality and its fragmentation, and set his state-forming power to work in this newly achieved fashion. That is why beautiful art is not an island of beauty, but in this way takes effect in the political arena. This effect can only be understood from the nature of beauty and its influence upon human nature.

In that moment when the person participates in the creative act of the artist, and a resonance occurs with that aesthetic condition in himself, at least at that moment a simultaneity of calm and movement, of tensed effort and relaxing harmony, is generated. Schiller calls this moment of creative suspense, "to participate in the Divinity." But that which is always One, is God, the human being can only attain in approximation in a process of continuous reciprocity of material and form; and thus, the human being participates in the Divinity all the more, the more he approximates the Ideal established in art. Schiller writes:

> While, therefore, the aesthetic state of mind, in one respect, must be considered as zero, as soon as one directs his attention to particular and specific effects, then, in a different respect, it is to be viewed as a condition of *utmost reality,* to the extent that one is attentive to the absence of all limits and to the sum of forces which are mutually effective in it. One cannot say, therefore, that those people are wrong, who proclaim the aesthetic condition to be the most fertile with respect to knowledge and morality. They are quite correct, for a disposition of mind which comprehends the entirety of humanity in itself, must necessarily include each particular expression of it, as potential. A disposition of mind which removes all of the limits from the entirety of human nature, must necessarily remove them from each particular expression of it. Just for that reason, that it takes no particular function of humanity exclusively under its protection, is it favorable to each one, without distinction, and it favors none predominantly, because it is the foundation of the possibility of all of them. All other exercises give the mental disposition of a person a particular skill, but also establish a particular limit for him; only the aesthetic disposition leads to the Unlimited. Every other condition into which we may come, refers back to a previous condition, and requires a succeeding condition as its resolution; only the aesthetical condition is a whole unto itself, since it joins all the conditions of its origin and its continued existence in itself. Here alone do we feel ourselves as if torn out of time,

> and our humanity expresses itself with purity and integrity, as if it had not yet experienced a rupture from the effect of external forces.

If one considers all of the aesthetical and philosophical writings of Schiller as a whole, there can be no doubt that this aesthetical condition of human beings was for him not only a stage of development, a particular place on a path—even if he writes in the Letter XXIII: "There is no other way to make the sensuous person reasonable than that one first make him aesthetical." The aesthetical is actually the center of man's being.

In the same letter, Schiller says: "In order to lead the aesthetical person to knowledge and greater disposition, nothing more is necessary than to give him important opportunities; in order to obtain the same effect from a sensuous person, one must first change his nature."

If there is a proof in recent history for the correctness of this thesis, then it is in the relative failure of the epochal opportunity which resulted with the opening of the borders of Europe from 1989 onward. In the case of German unification, the opportunity was not used for just this reason, because neither the government, nor the majority of the population, in the West or in the East, were capable of responding to the opportunity with a great disposition—because everyone was dominated by materialism, albeit in different ways, and could not rise above the arena of the sensuous.

And so it is the task of art and the artist, to project the ideal, which indeed can never be attained in reality, but without the existence of which humanity can never cut itself loose from being bound to the earth. Once the beautiful design, the grand idea, is born, then the path reality must take, is laid out, a path human beings can follow and elevate themselves to the higher domains of their potentials.

In a letter to Countess Schimmelmann in 1795, Schiller expressed it this way: "The highest philosophy ends with a poetic idea, as does the highest morality, and the highest politics. It is the poetic spirit which provides the idea to all three, and to approximate it is their highest perfection."

Schiller's *Thought-Poetry*

The poem "The Artists" appeared four years before *The Aesthetic Letters,* and it is one of the most magnificent examples for a species of poetry in which Schiller establishes a standard previously unattained. Schiller's *thought-poetry* demonstrates not only the identity of the origin of poetry, rather it expresses the most profound philosophical ideas with such poetic beauty, that they are much more gripping than the most beautiful philosophical treatise could ever be. Here he treats poetically the same fundamental idea of the role of beauty in the development of the individual human being, which he later discusses in the letters philosophically.

Wieland, who corresponded with Schiller during the period he was writing "The Artists," and who published the poem in the *Teutschen Merkur* when it was completed, wrote on March 4, 1789:

> Truths can be just as exciting as emotions, and if the poet not only teaches, but communicates his excitement, he still remains in his own domain. That which the philosopher must prove, the poet can state as a bold thesis, and can throw out as an oracular statement. The beauty of the idea has the effect, that we take him at his word.

In a letter to his friend Körner on March 9, 1789, Schiller formulated it this way: "It is a poem, and not philosophy in verse; and for that it is not a worse poem on account of that which makes it more than a poem." In the same letter, Schiller states the leading idea of "The Artists": "Cloaking truth and morality in beauty."

The first twelve-line strophe is an appeal to the people of his time, and at the same time a triumphant description of the ideal of humanity, with which Schiller shaped the Weimar Classical period:

> How fair, O Man, do you, your palm branch holding
> Stand at the century's unfolding,
> In proud and noble manhood's prime
> With faculties revealed, with spirit's fullness
> Full earnest mild, in action-wealthy stillness,
> The ripest son of time,
> Free through reason, strong through law's measure,
> Through meekness great and rich in treasure,
> Which long your breast to you did not disclose,
> Nature's own lord, she glories in your bridle,
> Who in a thousand fights assays your mettle
> And shining under you from out the wild arose!

In the following strophes, the man of the present time is no longer praised, but admonished, followed by a hymn of praise of the universal value of beauty, with the help of which alone truth can be revealed to the human spirit and senses. The third strophe begins as follows:

> The land which knowledge does reside in
> You reached through beauty's morning gate.
> Its higher gleam to now abide in,
> The mind on charms must concentrate.
> What by the sound of Muses' singing
> With trembling sweet did pierce you through,
> A strength unto your bosom bringing
> Which to the world-soul lifted you.

"Beauty's morning gate" here stands as a metaphor for the leading idea of the poem, that the path toward truth leads through beauty, the "morning gate" signifies both the beginning of a process as well as the entrance into a new domain, proceeding through a gate.

This is followed up to line 90, by a glorifying address to the artists who have created this beauty, an address which is recapitulated again and again in the main body of the poem, and which peaks finally in the famous lines:

The dignity of Man into your hands is given,
Protector be!
It sinks with you! With you it is arisen!

The entirety of the main part elaborates the fundamental theme, through which Schiller, in continuously escalating images and metaphors, demonstrates how beauty and art are capable of raising the human being to ever new stirrings of the heart and heights of reason. And by describing this development, he creates himself the idea of which he speaks. The reader is caught up by the excited power of imagination of the poet, and thus leaps over the chasm which apparently lies between the different steps on this path, so that the reader can relive how art becomes the "second Creator of man."

Strophe XIV says:

Now from its carnal sleep did wrestle
The soul, so beautiful and free,
By you unchained sprang forth the vassal
Of care in lap of joy to be.
Now limits of the beast abated
And Man on his unclouded brow rang out,
And thought, that foreign stranger elevated,
From his astonished brain sprang out.
Now stood Man, and to starry legions
Displayed his kingly countenance,
Then to these lofty sunlit regions
His thanks conveyed through speaking glance.
Upon his cheek did smiling flower,
His voice, by sentiments now played,
Unfolded into song's full power,
Emotions moistened eye betrayed,
And jest, with kindness in graceful federation,
His lips poured out in animation.

Only when he is touched by art, and thus by the experience of the power which is also the source of his own creativity, does the "slave of sorrow" become free, which means happy. One may presume that Schiller would come to the conclusion, that Kierkegaard or Heidegger remained chained to "sorrow" only because they never came to know creativity, and were never truly happy.

The "thought, that foreign stranger elevated" is a beautiful image for what is new, the spirituality of human beings, which has become possible through art. It is this capacity for reason which lets him *stand;* thus, it is that which distinguishes him from that which is limited, the stifling limits of animality. The idea "And jest, with kindness in graceful federation," is a genuinely Schillerian notion, for, on the one hand, the jest is itself an expression of freedom, and on the other hand, it must be with kindness, which means that it can not be injurious; and, if the jest and kindness are to be bound together by grace, then Schiller here provides one of many possibilities of the aesthetic condition.

Here are the first four lines of strophe XIX, as merely one example:

Yet higher still, to ever higher stations
Creative genius soared to be.
One sees already rise creations from creations
From harmonies comes harmony.

And from strophe XX:

So Man, now far advanced, on pinions elevated,
With thanks does Art transport on high,
New worlds of beauty are created
From nature richer made thereby.

And once the human being has already achieved a high degree of ennoblement through the works of beautiful art, and fulfills his necessity with joy, the poet writes in strophe XXI the magically beautiful lines:

With destiny in lofty unity,
Sustained in calm on Muses and on Graces,
His friendly breast exposed obligingly,
Is struck as threat'ning arrow races
From gentle bowstring of necessity.

It is thus possible for the human being to overcome inner fragmentation, if he has become calm through beauty (the Graces) and art (the Muses): he will even approach death calmly. And the poet then addresses the task of the artist again: "You imitate the great Artist"—which means nothing else, than that the Artists, through their art, imitate the creativity of the Creator.

To quote strophes XXVI and XXVII in their entirety:

If on the paths of thought without obstruction
Now roams th'investigator, fortune bold,
And, drunken with the paeans' loud eruption,
He reaches rashly for the crown to hold;
If now it is his rash conception

To noble guide dispatch with hireling's bread,
While by Art's dreamed-for throne's erection
The first slave office to permit instead:—
Forgive him—th'crown of all perfection
Does hover bright above your head.
With you, the spring's first blooming flower,
Fair nature's soul-formation first arose,
With you, the harvest's joyful power,
Does Nature's self-perfecting close.

Emerged from humble clay, from stoney traces,
Creative Art, with peaceful victories embraces
The mind's unmeasured, vast domain.
What but discoverers in knowledge's high places
Can conquer, did for you its conquest gain.
The Treasures which the thinker has collected
Will only in your arms first warm his heart,
When science is, by beauty ripened and perfected,
Ennobled to work of art—
When he up to the hilltop with you sallies
And to his eye, in evening's shining part,
Is suddenly revealed—the lovely valleys.

The richer satisfied his fleeting vision,
The loftier the orders which the mind
Does fly through in one magic union,
Does circumscribe in one enjoyment blind;
The wider ope are thoughts and feelings growing
To richer play of harmonies now showing,
To beauty's more abundant streaming van—
The lovelier the pieces of the universal plan,
Which now, disfigured, tarnish its creation,
He then sees lofty forms bring to perfection.
The lovelier the riddles from the night,
The richer is the world that he embraces,
The broader streams the sea in which he races,
The weaker grows his destiny's blind might,
The higher are his urges striving,
The smaller he himself, the greater grows his loving.

So lead him, the hidden pathway show
Through ever purer forms, through music clearer,
Through ever higher heights and beauty fuller
Up poetry's beflowered ladder go—
At last, at epoch's ripest hour,
Yet one more happy inspiration bright,
The recent age of Man's poetic flight,
And—he will glide in arms of Truth's full power.

If one reads or recites "The Artists" as a whole, but especially the two strophes cited here, one will sense the excitment Schiller felt about his own vocation as an artist, and in this poem he succeeds in playfully convincing us of the truth of the significance of beauty and the role which the artists play in the development of humanity, because he lets the idea dissolve into the poetic representation, and, in the composition as a whole, he lets his material be transformed into the domain of the Infinite.

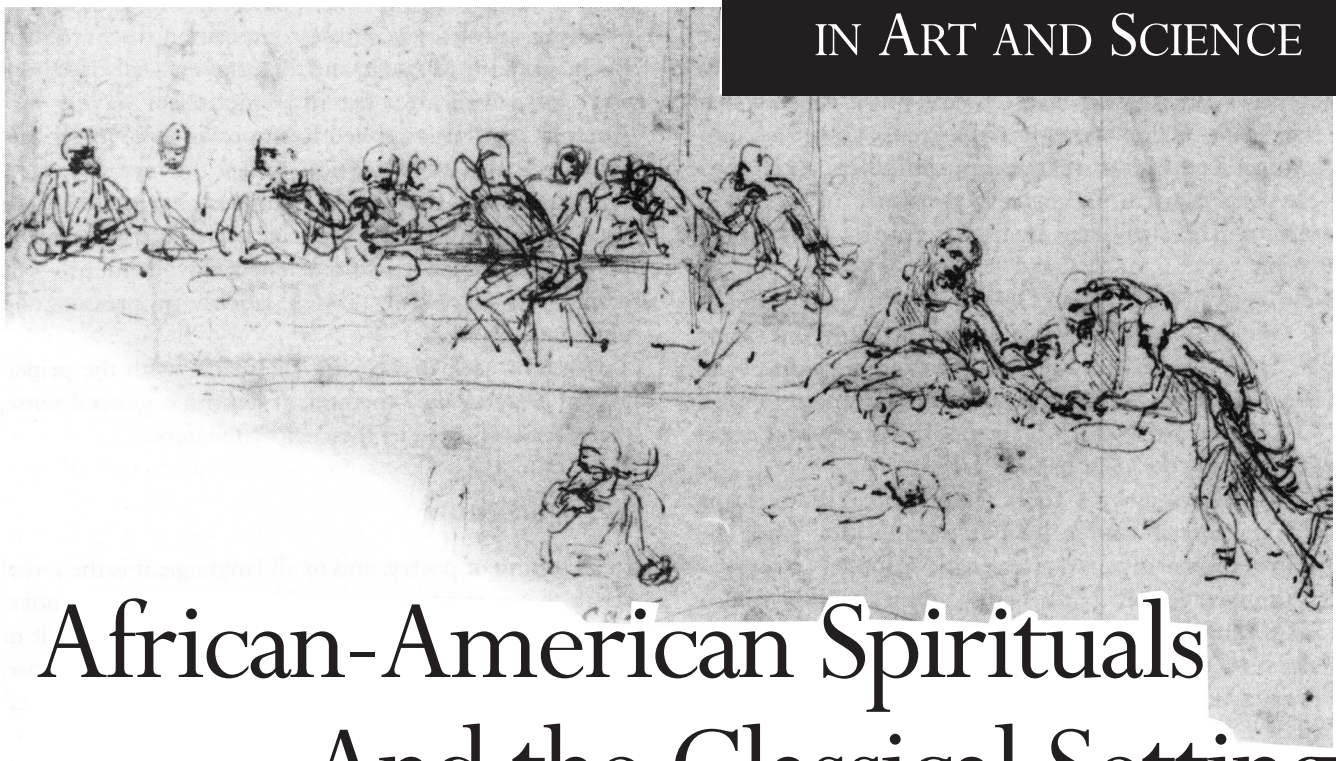
He paints an image of the unfolding of the potentialities of the human species, and makes clear how art produces ever new and better levels of the existence of human beings, which did not exist previously, but he does it in such a way, that the powers of knowing Reason coincide with those of poetic metaphor.

Although, later, Schiller was not satisfied with all of the formal features of the poem, "The Artists" represents, in content, a perfect example for the thorough-composition of a theme. The poem as a whole is sustained by a single, long span of attention, and it is characterized by a movement which is continuously striving forward.

Whereas the first strophe is still a hymnical praise of man, on account of everything man has created over the centuries, this is still represented in a simple way; but in the course of the poem, a stream develops, which becomes ever richer in beautiful features and density of singularities. The poem describes nothing less than an infinite sequence of revolutions, higher levels of development of man, unleashed by beauty and art: it is a poetic celebration of the capacity of man, mediated by beautiful art, to bring forth ever new hypotheses, which are united by the hypothesis of the higher hypothesis, in the sense that Plato gave that idea.

The last lines of the last strophe summarize in a magnificently poetic way the idea of the *Parmenides* dialogue. The poet initially praises art as the most free activity of man. He presupposes that all artists raise themselves high above their own age and time and impress their own time with the ideal they have generated. If they all agree upon this high conception of art, however different the various artists may be, then art, in all of its manifold creations, permits us to see the One, the eternally true, the Divine.

On thousand twisting pathways chasing,
So rich in multiplicity,
Come forward, then, with arms embracing
Around the throne of unity.
As into gentle beams of seven
Divides the lovely shimmer white,
As also rainbow beams of seven
Dissolve into white beams of light—
So, play in thousandfolded clar'ty,
Enchanted 'round the heady sight,
So flow back in one band of ver'ty,
Into one single stream of light!



African-American Spirituals And the Classical Setting Of Strophic Poetry

by Dennis Speed

Work under way by members of the Schiller Institute, in collaboration with musicians versed in the tradition of the arrangement and performance of African-American Spirituals, will soon change accepted assumptions about the nature of these musical compositions. While much has been written about the African-American Spiritual, and its role in the creation of a "distinct" musical contribution by the United States to the music language-culture of the rest of the world, there exists virtually no writing on the *method of composition* employed by the greatest masters of the form, such as composer/arranger Hall Johnson, and Antonin Dvořák's collaborator and copyist Harry Burleigh. Nor has there been sufficient focus placed on the collaboration of African-American musicians with two of the greatest European Classical musician-composers, Antonin Dvořák and Johannes Brahms.

Dvořák, himself a student of Brahms, traveled to the United States, in the name of aiding this country in the creation of a National Conservatory of Music. That project was aborted by a combination of the withholding of its deserved financial support by the U.S. government, and by a racist counter-reaction to Dvořák's assertion, supported by Brahms, that the basis for a "great and noble school of music" lay in the African-American Spiritual, and what Dvořák called "Indian music."

The America that Dvořák encountered in 1892, was dominated by the resurgence of the Confederacy in the form of the Ku Klux Klan and its co-thinkers in the then-emerging fields of eugenics and "ethnology," the

Leonardo da Vinci, "Study for the Last Supper."

latter invented in late-Nineteenth Century France. The *Zeitgeist*—the "spirit of the times"—was characterized by the deployment of what some researchers called "scientific racism," that is, the use of pseudo-science to argue the innate inferiority of one section of the human race to another. When Dvořák held Classical music concerts that featured all-African-American musicians, as well as compositions from African-American composers, those who held the sentiment, in vogue at the time, that Classical music was exemplified by, for example, the "Aryan Nation" operas of Richard Wagner (as performed at New York's Metropolitan Opera), were mightily offended. One must recall, after all, that African-Americans like Sisseretta Jones, were barred exactly at that time from the Metropolitan stage, and would remain so until 1955, when Marian Anderson and Robert McFerrin would "break the color bar."

The assertion, by Dvořák, that African-Americans were numbered among his best composition students, and Dvořák's campaign, along with National Conservatory founder Jeanette Thurber, to admit African-Americans to the school *free of charge,* in order to admit the students most qualified to contribute to the future of America's music, could not have pleased Anglo-America's racist elite less. After Dvořák's departure in 1895, although the National Association of Negro Musicians and others would attempt to keep his work alive, it would redound to the responsibility of a few dedicated people, like Dvořák collaborator Harry Burleigh, to provide examples of what might be productively accomplished.

The idea that what Burleigh and Dvořák, among others, were doing, was *external* to the development of African-American music, is a most ludicrous idea, precisely because it was their stated, conscious intention to demonstrate the *beautiful lawfulness* of the "slave compositions" known, for good reason, as "Spirituals." That the whole world might advance its musical knowledge, not only in hearing the Spirituals, but in having the groundbreaking advances in music composition discovered by Bach, Haydn, Mozart, and Beethoven—all of whom were born well after the introduction of slavery into America in 1619—applied to improving the music and language-culture of America *through* the medium of the Spirituals, was the task set before these men. It was approached with all the rigor of a scientific experiment, precisely because it *was* a scientific experiment—one which was successful, though quickly suppressed, and ultimately aborted.

We now seek to acquaint the reader with the principles of *compositional* method, at least in a general sense, that were employed by these experimenters.

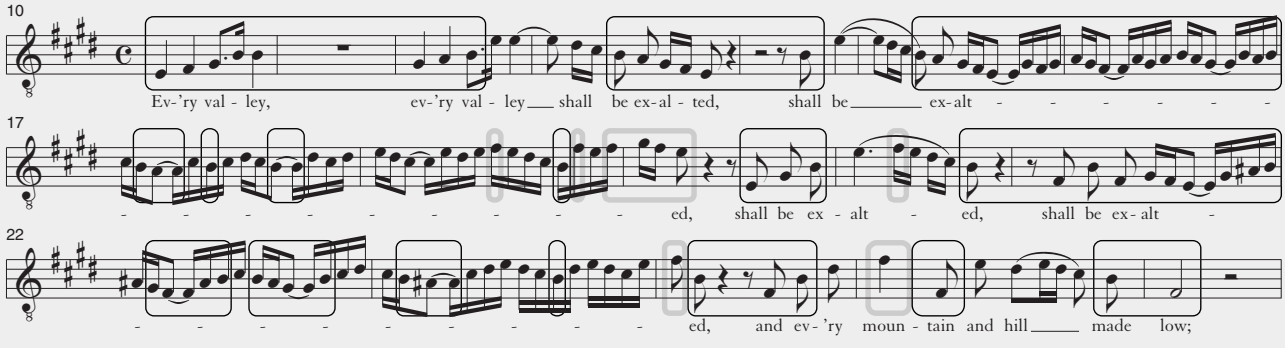
Verbal Action

In all setting of poetry, and in all language, it is the *verbal action* that is most important. No sentence can be understood without its verb, whether that verb be explicit or implicit. "I to the store" or "to the store" makes no sense. However "I *go* to the store," "I *go,*" and "*Go* to the store," all make sense.

In a Classically-set text, verbal action will be highlighted by specific ways of using the voice to emphasize meaning. After all, all verbs indicate change. Therefore, in musical composition, verbs require corresponding musical "changes" or "shifts" to demonstrate to the hearer's mind that a new idea is being conveyed.

As an example, look at Figure 1, measures 14-19, supplied from the *Messiah* aria for tenor, "Ev'ry Valley Shall Be Exalted." We see the singer pass from his first register—the lower part of his voice—through his second or

FIGURE 1. *From "Ev'ry Valley Shall Be Exalted,", tenor aria from Handel's "Messiah."*



To graphically represent the vocal registers: Notes which are to be sung in the first register are enclosed by a solid-shaded box (with the exception of the male voices, where an unshaded, outline box is used instead). Notes to be sung in the second register are left unmarked. Third-register notes are enclosed by an open box with a shaded outline. The male "child soprano" first register is indicated by an open box with a solid dotted outline (see footnote, page 27).

"middle register" to the third, his "high" register, on a single syllable of the verb "exalted" [measures 15-19] [for an explanation of vocal registers, see Figure on p. 38]. We see the verb, "shall be exalted," stated in four different ways in this text. In its first statement [measure 13], the singer moves from the second to the first register on "shall be." In the next measure, he moves in the opposite direction, from his first register to his second, at precisely the same location. He is instructed by the composer to vary his declamation of "shall be" accordingly. For example, "*shall* be," then "shall *be*." A third variation occurs to each of these in measure 19, where "shall be" appears in a *single* vocal register, and is not broken between the first and second. This might be declaimed "shall be." So we have the grouping "*shall* be," "shall *be,*" and "shall be."

If we compare the singer's declamation of the word "exalted" in measure 13 to that in measures 15-19, we discover that not only is "exalted" longer in the second instance, but that it is, as stated above, sung over three registers, instead of only one, as in measure 13. 'Exalted" is sung differently a third time, over three vocal registers, but in one-and-a-half measures, instead of five [measures 19-20]. If we now list a grouping of the various declamations of "shall be exalted," we have:

shall be exalted
shall *be e - x - a - l - t - e - d*
shall be *e-x-a-l-t-e-d*
shall be *e - x - a - l - t - e - d*

The composer, Handel, has used the voice-registers of the tenor to illustrate how he wants the music of this Biblical text declaimed. In effect, he is *amplifying* the Biblical text, by breathing life into the words.

The composer is also "re-living" the original act of composition of the poem, or poetic-prose text. He starts from the meaning of the text—*but, emphatically, not the words of the text.* For example, the Old Testament line from Isaiah reads "Every valley shall be exalted, and every mountain and hill made low." The poetic-musical text states:

Ev'ry valley,
ev'ry valley
shall be exalted,
shall be exalted,
shall be exalted,
shall be exalted,
and ev'ry mountain and hill made low.

It is simultaneously the same, and utterly different. By employing the registers of the singer's voice in this way, that is, his "lower," "middle," and "higher" voice, the effect of a "vocal chorus" is achieved in the single human voice. There is no monotony (single tone) in the repetition of the phrase "shall be exalted" because of the multiple ways in which this "chorus" of the singer's voice is used.

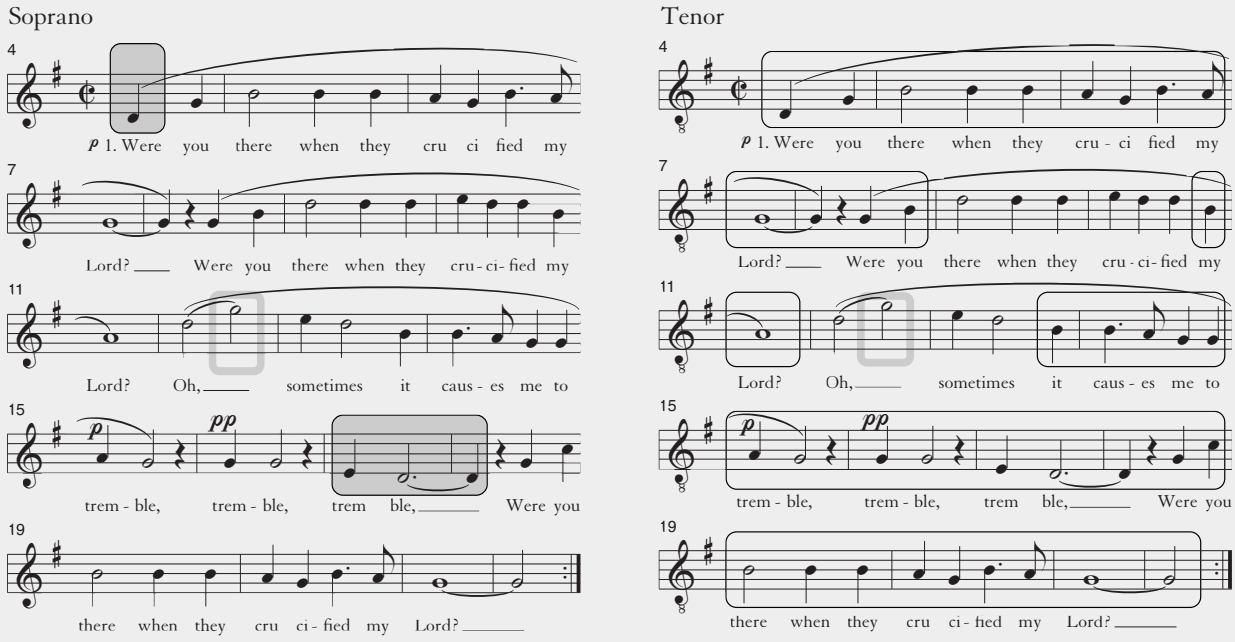
The poetic-musical text, compared to the simple Biblical text is, therefore, only *apparently* the same. It is actually a "changing same," a "living word." That is the "transubstantive" quality of musical composition submitted to the rigor of Classical music principles. That is also its lawfulness, because once the musician-composer has decided how the text must be declaimed, he will know what voice, and key, are most appropriate for that purpose. A bass voice, for example, could not sing this aria in this key—that of E major—and achieve the same declamation, even if the bass could reach all the notes. And, this composition, moved to a different key appropriate to the bass voice, would become completely different, much in the same way that a poem translated to another language becomes completely different than the original.

These considerations are at the heart of the African-American Spiritual. When it is considered that the Spirituals are songs composed by people in physical bondage, which songs utilize the Judaeo-Christian theological matrix as their medium of declamation, in a land where the very people who owned these singer-composers claim to have enslaved the African-American *in the name of* Christianity; when these things are considered, it becomes obvious that a Spiritual composer would have to have gone beyond the hypocritical use of Christianity's words by his slave-masters, to penetrate the true meaning of Christianity, the *theological apprehension of the which the "slave" demonstrated in the act of composition.* That is, the "Christianization" of the African-American slave—and we must remember, that many African-Americans, who were never slaves, were Christians independent of slavery—occurred, not through the actions of the slavemasters (as the Anti-Defamation League's Leonard Dinerstein would have us believe), but through the composition of the African-American Spirituals, *despite* the actions of slavemasters.

Also, that Christianization was the work of ministers, both slave and free, who composed these songs in the same way that the early Christians composed Epistles. The Spirituals *were* composed by individuals, although they were changed by others over time. Any study of their text, shows either that the Spirituals were poems, or were developed through the work of talented though perhaps untrained individuals, in the same way a minister will develop a sermon.

All of the great poems of history developed in this

FIGURE 2. *"Were You There?," setting by Hall Johnson, soprano and tenor voices.*



way. Chaucer's *Canterbury Tales* are composed of all sorts of stories famous at the time. Boccaccio's *Decameron* is the same. Rabelais' *Gargantua* adapted an earlier folktale popular in France. Shakespeare's earliest plays, and many of the later ones, use narratives popular at the time, which were transformed by his compositional method. While these artists may be individual geniuses, the material from which their work is often taken is that which had been labored over by unknown artists and storytellers, whose work was the basis for the masterworks which followed.

Like the great oral tradition of Sanskrit in India, through which the most complex of scientific ideas were passed from generation to generation; like the oral tradition by means of which poems like the *Iliad* were transmitted; and like the oral traditions of the regions of Africa; the Spirituals were utilized to transmit "profound and impassioned ideas" (in Shelley's phrase) in the simplest of forms. But, there was also a difference with earlier oral traditions.

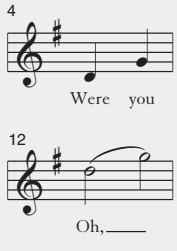
In America, the African-American utilized the idea of *man in the image of the living God* as the *subject* of each and every composition called a Spiritual. In this way, he made himself literate, not (other than in exceptional circumstances) through access to the written word, but in the way that the greatest of ancient cultures were developed—through the efficient transmission of the idea of the Infinite and Absolute.

This was conveyed through the medium of an unfamiliar culture, in a language that was entirely foreign to the general language-root from which he hailed. This fact demonstrates that the *generative* principle of human knowledge, the comprehension of the idea of the Absolute, is universally intelligible and practicable under the most adverse of circumstances. No matter how oppressed, the human Spirit is universally regenerative through its apprehension of the Infinite.

Figure 2 illustrates a setting of the Spiritual "Were You There?," by Hall Johnson. It is a strophic setting, that is, one in which the vocal line, and the accompaniment, are unvaried over the four verses of the poem-text.

The text is here illustrated in the key required for a tenor or soprano, and the "register shifts" for the two voices are indicated. Notice the first two notes of the

FIGURE 3. *From "Were You There?," measures 4 and 12.*



piece, at the beginning [measure 4]. A register shift creates the idea, "*Were* you there . . . ?". Compare this to the two notes on the word "Oh," in measure 12. They are the same two notes, moved up one octave. And here, again, as on the first two notes of the piece, there is a shift in register, in "voice" for both the tenor and soprano.*

There is another difference in the notes, other than the change from one octave to another. For "Oh," each note is twice as long as for "Were you . . . ?" [SEE Figure 3], a result, where, in the first instance, the shorter notes are used as an "upbeat" (that is, the "weaker" beat leading to the strong beat of the next measure, to the word "there"—"were you *there?*"); whereas, in the case of "Oh," the doubling of the length of the notes causes the ear of the listener to "note" that something different is happening. A new idea is being introduced; something different is being said than, "Were you there when they crucified . . .":

> Oh, it causes me to tremble,
> tremble, *tremble.*

In measure 17, we note that the third statement of "tremble" is placed in a different register. Also notice the use of what is called "onomatopeia"—using a word that *sounds* like what the word *says.* The reader may demonstrate this to himself by saying the two syllables "trem-ble," dwelling on the first. He will notice the slight vibration of his lips. Have you ever trembled, for example, shivered in the cold? Have your hands ever trembled? They quickly move back and forth. Compare this motion to the slight vibration of the lips in saying "tremble." That is onomatopeia.

"Were you," "Oh," and "tremble" are *singularities*—points of fundamental transition—used by the composer-arranger, as well as the singer, to poetically declaim, in music, the *trans-musical thought* that is indicated by this song. For example: If one accepts, as did the composer of this Spiritual, the idea that Jesus Christ died for the sins of all mankind, then one must also accept the notion that that singular act of Redemption was experienced by all mankind through the *necessary* medium of the act of Crucifixion. The freedom of the soul through Redemption, were not possible except by this means. This is the subject of the internal dialogue of God the Father with God the Son in Gethsemane. Or, as Schiller put it, in the words of Joan of Arc in his play *The Maid of Orleans,* "brief is the pain, eternal is the joy."

The singer seeks to convey this joyful idea, in the misery of chattel slavery, to another, or to a group. A group of singers seek to convey this to a group of hearers, late at night, in a forbidden service. "Crucified my Lord," "nailed him to the tree," "laid him in the tomb"—are these not experiences that the slave has known, either literally, or metaphorically? The singer asks, "were you there?," The hearer nods in recognition. "When these things occurred, I was there. They happened to my father, to my son, to my wife, to her family; I was there, as sure as I am here."

Then the singer asks, "*Were you there when they rolled the stone away?*" The minds of his listeners have been drawn, step by step, to an inevitable conclusion.

When, after "tremble," the singer asks, in the last line of the poem, "Were you there" [measure 18], it has a different meaning. This different meaning closes the verse of each stanza of poetry. In fact, the voice of the singer drops at the end of the line, to indicate the close of the verse, giving the line a *declarative,* rather than an interrogative, quality. Now, the line becomes *ironic.* It would read, in its sung content, like a declarative sentence, if simply stated—"Were you there when they crucified my Lord"—without a question mark. Yet, it retains the form—the "guise"—of a question.

This effect is achieved by using the key-signature tone "G" for the verb "were" [measure 18]. "G" is the "home key" of the piece. Contrast this to the first "Were you," which *moves toward* a "G" from the note "D" [measure 4]. (That is what gives the first measure its "upbeat" quality.) The position of the tone "G" is exactly reversed in the two uses, and the change of this note's position is the musical device used to convey the turning of the meaning of the question "Were you there?" into a profound statement—poetically (not literally),"Oh, . . . Were you there when they crucified my Lord!!".

However, the reader should not "fixate" on the idea that "G equals a declarative statement." For example, that "G" is used in *precisely the opposite way* at another

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* While it is formally true that the tenor voice does not retain the (soprano) first register shift illustrated in the first two notes, because the tenor's voice has changed from soprano to tenor during puberty, that is not the point. Not only does Johnson's musical setting avail itself of this capability; a trained tenor voice, such as that of Roland Hayes, can "re-create" that now-lost first register shift as a *poetic* device, by various technical means used to change the voice's color, to achieve a "psychological" effect that is physiologically present and demonstrable in the soprano. This poetic act will be virtually automatic on the part of a male singer trained from early youth. Finally, remember that the soprano voice, the voice of virtually all children, not only includes the lower shift, but shifts precisely where the tenor does otherwise, at the tenor's high F♯ between the second and third registers:

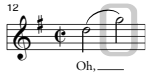
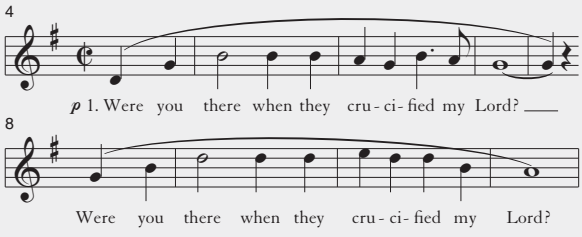


FIGURE 4. *From "Were You There?," measures 4-11.*



point in the song, the second line of the poem. Compare the first and second lines [SEE Figure 4]. Compare the second line entrance of "Were" to that of "Were" in the first line. We see the tone "G" is used in the second exactly as the tone "D" is used in the first line. So, there is no magical quality to the *note* "G" that gives it the particular significance we attached to it above.

However, if we study the *interval* relationships in this piece—that is, for example, the interval of a fourth that is used at the beginning [measure 4], and then on "Oh" [measure 12], and finally again in the last line [measure 18], we can understand the difference in the use of the tone "G" that we are contending. In the second line, the interval for "Were you" is *not* a fourth, but a third [measure 8]. The interval of a fourth occurs at a point of singularity. It occurs at the song's beginning, at the register shift of the soprano. It occurs in the middle at the register shift of the soprano and tenor. It occurs at the tenor register shift from first to second register, in the final line as we indicated above. This is not the interval of the beginning of the second line, however. Therefore, the second line is different.

The fourth occurs at the tenor register shift in the third line [measure 18]. And, it is the declamation of the "Oh" *by means* of the interval of a fourth, that establishes the meaning of the tone "G" for the piece. Notice that, throughout the entire piece, the only time that more than one note is sung on any word is on "Oh," and *that* occurs at a register shift. "Oh" is clearly the word most imbued with content, in terms of the Johnson setting.

The interval of a fourth is also used as the interval *across* poetic lines. Review again measures 4-7 and 8-11, as shown in Figure 4. As stated before, the first note of the first poetic line is "D," the second "G." That means that the poetic *lines* span the interval of a fourth. When "Oh" is sounded, we are caused to "hear" both poetic lines simultaneously, because of the use of the fourth. It is also easy for us to experience this, because the words are exactly the same in each line. This intensifies, by condensation, the poetic meaning. What was said in eight measures is now said in one. A greater "density" is achieved. This can be visually captured by reviewing, in succession, measures 4, 8, 12, and 18.

Not only a greater density, however. Let us now look at the line, "Oh, it causes me to tremble, tremble, tremble." This line spans all three vocal registers of both the soprano and tenor voice [measures 12-18]. (The trained tenor also has the opportunity to poetically "re-create" the lower soprano shift here, thus creating the impression of four "voices" rather than three.)

The Spiritual "I Got To Lie Down," as arranged by Hall Johnson, demonstrates another use of onomatopeia [SEE Figure 5]. Onomatopeia is here utilized to underscore a paradox, posed by the speaker/singer to himself:

I got to lie down, How shall I rise?

His query refers to the fundamental mystery of Chris-

FIGURE 5. *From "I Got To Lie Down," setting by Hall Johnson, soprano and tenor voices.*

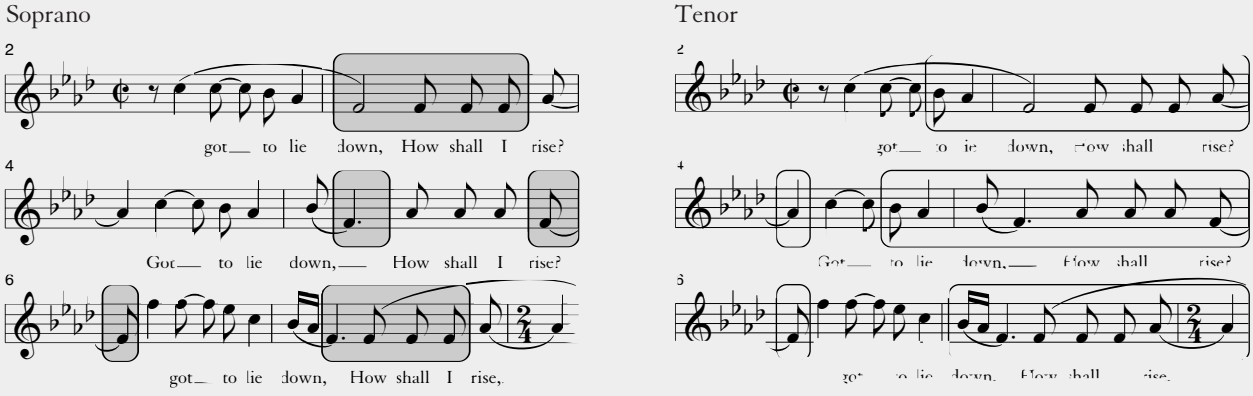
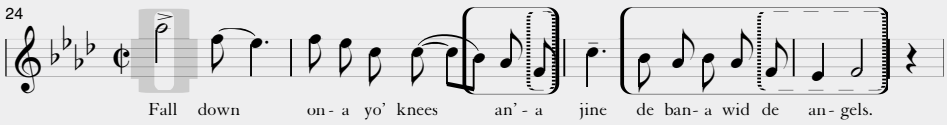
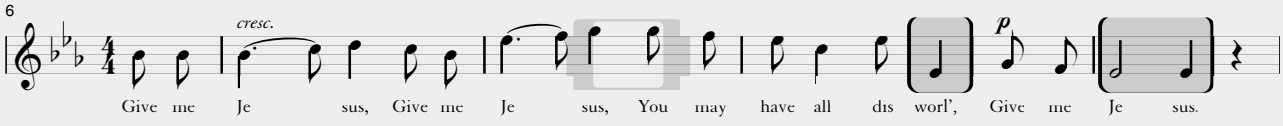


FIGURE 6. *Climactic "punch-lines" of selected Spirituals.*

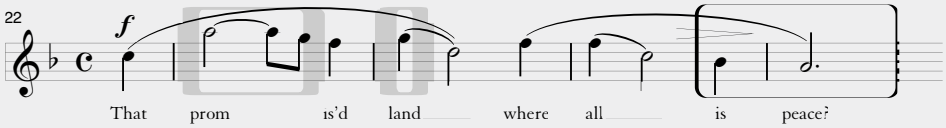
from "Po' Mo'ner Got a Home at Las'," tenor voice



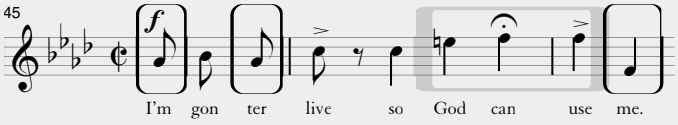
from "Give Me Jesus," soprano voice



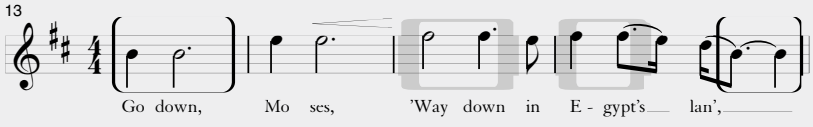
from "Deep River," tenor voice



from "I'm Gonter Tell God All o' My Troubles," baritone voice



from "Go Down Moses (Let My People Go!)," tenor voice



tianity, the Resurrection. He repeats the question three times. Each time, it is sung differently. Refer first to the tenor registral setting:

I got to lie down, How shall I rise?
Got to lie down, How shall I rise?
I got to lie down, How shall I rise?

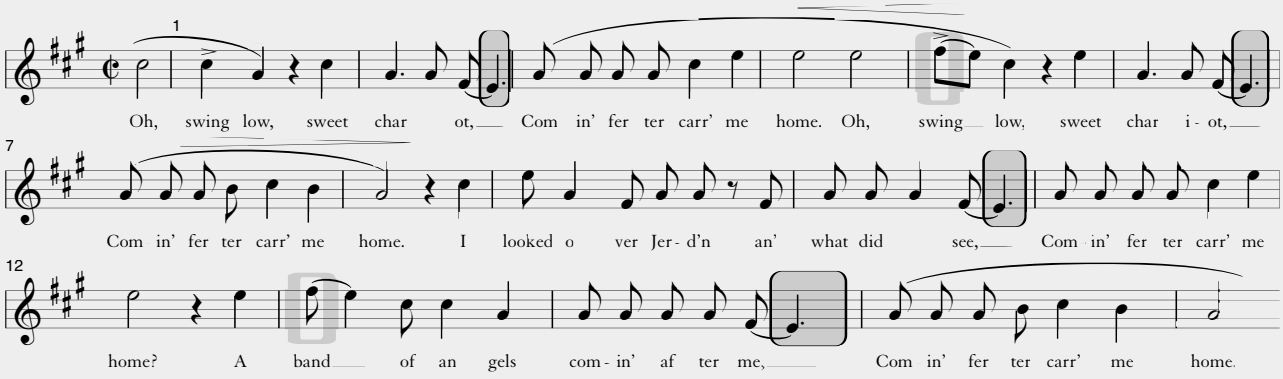
The musical line falls on the imperative, "I got to lie down," and rises on the question, "How shall I rise?" This is onomatopeia, and occurs the first and third times the paradox is stated [measures 2-3 and 6-7]. Now, refer to the soprano registral setting. Look at the word "down." Note that the first time it is sung, it is declaimed on one note [measure 3], the second time, on two notes [measure 5], and the third time, on three notes [measure 7]. This is a second use of onomateopeia. Finally, irony is used as a poetic device: the second time "How shall I rise?" is sung, "rise" does not rise, but falls [measure 5]. The paradox contained in the question, is now condensed in the irony of the verb, "rise," falling.

Sung properly, this song creates an unrelenting tension, fueled by the devices indicated in the setting of the opening refrain.

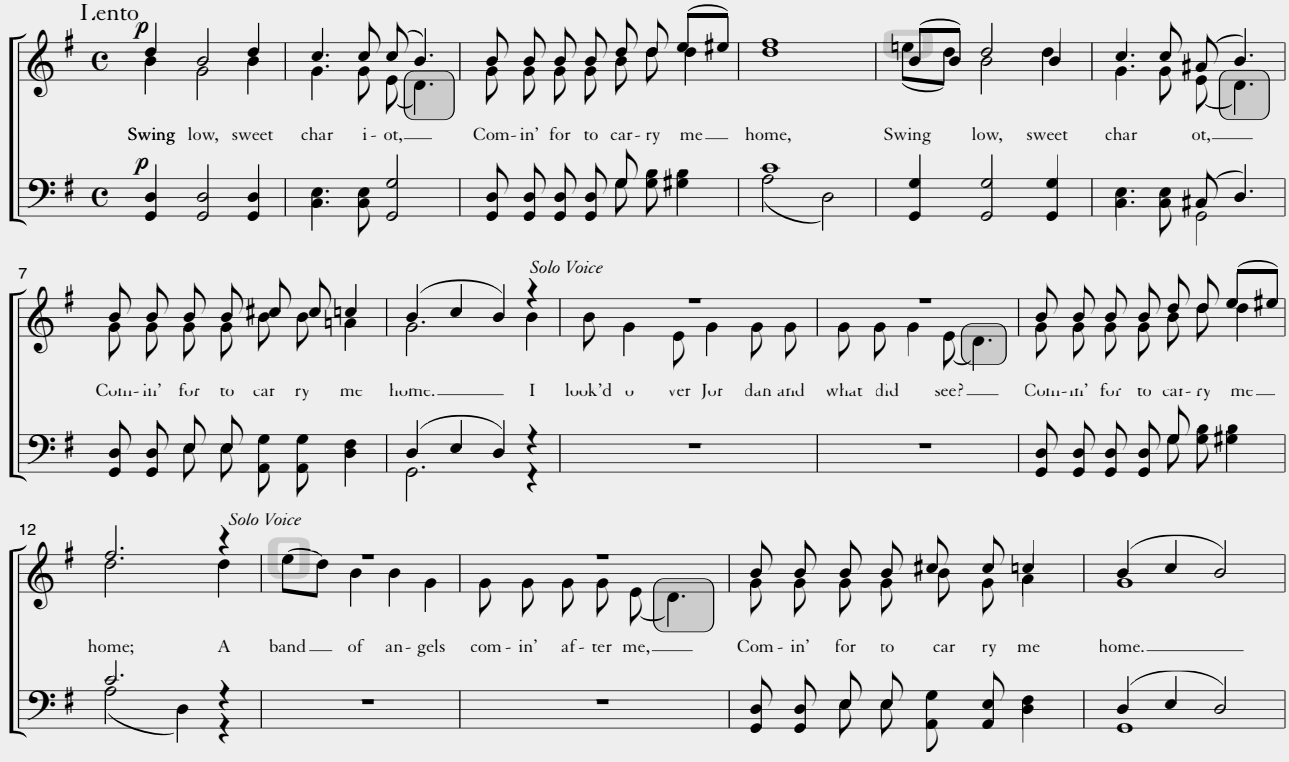
In many Spirituals, it can be demonstrated that the same condensation and increase of density occurs. Space limitations prevent us from doing more than giving examples of this. We illustrate here the "climactic" lines—what one could crudely call the "punch-lines"—of several Spirituals for this purpose [SEE Figure 6]. The

FIGURE 7. *"Swing Low, Sweet Chariot," soprano and choral settings.*

Soprano voice, setting by Hall Johnson.



Choral setting.



presence of such an increased density of singularities indicates that the same sort of care in composition has been taken in those cases as in the one here illustrated.

The Many in The One

The lawful relationship between the Classical setting of the African-American Spiritual, and choral settings of the same, is illustrated in Figure 7. We compare Hall Johnson's setting of "Swing Low, Sweet Chariot," with a choral setting by another arranger/composer. Johnson's setting is treated for the soprano voice. In the choral version, the melody line is contained in the "alto" (better referred to as "mezzo-soprano") line, the line "second from the top" in the treble clef. Notice that the registral breaks are identical for the soprano voice of Johnson's set-

FIGURE 8. *From "I Couldn' Hear Nobody Pray."*

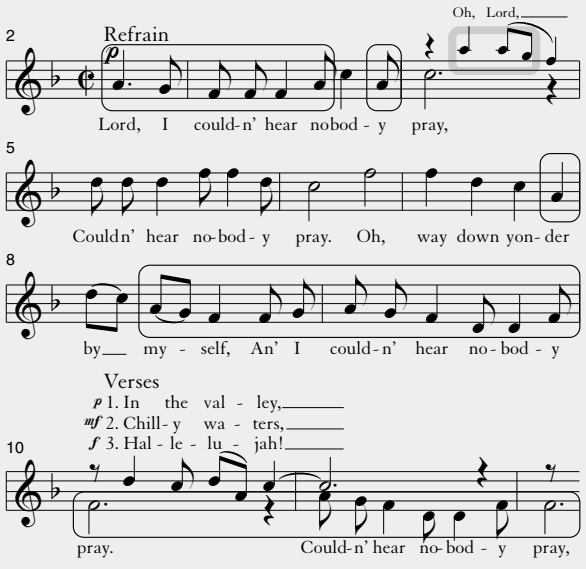
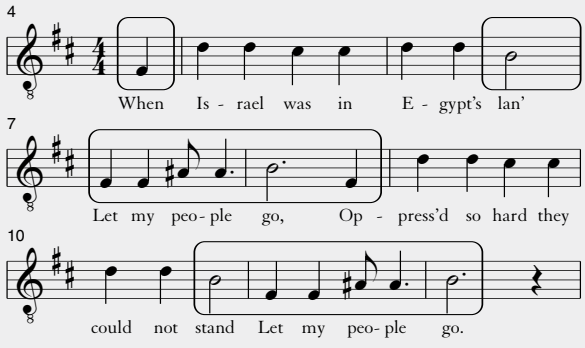


FIGURE 9. *From "Go Down Moses (Let My People Go!)."*



ting, and the mezzo-soprano treatment of the choral version: see "chariot" [measure 2], "swing" [measure 5], "see" [measure 10], "band" [measure 13], etc., to get an idea of this.

In a second example, "I Couldn' Hear Nobody Pray" [SEE Figure 8], the text is scored with the option that two singers, in this case two tenors, two sopranos, or a tenor and soprano, could sing it together, creating the "projected image" of a chorus (see "Oh, Lord" [measure 4], and the text marked "Verses" above the staff [measure 10]). In another variation, one singer could imitate such a chorus by singing the parts himself. Sometimes this song is performed with the piano accompaniment playing the refrain "couldn't hear nobody pray," without the "verses" "In the valley, " "On ma knees," etc.

Finally, in "Go Down Moses," we see the choral refrain fully integrated into the text itself, "Let my people go" [SEE Figure 9]. Each time the phrase is sung, it is sung in the same "voice," that is, vocal register. There is variation in every other part of the song, in words and registration, but none in the refrain. In this way, the *sameness* of the refrain is used to accentuate God's words, spoken as an ironic "choral" setting—in that the One God is speaking, not a many-voiced chorus. There is no contradiction. Often, in both Classical drama and poetry, "chorus" is a single individual (for example, Shakespeare's use of Gower at the beginning of *Troilus and Cressida*).

This also reflects the singer's role, as the "voice of God," who uses his many "voices" and different shadings of "voices," to assemble a drama, or at least several scenes of a drama, with a full cast of characters. These characters are transformed "in a moment," or at most, a few moments, in the Classical setting of the *Lied,* or the Spiritual, through ironically-deployed poetic devices such as the refrain, onomatopeia, alliteration, and so forth. In the "Go Down Moses" example, the devices are used to juxtapose a narrative, with the "uncanny" statement of the word of God, who keeps "interrupting" the narration with the polemical demand, "Let my people Go!" The narrator "can't get a word in edgewise."

The mind is "jarred" by this, creating a *necessity* that the mind understand the unsaid idea "behind" the musical imagery.

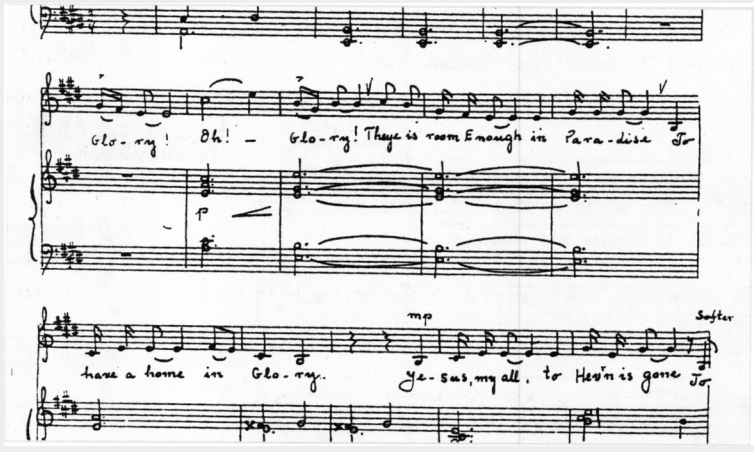
Thorough-Composition

Hall Johnson's "Oh, Glory!" demonstrates the results of rigorous work on a musical idea, submitted to the test called among musicians "thorough-composition." Here, although there may be the use of refrains, or other repeats, the composition is continuously changed, even ever so slightly, such that each phrase, even each syllable, is varied and re-formed. Although this can also be achieved in strict strophic settings, it enjoys a peculiarly rich rendering in thorough-compositon.

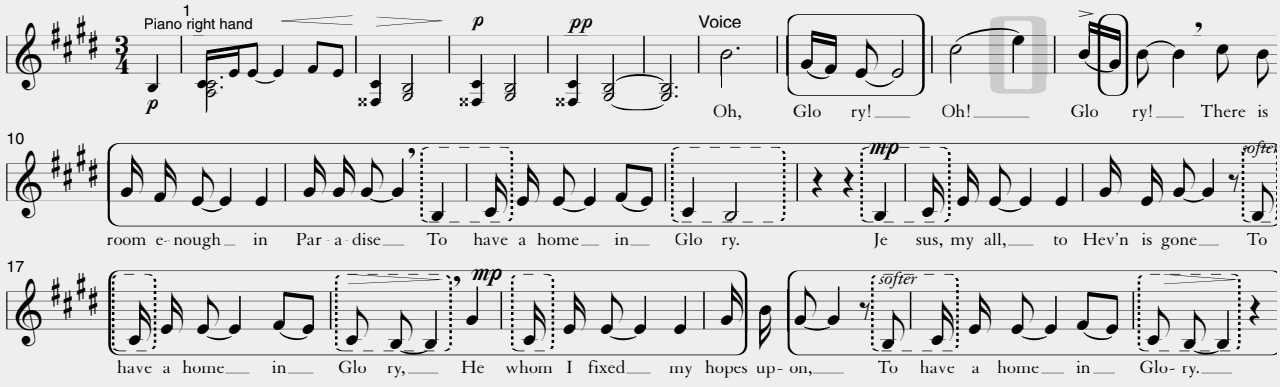
In the Johnson setting of the Spiritual "Oh, Glory!" [SEE Figure 10], the increasing density of singularities is also recognizable. The text we use, apparently in the handwriting of Johnson, beautifully illustrates the rigor with which this principle can be deployed.

Notice that the text reads, "Oh, Glory! . . . Oh! Glory!" We can see, in the illustration of the register-shifts of the baritone voice, that Johnson's punctuation of the text—in which he substitutes an exclamation point for the comma in the second "Oh! Glory!"—is echoed in the

FIGURE 10. *From " Oh, Glory!," setting by Hall Johnson, baritone voice.*



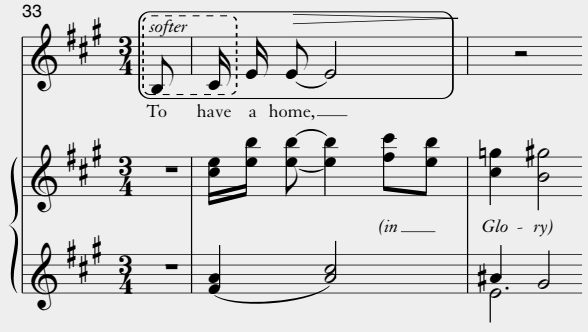
Autograph text in the hand-writing of Hall Johnson.



corresponding shift in vocal registration. Also, again, the meaning of "Oh" is intensified by singing it the second time over two notes and two registers.

The accompaniment in the piano is also shown to be a "singing" accompaniment [SEE Figure 11]. Here we see the accompaniment complete the unsung words of the singer. Instead of singing "to have a home in glory," the singer abbreviates, and the piano finishes his thought. He sings "to have a home," and the piano plays "in Glory." A powerful antiphonal section follows, in which "Glory" is sung in a cascading polyphony by the piano chorus and the singer [SEE Figure 12]. This intensifies the voicing, and leads to an extraordinary passage, in which the singer condenses the entire song to a single mnemonic device, on the syllable "Hm" [SEE Figure 13]. This one syllable is now sung over the entire three-register vocal range.

FIGURE 11. *From "Oh, Glory!," measures 33-35, voice and piano.*

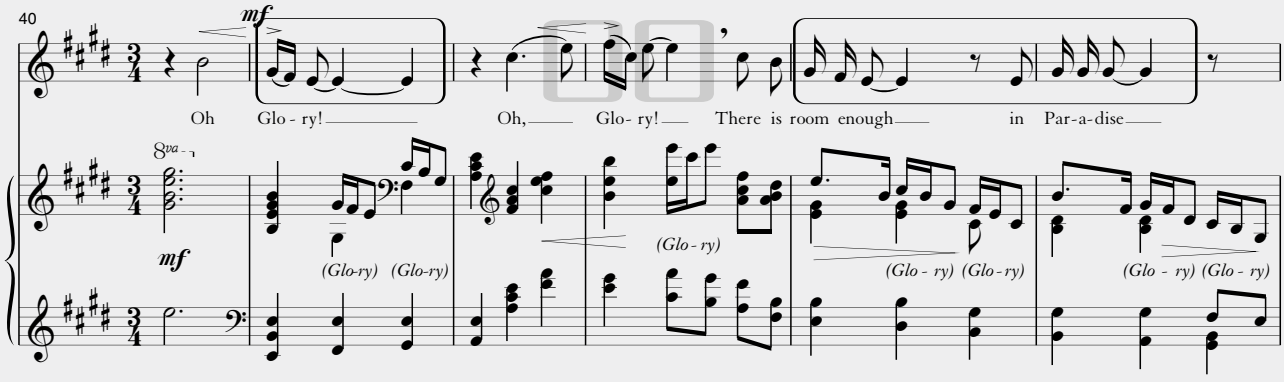


Compare the piece to that with which we began, "Ev'ry Valley Shall Be Exalted." The syllable "Hm" is in a sense "isoperimetric," in that it becomes the smallest unit, the syllable, over which the greatest range of motion in the musical registers can be enacted. But, it is also a different order of singularity than "Oh," in that "Hm" is made to stand for:

> Oh, Glory! Oh! Glory!
> There is room enough in Paradise
> To have a home in Glory.

"Hm" has a greater *power* as a singularity than "Oh." It represents a "second power class" of singularities. Compare the use of "Hm" to "exalted" in the Handel example

FIGURE 12. *From "Oh, Glory!," measures 40-45, voice and piano.*



supplied. "Hm" is not an embellishment, not a roulade, but a metaphor for the thought-object that generated the poetic text in the first place. Although this thought-object cannot be directly stated in language, the syllable "hm," as a poetic language-device, reproduces an act of creative concept-formation that goes on among singers and composers of any language. It is a "spark," that would carry meaning, when properly sung, to every listener in the world, no matter what his language.

Far more can be said about Johnson's poem, but let us simply point out that the piano accompaniment "sings" the phrase "to have a home in Glory, Glory, Glory," at the song's opening *before the singer is heard* [SEE Figure 10, measures 1-5]. Of course, this is not so unusual, many songs start with an "introduction." But, why reiterate "glory" three times, if introduction is the piano's sole function? In fact, there is no "introduction," no "accompaniment" in this piece, as there is no "accompaniment" in Brahms' "Four Serious Songs" [SEE Figure 14]. Instead, the piano is the chorus from which the voice of the singer emerges. The singer gives a soliloquy, evoking the chorus by means of his vocal registers. The piano increases its role, finishing the singer's sentences. Finally,

FIGURE 13. *From "Oh, Glory!," measures 48-55, baritone voice.*

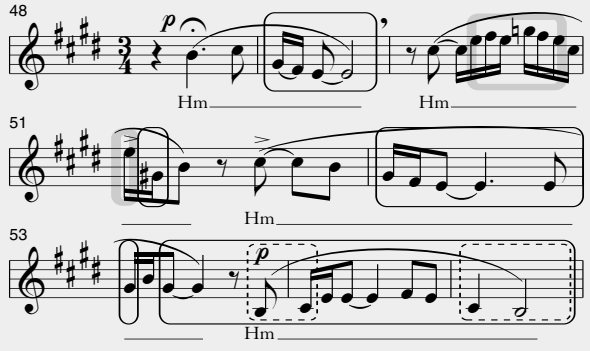
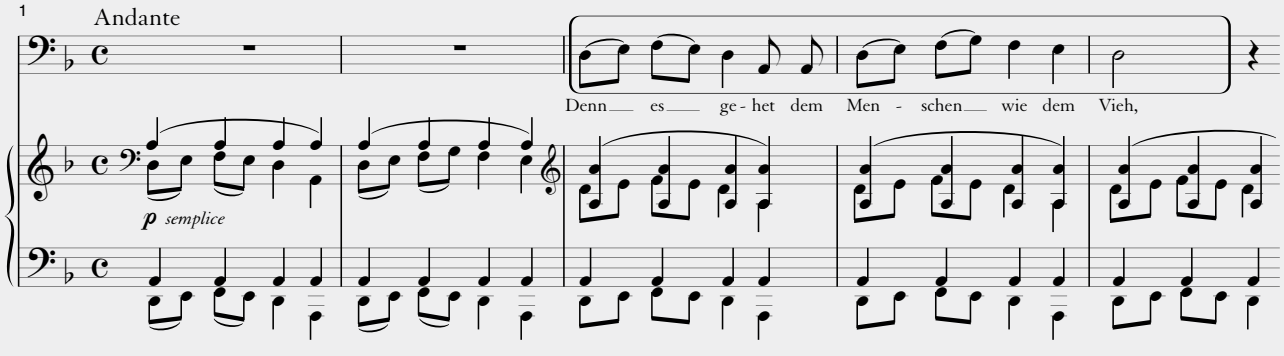


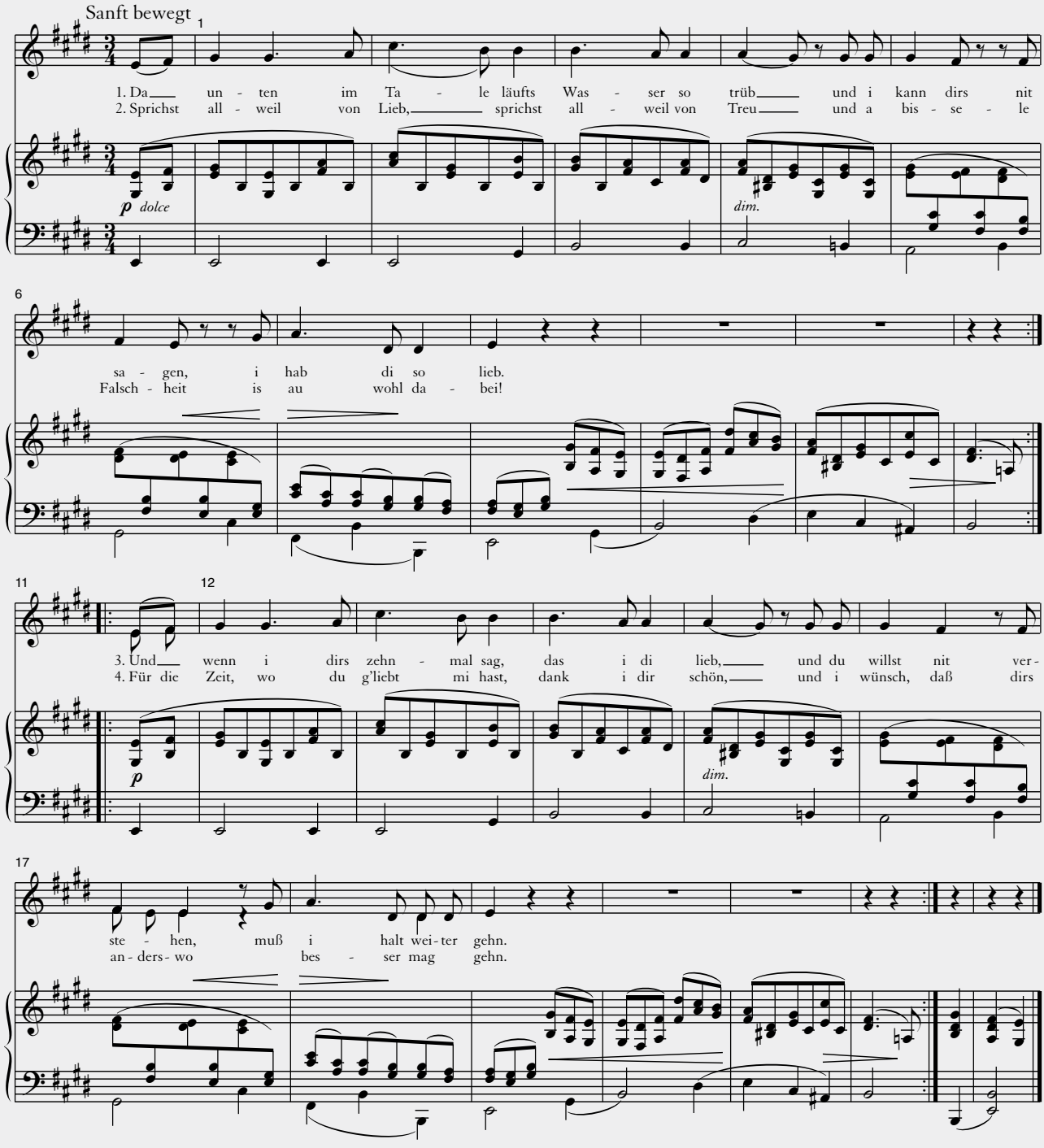
FIGURE 14. *From "Four Serious Songs," Johannes Brahms, voice and piano.*



the singer abbreviates his message to "Hm," and the piano-chorus supplies the four-part antiphonal answer to this message.

This sort of musical composition, which was the method mastered by Brahms from his work on Beethoven and others, is the proper goal of any serious composer or arranger. It is a sign-post that points the direction to the origin of language in poetry, the which

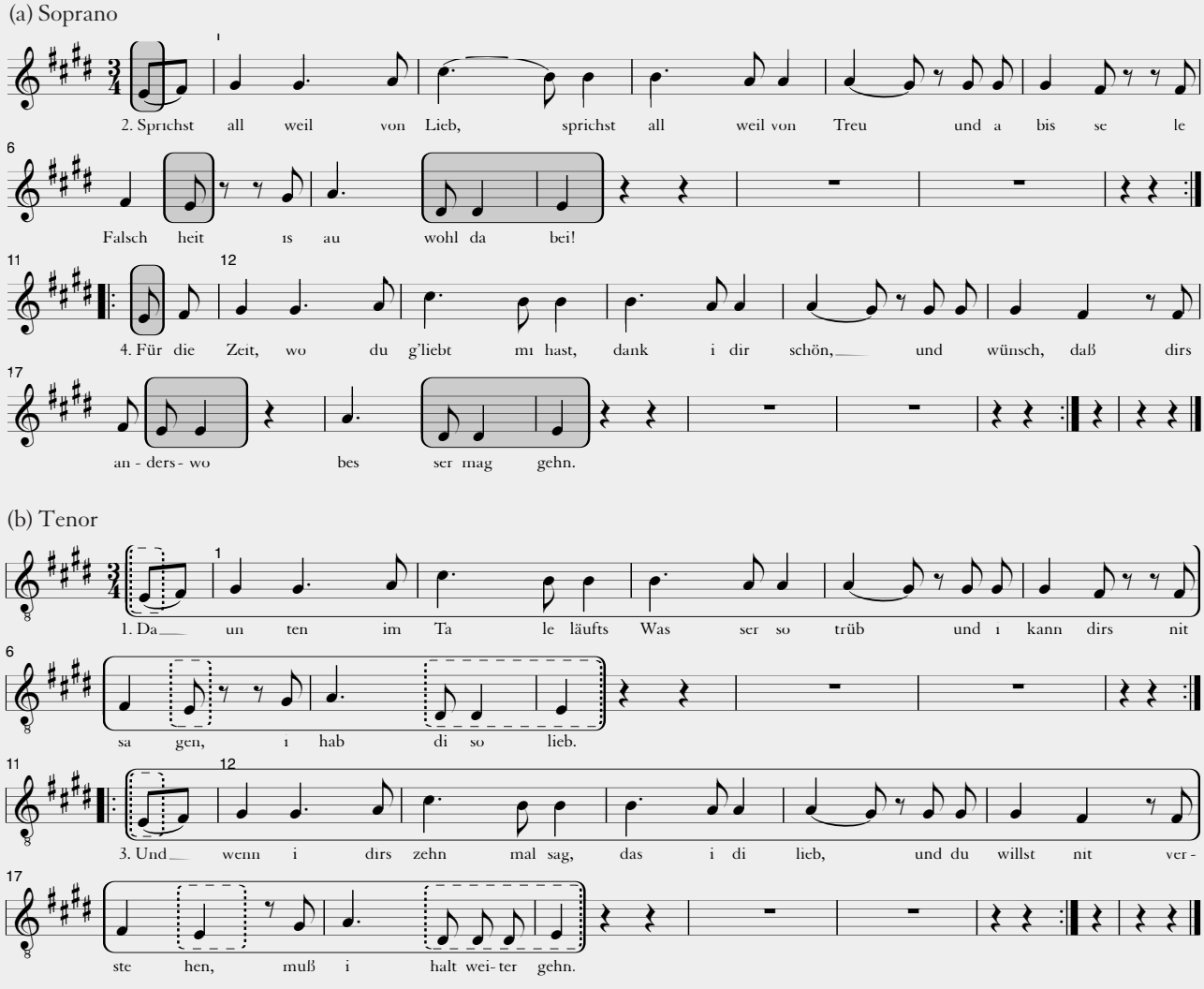
FIGURE 15. *"Da unten im Tale," by Johannes Brahms.*



exists in a domain outside the boundary of any particular language as such. Musical composition of this (Classical) type proves that *meaning is above language, and originates language,* not the other way around. Also, this implicitly "proves" that before man spoke, he sang—a phenomenon we encounter regularly with young children of different nationalities who are able to communicate with one another in precisely this way.

A different level, and one to which the work of Dvořák in America was clearly pointing, is seen in the *Volkslieder* setting by Brahms shown in Figure 15. This selection is particularly good because it is also written in idiomatic German, and is therefore similar to the Spirituals. There are two speakers, a man and a woman, yet only one singing line. The man is lying to the woman, and the woman is aware that the man is lying, but protesting, resignedly, that she loves him, and wishes the one that the man now loves, and is betraying her with, the best. Yet, there is only one melodic line, with which these opposing views must be transmitted. The line must

FIGURE 16. *"Da unten im Tale," soprano and tenor voices.*



1. He: Down in the valley there, the water in the river is troubled, and I can't tell you how much I love you.
2. She: You always talk about love, you always talk about constancy, but falseness is in you too!
3. He: And if I tell you ten times that I love you and you refuse to understand, I'll just have to travel on.
4. She: For the time, that you have loved me, I thank you kindly, and I hope, that for you elsewhere, things go better.

be a metaphor, incommensurable with either state of mind, but encompassing both—and other qualities besides [measures 1-8].

We analyze the text as though set for a tenor and soprano. Look at the text, and its use of registration and register shifts, to underscore the irony of the dramatic action. For example, look at the woman's "Sprichst" [opening measure], "is au wohl dabei" [measures 7-8], "wo besser mag gehn" [measures 17-18]—all points of verbal action, or change, in the narrative [SEE Figure 16(a)]. Or again, look at "Falscheit" [measure 6] and "anders" [measure 18]—two very important words in our story—and how they are set.

Using the "childhood" register shift of the tenor, look at his "nit sagen" [measure 6], "i hab di so lieb" [measures 7-8], "nit verstehen" [measures 16-17], and "i halt weiter gehn" [measures 18-19] [SEE Figure 16(b)]. Contrast the first two, and their mood, to the second two, and their mood. Now, contrast the first statement of the man, with the first statement of the woman. Look at how the man's second statement is provoked by the first statement of the woman, and consider the use of registration to illustrate this.

Finally, look at the opening measure. Note that the soprano has a register shift, from her first to second register, on the first two notes sung. The tenor's "childhood" shift also occurs here. Think of this as an irony that the composer chooses to use for his musical setting, rather than a simple "anatomical" device.

It should be also noted that, while the accompaniment in the right hand exactly follows the voice of both singers all the way through, at the end of each line, at the lower vocal register-shift, the accompaniment diverts from the vocal line. The internal timing of the measure also changes in the right hand, and is phrased differently in both [measure 8]. The left hand, or bass line, contains three notes instead of two, for the first time in the composition. This accents the change in rhythm, and emphasizes the "punch-line" effect.

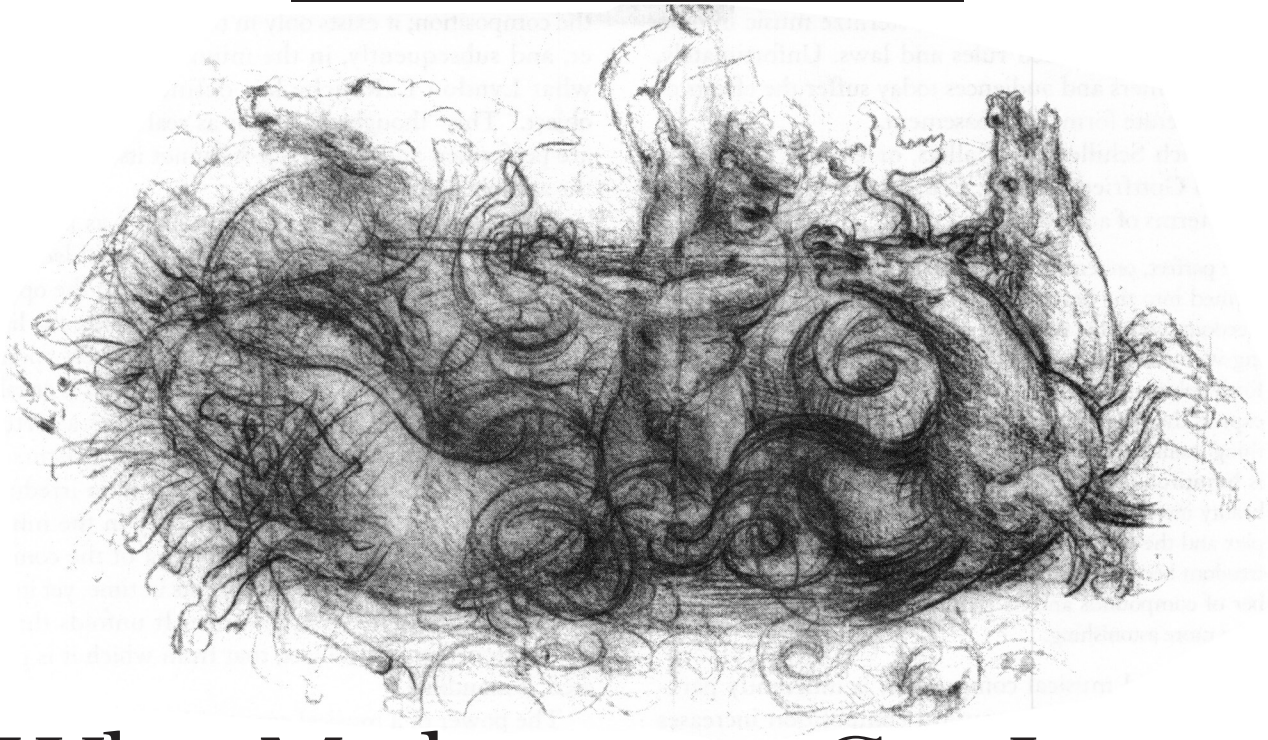
In this way, the composer uses the register shift, or voicing, as a secondary, derivative irony, to the primary irony of the strophic setting. The same setting is used by two speakers to say opposite things to each other. He says he loves her. She says he is false. He says that no matter how many times he says he loves her, if she won't listen, then he will just have to leave. She says she hopes things will go better for the next girl. It is a painful scene, made beautiful by a setting that intensifies the divergence of the two speakers by underscoring the irony placed at the end of the line, on which the narrator/accompaniment comments in several different ways, through several different rhythmic settings of the poetic line [measures 8-11]. Notice the phrasing of the bass line across the measure bars. This "pulls" the rhythmic singularities together as a single, powerful choral statement, outside of the boundary of the narrative, particularly in the last two measures of each verse [measures 10-11]. Finally, note that the last two measures of the piece are of a completely different nature than anything in the piece otherwise [measures 23-24]. Melodically, the first three notes of each singer are at the top right hand of the piano, but are reversed in order and changed in time-value. This reverses the motion of the poetic line, "closing" it rather than "opening" it; it therefore "closes" the piece.

The "close" is ironic, however. The bass line also ties the two measures together. This gives us opposite phrasings of the left and right hand—a perfect metaphor for the song's subject-matter.

Brahms' composition student Gustav Jenner wrote, "I have always had the impression that of all the song forms, Brahms considered that of the strophic song to be the highest. . . . The most rigorous form of strophic song is that in which the same melody is repeated for the poet's successive strophes, while the accompaniment also remains the same. . . ." In this light, compare Hall Johnson's "Were You There," with the Brahms *Volkslied.* The Johnson Spiritual is set like a chorale, and is completely strict. Brahms' *Volkslied* is also strict.

In transferring Brahms' compositional method to the shores of America, it was the task of musicians of the National Conservatory of Music to acquaint their students with the idea of taking the spark of creativity that was demonstrated in the folk-compositions of any country, and to elevate that spark to the domain of conscious practice by the next generation to whom these songs were bequeathed. The aborting of that effort must not be the excuse to tolerate the ugliness which is our daily fare, for "a purpose, that higher Reason hath conceived, which men's afflictions urge, ten thousand times defeated, may never be abandoned" (Friedrich Schiller). If men and women could compose the Spirituals in slavery, then the dignity and nobility of man can be seen to be accessible to people everywhere.

Therefore, there is no real excuse for the paucity of real song today, except that a great moment has found an ignoble people. We must do what we can—and, perhaps, more than we can—to live up to that divine spark that is ours, and to sing of it in the Classical poetic form of the African-American Spirituals, *Volkslieder,* and the art-song as it was practiced by Mozart, Beethoven, Schubert, Schumann, Brahms, and Brahms' students and collaborators.



What Mathematics Can Learn From Classical Music

by Bruce Director

'Heard melodies are sweet,
but those unheard are sweeter.'
—John Keats

That the creation and re-creation of great Classical musical compositions is a source of human happiness, is undeniable. Yet, such happiness cannot be relegated to the domain of pleasurable distractions. In fact, it is in the domain of great Classical musical composition, that human beings can and do discover fundamental principles of human knowledge and of the physical universe itself.

As will be shown below, by way of examples and otherwise, the source of human happiness associated with creating, performing, and listening to great Classical musical compositions, arises solely from the mental process of creative discovery associated with such compositions. Consequently, a rigorous examination of the principles of creative discovery, embodied in Classical musical composition, has profound implications far beyond the domain of art. Fundamental issues confronting mathematics and physical sciences are dealt with in the realm of musical composition.

Much effort has been made by the Venetian-led enemies of human knowledge to obscure, degrade, and destroy the science of musical composition. On the one side, the so-called Romantics and modernists have degraded music to the level of pure sensuality, where

Leonardo da Vinci, "Neptune with Four Seahorses."

musical development is lowered to a Benthamite "pleasure/pain" principle. Such evil efforts reduce music to mere alternating erotic episodes of dissonance (pain: tension) and consonance (pleasure: release). On the other side, attempts have been made to sterilize music into an axiomatic array of fixed rules and laws. Unfortunately, most performers and audiences today suffer the effects of these deliberate forms of debasement.

Friedrich Schiller, in "Kallias, or On the Beautiful" (letter to Gottfried Körner, Feb. 19, 1793), defines this issue in terms of aesthetics:

> The perfect, presented with freedom is immediately transformed into the beautiful. It is, however, presented with freedom, when the nature of the thing appears harmonizing with its technique, when it looks as if it were flowing forth voluntarily from the thing itself. One can also briefly express the preceding so: An object is perfect, when everything manifold in it accords with the unity of its concept; it is beautiful, when its perfection appears as nature. The beauty increases, when the perfection becomes more complex and the nature suffers nothing thereby; for the task of freedom becomes more difficult with the increasing number of compounds and its fortunate resolution therefore, even more astonishing.

All Classical musical composition is inherently paradoxical. The beauty of a musical composition increases with the ability of the composer to maintain a unity of effect throughout the composition, while increasing the complexity (density of change) in the composition. However, it is impossible to state explicitly the unifying idea of the composition; it exists only in the mind of the composer, and subsequently, in the minds of the listeners, as what Lyndon LaRouche has defined as a "thought-object." This "thought-object" is as real as the notes that are performed and heard, but it cannot itself be heard in the audible domain.

This thought-object is communicated as a properly performed musical composition that is unfolded by the performers over a finite period of time, from the opening notes to the final cadence. As the piece unfolds, the listener is led on a journey of discovery. At the very moment after the final cadence, the entire composition is enfolded in the mind of the listener and grasped as a virtually simultaneous whole. That unifying enfolding occurs only in the sovereign mind of the listener. It is an irreducible One, yet it can come into existence only in the mind of the listener, as a result of the unfolding of the composition over time. The composition exists in time, yet its central idea exists in virtually no time. It unfolds through audible tones, yet its subject, that from which it is generated, is inaudible.

The power of a musical composition is associated with

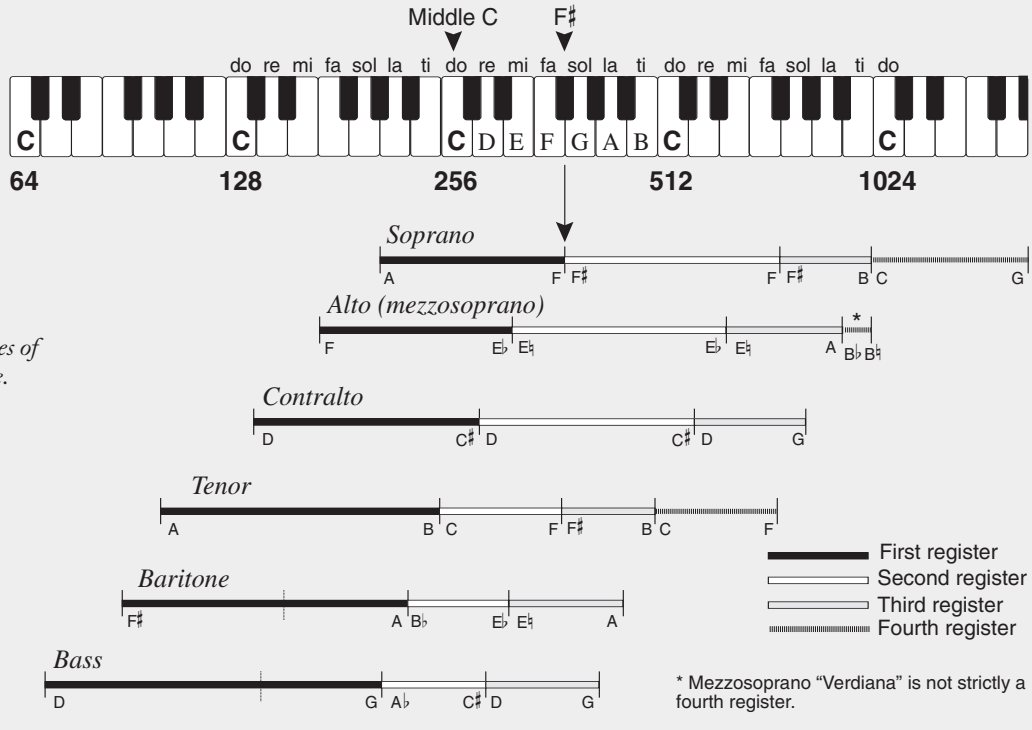


FIGURE 1. *The six species of the human singing voice.*

the ability of the composer to create increases in beauty for the listener, as identified above by Schiller. But such increases in beauty are not achieved by simply making compositions more complex. Any increased complexity—a Many—must result only from the creation, first, of a higher conception—a One—from which the complexity is unfolded. Paradoxically, this process is heard by the mind in reverse: the complexity of the composition is what is heard; the higher conception, the One, arises in the mind of the listener, but is unheard.

Such increases in power can themselves be ordered according to what Georg Cantor defined in mathematical terms as cardinalities. Each higher cardinality is characterized by a unity (One), of increasing complexity (Many). Each higher cardinality subsumes all lower ones. Each successive higher cardinality is generated as a solution to a fundamental paradox existing in its predecessor. Such paradoxes are perceived by our senses, in this case hearing, as mathematical discontinuities or singularities. As we will see, the generation of rising powers (cardinalities) of creative thought, is the subject matter of great Classical musical composition.

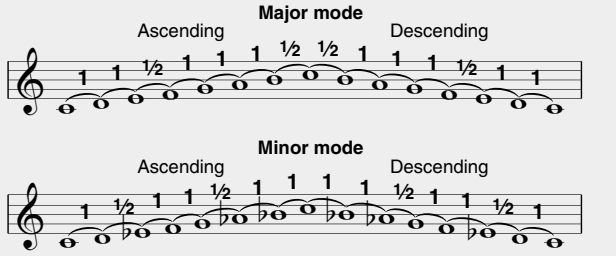
The Physical Principles of Well-Tempered Polyphony

Before turning to the musical examples, let us first examine some of the physical properties of the audible tones of the well-tempered system of polyphony which externally bound all musical compositions.

The seven octaves—each divided into twelve tones—of the Classical well-tempered system of polyphony, are physically determined singularities of physical space-time. Contrary to the fraud perpetrated by Hermann Helmholtz, which sadly is generally accepted by most musicians and physicists today, these tones are not arbitrary values chosen merely by whim. Each tone is a force-free region of physical space-time, whose value (frequency), like Kepler's values for the orbits of the planets in the Solar System, is determined by the characteristic properties of a quantized field underlying physical space-time.

The specific frequencies of these tones, centered on middle C = 256 Hz, are revealed by discovering the biophysical properties of the *bel canto* qualities of the human singing voice. These discoveries show that there are six separate species of the human singing voice: soprano, alto (mezzo-soprano), contralto, tenor, baritone, bass. Each species has a characteristic set of physiologically determined regions where the singer, in order to maintain a beautiful tone, must shift from one register to another.

FIGURE 2. *Intervals in the well-tempered system.*



For example, when C = 256, the soprano and tenor must shift from their middle to high register between F and F♯ [SEE Figure 1].

When two or more voices, either *a capella* or in combination with musical instruments, sing together, it is quickly discovered that a system of tuning is required which is not determined by ratios of whole numbers. Such a non-linear system of tuning is known as the well-tempered system, and was most thoroughly elaborated by J.S. Bach.

The totality of intervals in the well-tempered system of polyphony can be bound together conceptually, by a unifying ordering principle (order type). The most generalized order type, is associated with the major/minor mode. This order type, elaborated by J.S. Bach, is identified with the twenty-four key, well-tempered system (or, forty-eight key, if ascending and descending are considered, as they should, to be different species) [SEE Figure 2].

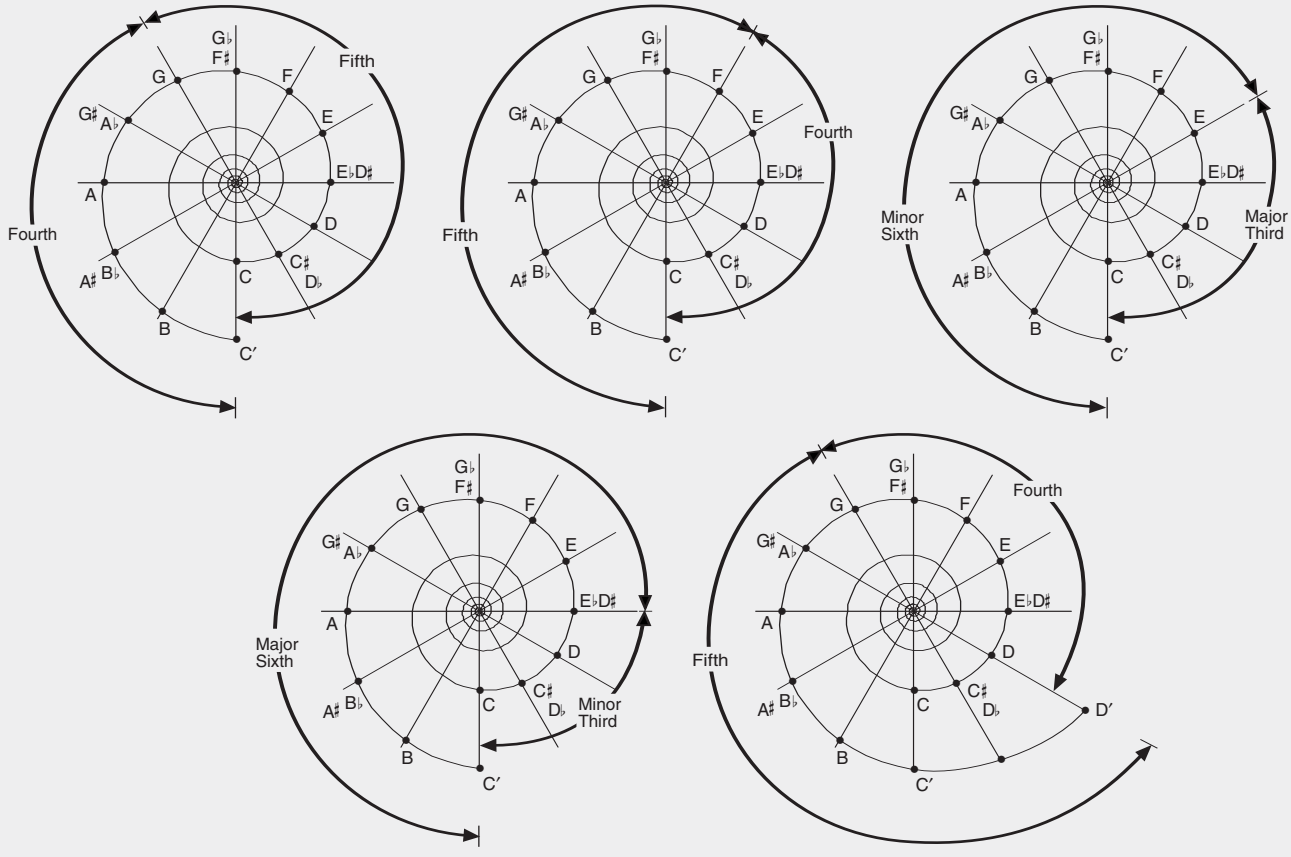
Consequently, discoveries in the musical domain are valid discoveries of objective physical principles, as well as subjective ones.

The audible tones of the well-tempered system are externally bounded by a quantized field which is itself "unheard"; yet its properties are nonetheless discoverable through the audible realm. In the workshop of musical composition, the bounding characteristics of this unheard quantized field are revealed by the behavior of the singularities that emerge as musical paradoxes. This property enables the composer to focus the mind of the listener not on the notes, but on change.

For example, the listener never hears a single tone in a musical composition. The listener always hears the interval between tones, that is, the change between tones. And yet, in the well-tempered system, an interval between two notes does not express just one type of change.

Look at the interval of a fifth in the key of C major/minor, i.e., C-G, shown in Figure 2. Ascending from C-G, the listener hears an ascending fifth. This simple interval divides the octave into two distinct intervals:

FIGURE 3. *Tones of the well-tempered system, represented as divisions of a spiral. The intervals correspond to degrees of rotation, where all half-steps have equal rotation, although their arc-lengths increase.*



a fifth (C-G) and a fourth (G-C). Going in the reverse direction, i.e., descending from C, generates the interval C-F, i.e., a perfect fifth. An ascending fourth, C-F, is different from its reverse, descending from F to C, because F to C implies the descending fifth.

In addition, any particular interval is changed in relation to specific keys. For example, in the key of C, the fifth C-G, is the interval between the first and the fifth notes of the scale. In the key of F, this same fifth, C-G, is the interval between the fifth and the ninth (second). In the key of G this same fifth, is the interval between the fourth and the octave. In the key of D, this fifth is the interval between the fourth and the diminished seventh.

Therefore, a seemingly simple interval is not really so simple after all. Similar ambiguities exist for other divisions of the octave [SEE Figure 3].

In the major/minor mode, sequences of intervals can be re-ordered, or inverted, according to a specific principle. For example, the first five notes of the major mode can be inverted, thus generating the minor mode, and *vice versa*. The major mode can be inverted at the octave to generate a minor mode of a different key [SEE Figure 4].

A singularity of significant importance is the interval which divides the octave exactly in half, misnamed the "devil's" interval or tritone, which were better called the "Lydian" interval for reasons which will become clear later in this report [SEE Figure 5].

The Lydian interval is the only interval which cannot be generated by the principle of inversion of complementary intervals within any given key. This interval uniquely divides the octave exactly in half: that is, the interval from the tonic to the Lydian tone is the same amount of change as the interval from the Lydian tone to the octave. In the key of C major/minor, for example, this corresponds to the interval between C and F♯, which also corresponds to the physical singularity of the register breaks in the soprano and tenor singing voice [Figure 5(a)].

Divide an octave in half. This generates a Lydian interval. In the major/minor mode, the Lydian interval is a dissonance with respect to any given key. For exam-

ple, in the key of C major/minor, the interval C-F♯ is such a dissonance. Yet this Lydian interval has the unique property of being a pathway from one key to the next, by way of the leading tone of that next key (F♯-G in the key of G major/G minor) [Figure 5(b)]. It is a type of singularity to be resolved through the development of the composition.

When the octave is divided in half again, two Lydian intervals are created. There are only three such combinations possible in the well-tempered system [Figure 5(c)].

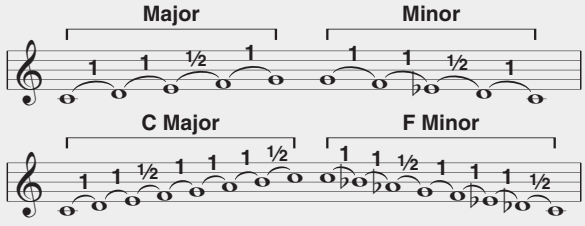
An analogy can be made with Cardinal Nicolaus of Cusa's treatment of the transcendental nature of π. When a circle is divided in half by circular action, a diameter is generated, the ratio of whose length to the circumference of the circle, is π. Cusa showed that while the value of π can be calculated to any decimal value, its exact value is not determinable, because the diameter, a straight line, is of a different species than the circle. When two such different species are compared, a mathematical discontinuity, or singularity, results.

Simlarly, when an octave is divided in half, the Lydian interval, a singularity, is generated which is transcendental with respect to that octave.

Make a partial list of the audible singularities of the well-tempered system of polyphony:

Inversions
Ascending/Descending Intervals
Complementarity of Intervals
Lydian Intervals
Vocal Registration/Instrumental Registration

FIGURE 4. *Inversion of the major mode generates a minor mode of a different key.*



Now step back and think of a given key, for example, C major, as a unity. See the singularities. Now think of C major along with C minor, and think of these singularities anew. Now think of all twenty-four keys as a whole. Now think of all twenty-four keys as ascending and descending, i.e., all forty-eight keys. With each new mental act, the mind generates a succession of order types.

But the fun is just beginning. What has been described above is simply the *natural* beauty of the well-tempered system of polyphony, presented to us by God and discovered by that which makes us in the image of God, creativity. Now we must turn to the great scientific geniuses of musical composition, who continue God's creation with works of *artistic* beauty.

We will illustrate the principles outlined above with examples from four string quartets. For the purposes of our illustration, we will examine here only the generative principles out of which each of these composi-

FIGURE 5. *(a) The "Lydian" interval. (b) Leading tone F♯-G in the key G major/G minor. (c) Possible Lydian intervals in the well-tempered system.*

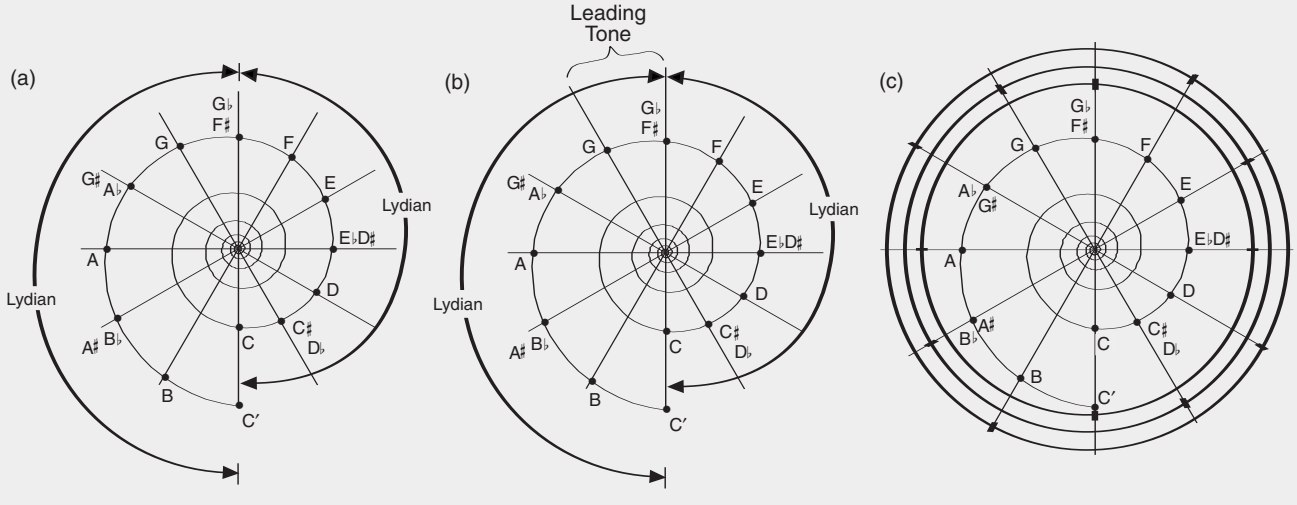
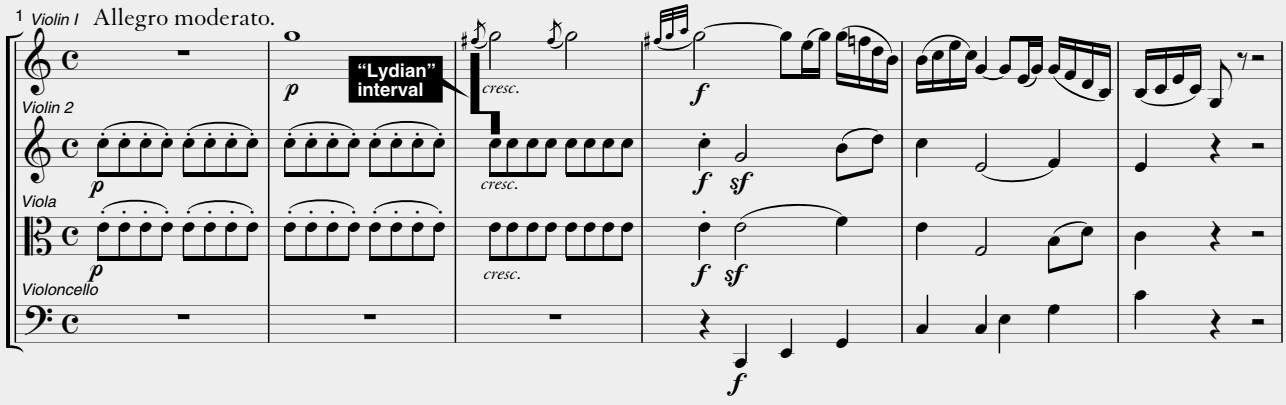


FIGURE 6. *Josef Haydn, String Quartet Op. 33, No. 3 in C major, measures 1-6.*



tions develops, for the potential development of each composition is contained entirely in the generative idea which creates bounding conditions on it. It is the composer's genius to discover and reveal this potential. As the composition unfolds, the singularities embedded within the generative principle are subjected to transformations by the composer, and the listener hears development in the composition in terms of the change associated with these transformations. By comparing the generative material from compositions of three composers encompassing the span of approximately forty years, it is possible to see the successive breakthroughs in human conceptual power associated with these creative discoveries.

The string quartet [two violins, viola, and violoncello ('cello)] virtually came into existence through the work of Franz Joseph Haydn. This medium allows for maximum musical transparency, because of the registral characteristics of these stringed instruments when made to sing by performers familiar with the principles of *bel canto* singing. This ensemble of four voices actually composes a fifth voice, that of the quartet as a whole. The string quartet serves both as the core of the entire symphony orchestra and as a test bed for compositional innovation.

These illustrations, while necessarily partial, nevertheless should serve as a sufficient guide to the reader, to whom we leave the task of exploring, with the ears and the mind, the full richness of these compositions.

Haydn's Opus 33, No. 3

Franz Joseph Haydn's Opus 33, the collection of six string quartets composed in 1781, represented a major breakthrough in human knowledge, with the development of a new principle of musical composition called *Motivführung,* or *motivic development.*

Here Haydn takes an extremely simple idea and subjects it to transformations across the musical space. The effect is to enable the listener to hear a greater density of change, while maintaining a unity of effect.

Look at the opening seventeen measures of the first

FIGURE 7. *Josef Haydn, String Quartet Op. 33, No. 3 in C major, measures 7-12.*

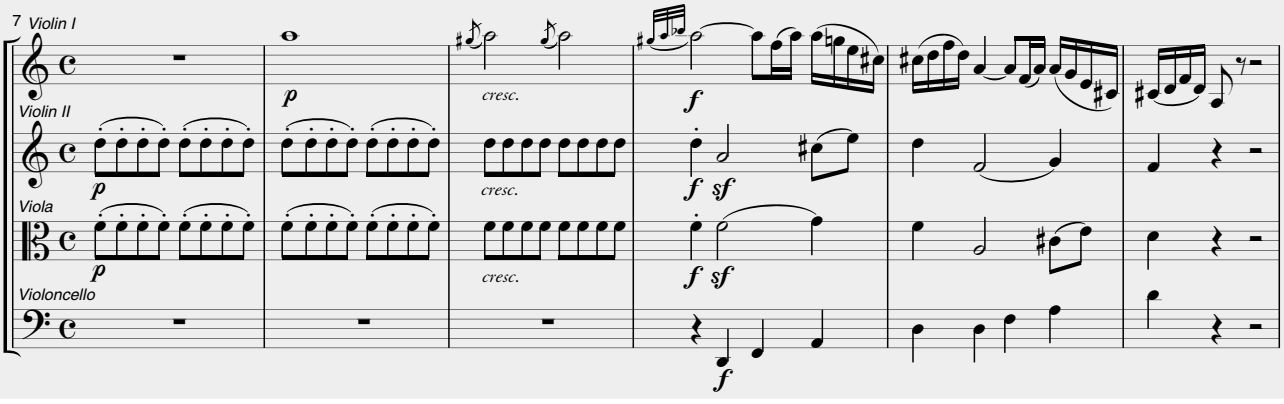
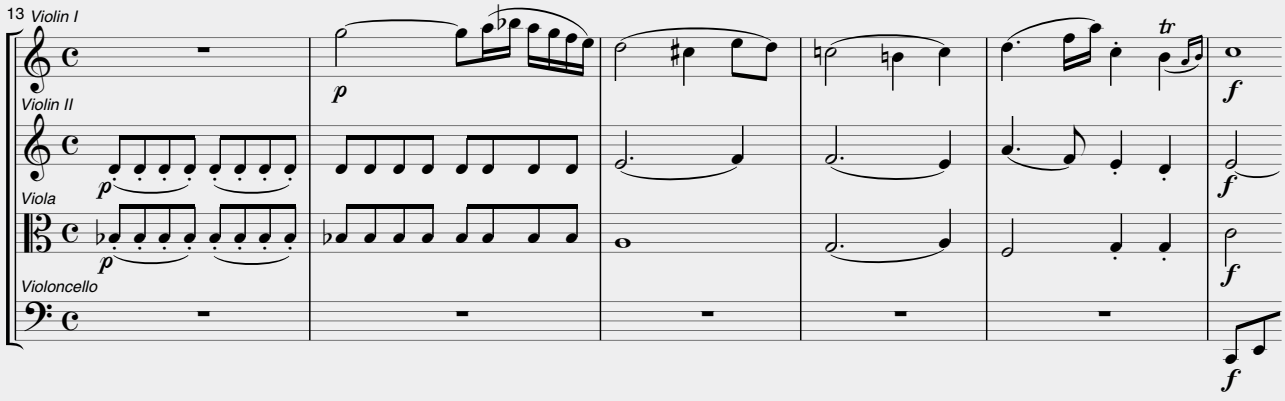


FIGURE 8. *Josef Haydn, String Quartet Op. 33, No. 3 in C major, measures 13-18.*



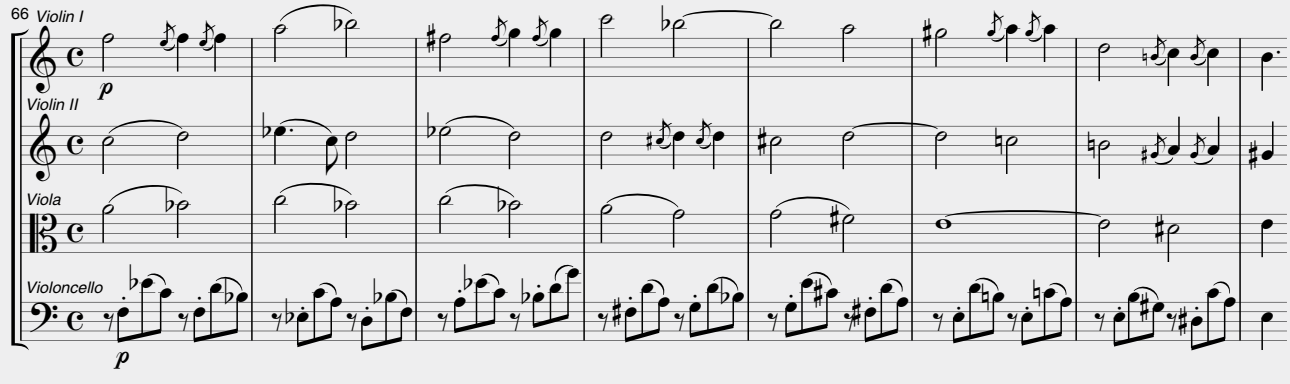
movement of Op. 33, No. 3 in C major, the "Bird." In measure 1, the viola plays repeated eighth-note E's with the second violin playing repeated eighth-note C's above [SEE Figure 6]. This interval divides the octave into a major third and a minor sixth. In measure 2, the first violin enters on a G above as a whole note, adding the additional interval of the perfect fifth, and implicitly the minor third and major sixth. In measure 3, the first violin adds a little grace note F♯ to its G, introducing the interval which divides the octave exactly in half. Also, the first violin now divides the measure rhythmically in half. As we identified above, this interval (C-F♯) is at the boundary with the adjacent key of G, and is dissonant with respect to C. Finally, on the first beat of measure 4, the first violin extends the grace note from a half-step below the G, to a whole-step above.

So, in the first three measures, Haydn has, with the simplest means, presented the listener with the primary divisions of the octave in a condensed idea (the fifth, fourth, major third, minor third, major sixth, minor sixth, half-step, and whole-step).

In measures 4, 5, and 6, these divisions are simply unfolded. The 'cello plays the C-E-G of the viola, second violin, and first violin, as an ascending *arpeggio.* The first violin plays a descending flourish with the F♯ changed back to F natural, thus underscoring the paradoxical character of the initial F♯ grace note. The rest at the end of measure 6 gives the listener a chance to now hear, in his mind, the first six measures as a One.

In measures 7-12, the quartet projects the same motivic idea to a different place, which changes the intervallic relationship between the instruments and generates a new array of singularities [SEE Figure 7]. The viola is displaced up a half-step, from E to F; the second violin is displaced up a whole-step, from C to D; and the first violin is displaced up a whole-step, from G to A. Now the interval between the viola and the second violin is a minor third/major sixth, the complement of the major third/minor sixth of the first measure. The grace note now becomes a G♯, thus preserving the Lydian interval

FIGURE 9. *Josef Haydn, String Quartet Op. 33, No. 3 in C major, measures 66-73.*



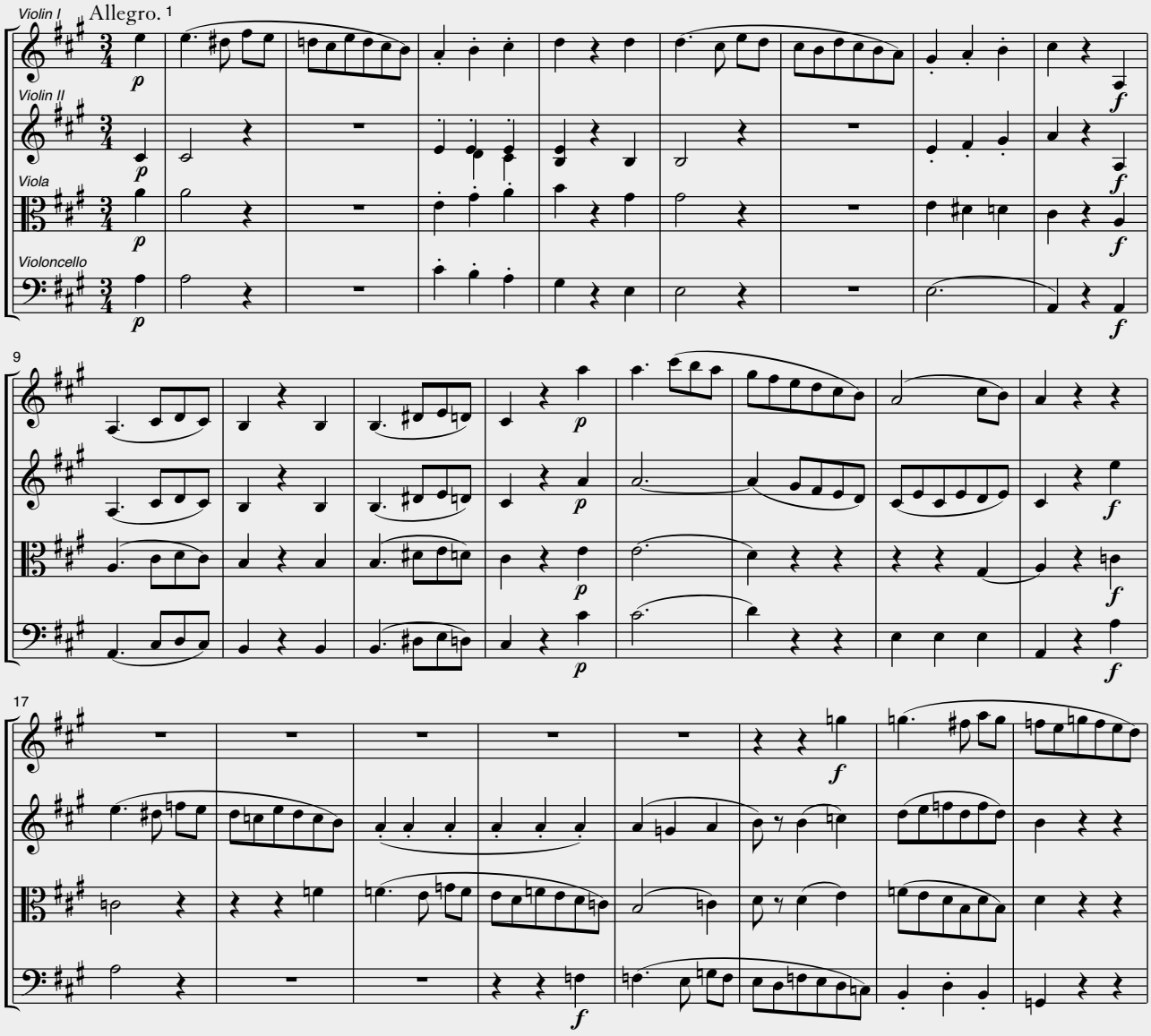
with the second violin. As these next six measures unfold, a new unity is generated in the mind of listener, which is different from the One associated with the first six measures, but, because it is generated out of the first One, the mind easily unifies both ideas into a new One which is associated with the change between the two sections. The mind abstracts from this change that which is universal, but unheard. The rest at the end of measure 12 directs the mind of the listener toward this objective.

In measures 13-17, a still newer transformation is generated out of the previous twelve measures, which, when reflected in the mind of the listener, generates again a new One, causing the mind to abstract again a new universal from this new degree of change [SEE Figure 8]. As they unfold in time, each transformation is discontinuous from the one preceding, yet thinking back, one "hears" the transformations as a continuous process of change.

Haydn places no rest at the end of measure 17, and from measure 18 onward this process continues, unfolding the implications of the initial idea, while the mind enfolds these developments into an "unheard" One, whose beauty increases as "the perfection becomes more complex and the nature suffers nothing thereby."

In measures 66-73, the density of change is greatest as the implications of the initial motivic ideas are now themselves the subject of development [SEE Figure 9].

FIGURE 10. *W.A. Mozart, String Quartet K. 464 in A major, measures 1-24.*



The movement ends with the restatement of the initial idea, but this time it is heard in an entirely different way.

Mozart's String Quartet K. 464

In response to Haydn's Opus 33, Mozart, over the next few years, composed six string quartets which integrated Haydn's development of the *Motivführung,* with J.S. Bach's discovery and elaboration of the properties of the major/minor mode. Mozart dedicated these six quartets to Haydn. Of particular interest is the string quartet K. 464 in A major, for it is known that Beethoven studied this quartet closely.

Here Mozart increases the density of change by generating the composition from a more condensed motivic idea [SEE Figure 10]. Notice the way Mozart constructs the initial idea such that a seemingly simple, two-measure idea has embedded within it a fundamental paradox. In measure 1, the quartet begins with a simultaneous division of the octave into a major third and a perfect fifth (A-A-C♯-E). In the last half of the second beat of measure 1, the first violin descends one half-step to a D♯, while the other instruments hold their original notes. The listener is presented with the singularity of the Lydian interval when he hears this half-step change from E to D♯ in relation to the A's of the 'cello and viola. Now the violin, playing alone, ascends up a minor third to F♯, taking it across the soprano's register shift between F and F♯. Then it descends step-wise a fourth to C♯ (playing a D natural in contrast to the previous D♯). Then it ascends again a minor third to the E on which it started, and then it descends step-wise a fifth to an A, where it is joined by the other instruments which, when combined, play the same notes as those on which the piece began, except, significantly, in a different order (C♯-E-E-A). This time the E is doubled instead of the A.

From measure 3 to measure 4, all four instruments play simultaneous quarter notes. The 'cello descends step-wise a fourth (C♯-B-A-G♯); the viola ascends step-wise a fifth, to B (E-G♯-A-B); the second violin, starting from the same note (E) as the viola, reverses the viola's direction, and descends to the B an octave lower than the viola, a step-wise fourth (E-D-C♯-B). To summarize, both the viola and the second violin start on the same note (E) and end on the same note (B), but an octave apart. Thus, the second violin ascends a fifth, while the viola descends the complement, a fourth. The first violin then ascends step-wise a fourth (A-B-C♯-D). In addition, the second violin also plays the same E with each note. Even though this E doesn't change its pitch, it is heard differently every time it is played, *because everything around it changes.*

A new Lydian interval, G♯-D, is formed on the second beat of measure 3, between the viola and second violin, and on the first beat of measure 4, between the 'cello and the first violin.

All instruments rest on the second beat of measure 4, directing the listener to bind what has just been heard, into a One.

Look at the types and density of audible singularities which are presented in these first four measures. For example, the Lydian interval in measure 1; the changes in registration in measures 1 and 2; the difference between ascending and descending intervals, and the complementarity of the fourth and the fifth, in measures 3 and 4. All these singularities are embedded in what Mozart has organized into a seemingly simple idea, which the listener then re-creates in his mind as a thought-object which itself is "unheard."

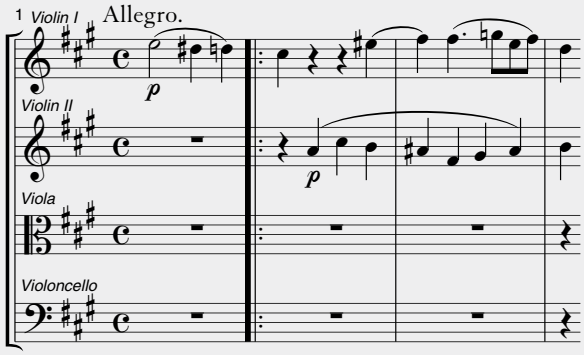
From the last beat of measure 4 to the first beat of measure 7, the quartet subjects what has just been heard to a transformation which produces a significant difference in the behavior of the singularities previously generated.

The statement opens with the intervals generated in measure 3 (E-G♯-B-D) which contain the Lydian interval (G♯-D) formed in measures 3 and 4. The first violin then plays the same intervals in measures 5 and 6 as it did in measures 1 and 2, but displaced down one step, starting on D instead of E. This displacement changes the behavior of the singularities thus produced. The violin plays: descending half-step (D-C♯), ascending minor third (C♯-E), step-wise descending fourth (E-B), ascending minor third (B-D), step-wise descending Lydian (D-G♯) (instead of descending step-wise fifth, as in measure 2). In opposition to the opening, the new Lydian interval is this time heard in the notes played by the whole quartet at the beginning of the statement, but it disappears when the first violin plays alone.

Note the generative quality of the half-step interval D-C♯-D-C♯ in the first violin in measures 5 and 6, in contradistinction to the generative quality of the intervals E-D♯-E-D-natural in measures 1 and 2.

Measures 7 and 8 imitate measures 3 and 4, but again with significant differences. The first violin ascends step-wise a fourth, as in measure 3, but this time starting a half-step lower (G♯-A-B-C♯). (Of course, this changes the internal relationships between the steps from whole-step, whole-step, half-step, in measure 3, to half-step, whole-step, whole-step here.) The second violin ascends step-wise a fourth (E-F♯-G-A), in contrast to the step-wise descending fourth from the same note in measure 3. The

FIGURE 11. *W.A. Mozart, String Quartet K. 464 in A major, fourth movement, measures 1-4.*



'cello takes the E from the second violin in measure 3, but plays this note as one continuous tone, instead of four separate ones, and then descends a fifth to A. The viola descends a minor third by half-steps (E-D♯-D-C♯). Notice the formation of the two previously heard Lydian intervals, D♯-A on beat two, and, D-G♯ on beat three.

The second beat of measure 8 is a rest, to allow the listener to form what has just been heard into a new thought-object. As we have seen, measures 5-8, being a transformation of measures 1-4, seem to imitate them, but with significant differences. Those differences are heard as changes in the behavior of the audible singularities presented. Now the listener forms in his mind an abstraction of what is the same, and what has changed, between these two thought-objects, a new One which, while "unheard," is as real as the audible tones from which it was generated.

From the last beat of measure 8 to the first beat of measure 12, all four instruments play the same notes (with the 'cello playing an octave lower). Such a unison focuses the listener intensely on this more condensed form of what has been heard in the previous measures. In measure 9, the quartet ascends a major third (A-C♯) taken from the very first notes of the piece; then ascends and descends the half-step C♯-D (the generative interval of measures 5 and 6); and then descends a whole-step, to end on a B. In measure 10, after a rest, the quartet, drawing on the generative interval of measures 1 and 2, starts on that B, and again ascends a major third (B-D♯), ascends again a half-step (D♯-E), but then descends a whole step to D-natural, and then descends a half-step to C♯.

This is a condensed and more generalized restatement of the singularities embedded in the first nine measures; yet, such a restatement would have been impossible without what has been previously unfolded.

After another rest, the quartet plays the opening notes (C♯-E-A-A) in different registers, and in measure 13, the

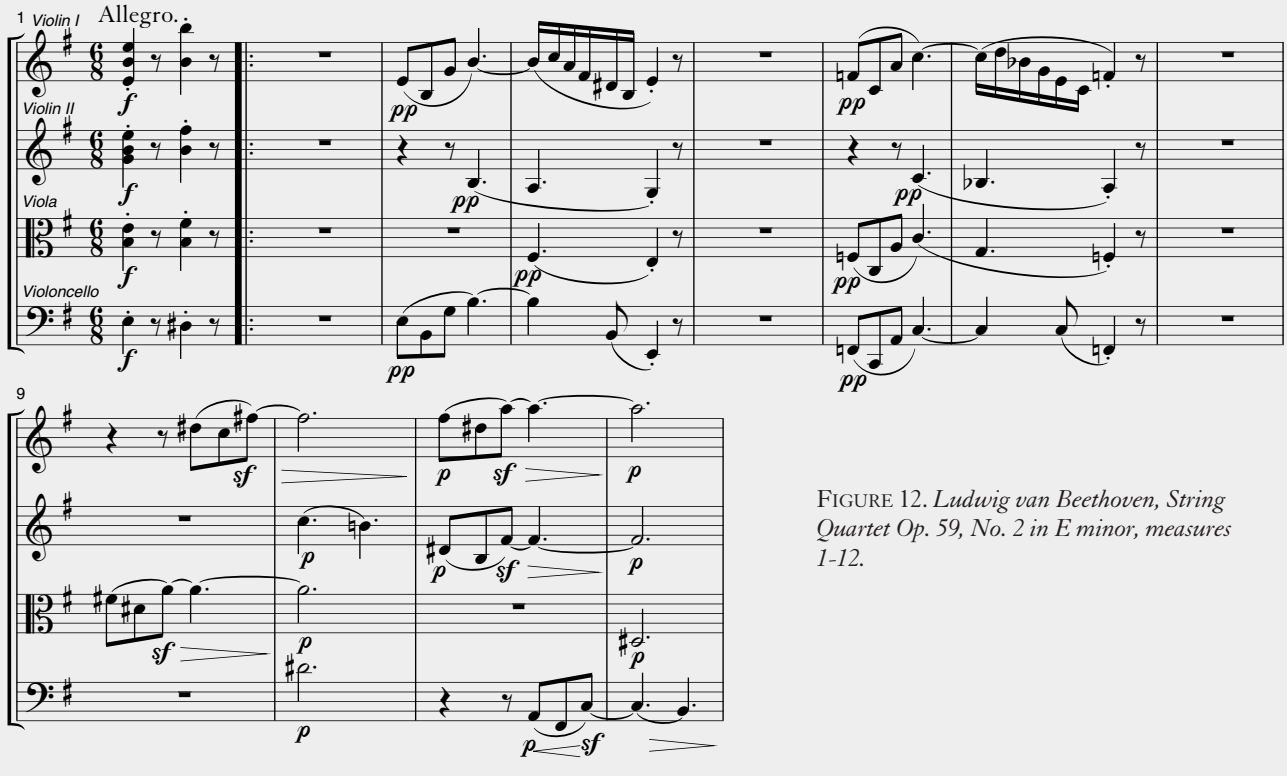


FIGURE 12. *Ludwig van Beethoven, String Quartet Op. 59, No. 2 in E minor, measures 1-12.*

first violin ascends the major third (A-C♯), then descends step-wise an octave and a fourth, as the quartet completes the initial development on the same notes—an octave lower—on which it began (A-A-C♯-E) [measure 16].

Think back on what has been unfolded over these opening sixteen measures. The piece began with a seemingly simple statement, rich in singularities. This statement was then subjected to a transformation, presenting to the listener—paradoxically—change and no change. Then, the generative principle of the transformation was abstracted out, and put in contradistinction to the generative principle of the original statement. Finally, everything was brought together in a concluding statement. Nothing was arbitrary. Every development arose out of the opening idea which Mozart had so skillfully chosen.

Each step required new powers of thought for the listener. The listener's happiness increases as he discovers the ease with which the powers of his own mind rise, seemingly effortlessly, on the beautiful tones of Mozart's composition.

And this is only the first sixteen measures! The reader is encouraged to compare the kind of change represented here, with what was examined previously in the Haydn example. Space limitations prevent us from fully exploring this composition. We will, however, indicate several places for the reader to explore on his own.

Look at the last beat of measure 16. Here Mozart changes the C♯ to a C-natural, bringing us into the minor mode. The opening idea is now subjected to even more rapid transformations in measures 16-24. Here, Mozart achieves a density of change which is not achieved in the Haydn example until measure 66. [SEE Figure 10, measures 16-24].

In addition to the increased density of change in this Mozart example, there is a unity across the movements, extending the *Motivführung* principle to the entire composition. For example, the entire last movement, is generated from the three descending half-steps E-D♯-D-C♯ (minor third) in measures 1-2, stated by the viola in measure 7 of the first movement, embodying the initial paradox stated in the first movement, but now heard by the listener in an entirely different way [SEE Figure 11].

Beethoven's Opus 59, No. 2

After extensive study and development of all previous music, Beethoven extended human knowledge further, reaching the greatest compositional power in his late string quartets. To more adequately grasp the significance of those developments, let us first stop along the way and see the formation of his later ideas in their earlier stages.

In 1806, Beethoven composed three string quartets dedicated to the Russian Count Razumovsky, published under Opus 59. In these quartets, Beethoven explored the boundary conditions of the major/minor mode, embarking on a course which ultimately led to his discovery of a higher ordering principle of musical space, elaborated in the late quartets. A look at Op. 59, No. 2 in E minor illustrates the point.

The first movement opens with two chords played by all four instruments of the quartet (E-B-E-G-B-E-E minor; D♯-B-E-B-F♯-B-B major) marked *forte* and separated by an eighth-note rest [SEE Figure 12]. These two chords present the listener, implicitly, with the boundary conditions of the major/minor mode. The full measure rest [measure 2] directs the listener to form in his mind a unified conception of these conditions.

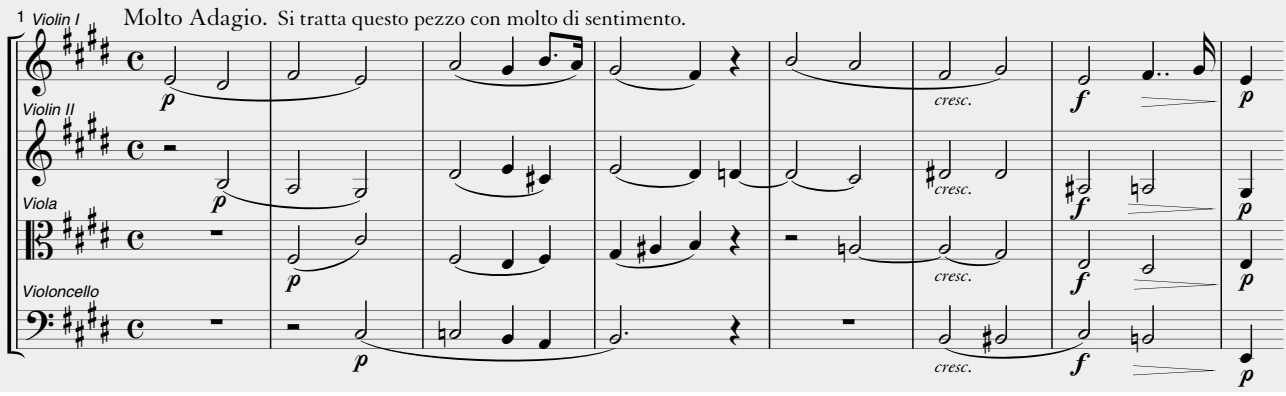
In measures 3 and 4, measure 1 is unfolded by the first violin and 'cello playing in octaves, a descending fourth, E-B, ascending minor sixth, B-G, and ascending major third, G-B. The first violin continues, ascending to C, and then playing three rapidly descending minor thirds (C-A-F♯-D♯), a descending major third (D♯-B), and an ascending fourth (B-E: the inverse of the first interval of measure 3). Embedded within this descending violin line are two Lydian intervals (C-F♯, A-D♯: the octave divided in half twice). The full measure rest that follows [measure 5] directs the listener to enfold into a One what has just been unfolded.

In measures 6 and 7, joined now by the viola, this same idea is projected up a half-step to F, with the 'cello dropping into a lower register. This projection changes the complementary intervallic relationships of measure 3: descending fourth (F-C), ascending major sixth (C-A), ascending minor third (A-C). The order of the intervals in the descending violin line in measure 7 is changed to, first, a descending major third (D-B♭), followed by two descending minor thirds (B♭-G-E), a descending major third (E-C), and an ascending fourth (C-F). Notice the invariance of the fourth while the other intervals change.

The full measure rest that follows [measure 8] now directs the listener to hear—as a One—what this projection has changed, and not changed, and to abstract in the mind that which is universal about this development.

In measure 9, Beethoven presses the boundaries of the major/minor mode. The viola begins alone on F♯, up another half-step from the previous section, but instead of descending a fourth as in measures 3 and 6, the viola descends a minor third, as in the violin line of measures 4 and 7, bringing it to the D♯ of the 'cello in measure 1. Then, instead of ascending a major or minor sixth, the

FIGURE 13. *Ludwig van Beethoven, String Quartet Op. 59, No. 2 in E minor, second movement, measures 1-8.*



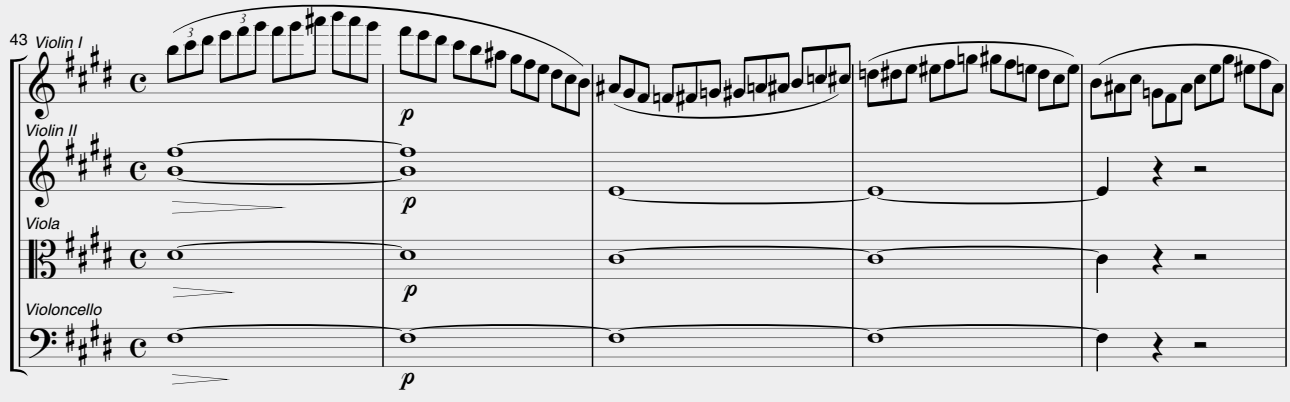
viola ascends a Lydian interval to A. Because the viola keeps the same rhythmical pattern as in measures 3 and 4, the listener hears this intervallic change in relation to those measures. The line continues, jumping now to the first violin, which in a new register begins on D♯ as the viola holds its A. Thus, the listener hears the unique halving of the octave by the Lydian interval (D♯-A-D♯). Following the viola, the first violin descends a minor third (D♯-C), and then ascends a Lydian interval to F♯. So the sequence just heard is F♯-D♯-A-D♯-C-F♯.

Instead of the full measure rest that followed every previous statement, the quartet now "rests" for the first half of measure 10 on the seemingly unstable Lydian intervals now played together (D♯-A-C-F♯). In the second half of measure 10, the first violin descends a half-step to B-natural, resolving one of the Lydian intervals into a fifth (B-F♯). This new type of "rest" directs the listener to form a new type of One.

In measure 11, the first violin begins where it last ended on F♯, and plays, an octave higher, the viola part from measure nine (F♯-D♯-A). The second violin plays different intervals starting on D♯, descending a major third to B, and ascending a fifth to F♯. This is followed by the 'cello, which preserves the intervallic relationships of the first violin, but starting on A, descending a minor third to F♯, then ascending a Lydian to C. In measure 12, the quartet "rests" again, on the same notes as in measure 10, but in a different order (C-D♯-F♯-A).

Taking advantage of the leisure afforded us by our written medium, let us summarize what has just been unfolded. In measure 1, the quartet presented us with the minor mode, and after a rest, we were presented with the major mode. We were given a full measure rest, to form in our minds something that had not been stated in this combination, the thought-object of the major/minor mode. Then this was unfolded, first from E in measures 3 and 4, then a half-step higher in measures 6 and 7. Each time, new singularities—implicit in measure 1—were revealed. This change caused us to form a new thought-object in our minds. The Lydian intervals embedded in measures 4 and 7, were then unfolded in measures 9 through 12, which change caused us to form yet again a new thought-object. This process continues throughout the movement. For example, in measure 19, the Lydian

FIGURE 14. *Ludwig van Beethoven, String Quartet Op. 59, No. 2 in E minor, second movement, measures 43-47.*



intervals arrived at in measure 10, are now stated as the opening chords of measure 1, but which now are themselves unfolded in yet another new way which is itself not possible without the development that preceeds it.

The reader should now compare this opening with the Haydn and Mozart examples. See the greater complexity (density of change), while the unity of effect is not lessened, indicating to us a higher "unheard" idea.

To get a sense of what potential has been developed in this opening, let's look briefly at the second movement, marked, "*Molto Adagio.* This piece is to be treated with much sentiment," which presents a further development—but in an entirely different mood—from the first movement, where the unfolding proceeds more slowly and contemplatively [SEE Figure 13].

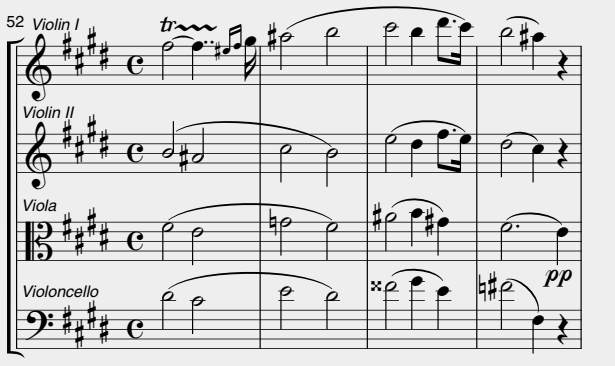
This movement has two parts, which, combined, form an "unheard" third idea. As we will see, Beethoven will turn back to this form in his late quartet, Op. 132.

In the first seven measures, the quartet functions as a four voice "chorus," presenting various singularities of the major/minor mode. This is followed by an unfolding. In measures 52-55, this "chorus" returns, followed by a new unfolding. In measures 138-144, this "chorus" returns again, followed by a final unfolding. Each time the chorus returns, the unfolding which follows is changed.

In measure 1, the first violin begins with a descending half-step (E-D♯), extracted from the 'cello in measure 1 of the first movement. Each voice enters, in the low register, a fourth below and two beats after the previous entrance. This is heard in reference to measures 3 and 6 of the first movement. The 'cello enters on C♯ and, like the first violin, descends a half-step to C-natural; this leads in measure 3 to the Lydian intervals (C-F♯-D♯-A), which are again heard in reference to the first movement's development.

In measure 4, the second violin descends two half-

FIGURE 15. *Ludwig van Beethoven, String Quartet Op. 59, No. 2 in E minor, second movement, measures 52-55.*



steps (E-D♯-D-natural). When the D-natural is heard, the rest of the quartet stops. Instead of a complete rest, as in the first movement, to allow for the formation of a One, here the listener hears both the D-natural and the "unheard" rests. When the first violin re-enters in measure 5 on a B, played now in the middle register, this combination of the heard and the "unheard," creates an ambiguity which allows the listener to "hear" the major and minor as one unified mode. This is the inverse of the opening of the first movement (E minor/B major in the first movement; E major/B minor here.)

On the first beat of measure 7, the "chorus" presents the listener with a new Lydian interval (E-A♯), which forms the boundary with the next key, B major. This interval is played *forte* (loud) for emphasis, and in contrast to the *piano* (soft) played both before and after it.

What follows is a beautiful unfolding beginning on B, which is best heard directly by the reader. In measures 43-47, the first violin counterposes this transition to B with all twelve tones of the well- tempered system [SEE Figure 14]. In measures 52-55, the "chorus" returns, this time in a higher register [SEE Figure 15]. When the

FIGURE 16. *Ludwig van Beethoven, String Quartet Op. 59, No. 2 in E minor, second movement, measures 123-126.*

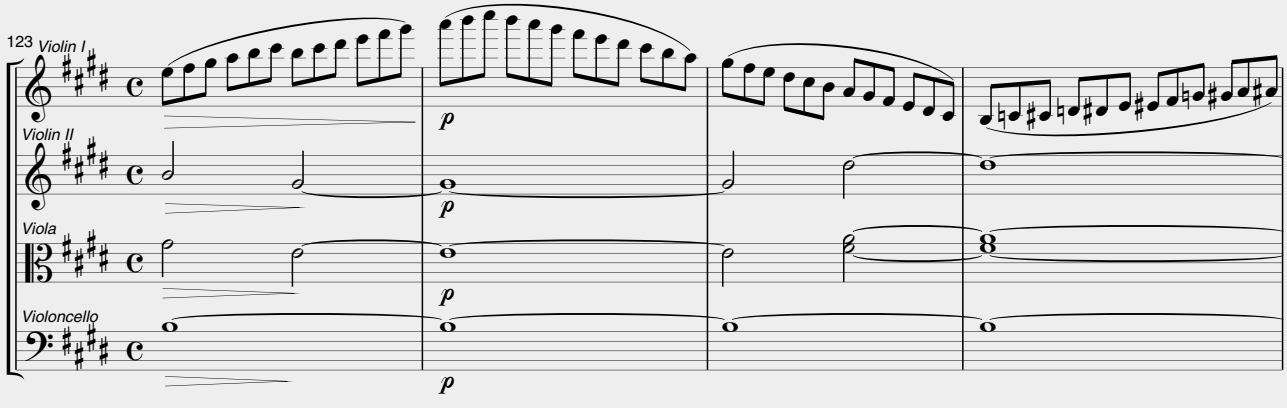


FIGURE 17. *Ludwig van Beethoven, String Quartet Op. 59, No. 2 in E minor, second movement, measures 138-141.*

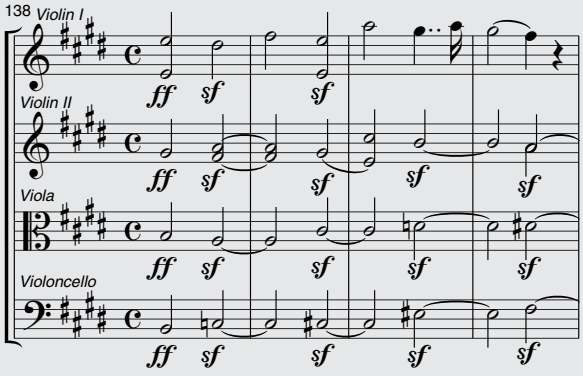
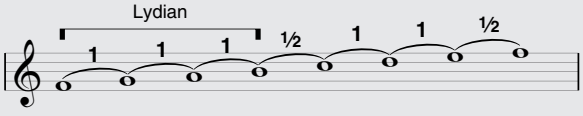


FIGURE 18. *The Lydian mode.*



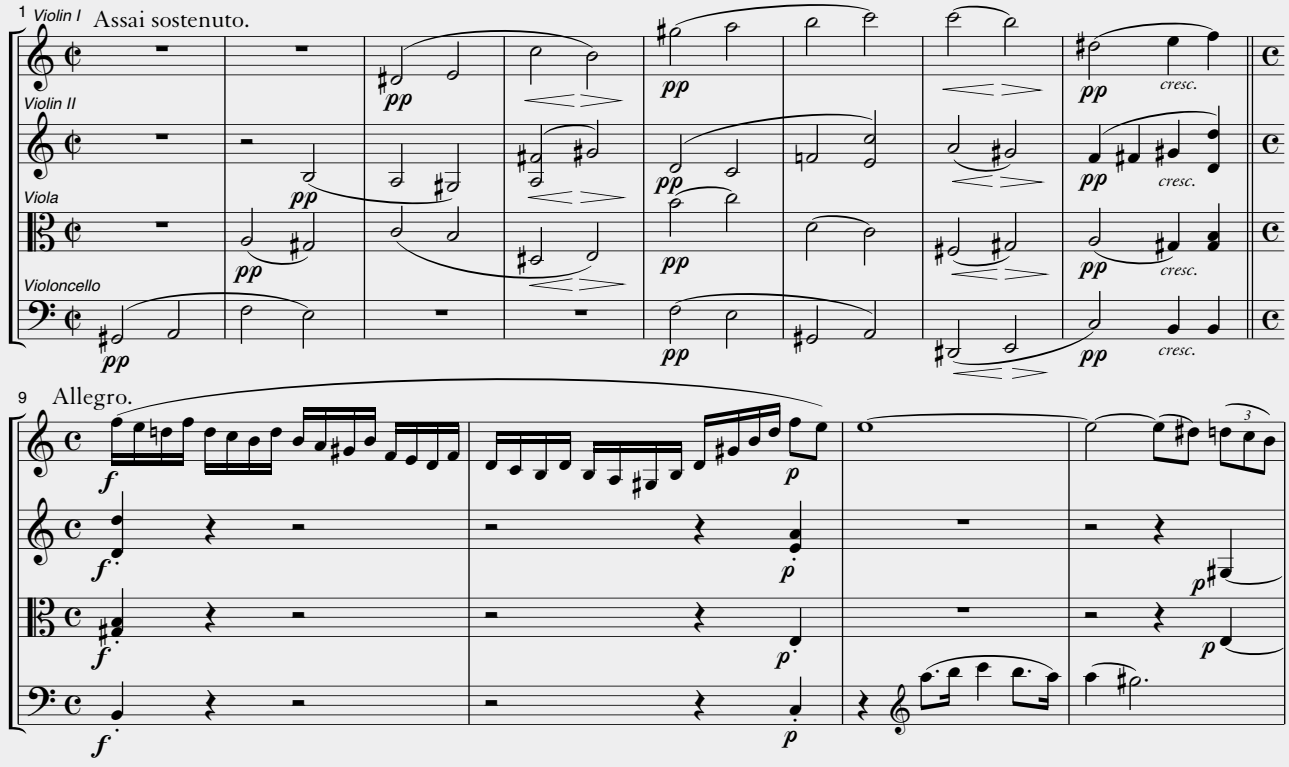
unfolding resumes, the A♯ has changed back to an A. In measure 123-126, the first violin counterposes the notes of E major to all twelve tones of the well-tempered system [SEE Figure 16]. In measures 138-144, the "chorus" returns a final time, followed again by a further unfolding coda [SEE Figure 17].

Each chorus presents a variation of the opening seven measures, but each is heard in relationship to the previous unfolding. This juxtaposition of such seemingly different ideas, generates a new thought-object in the mind of the listener.

Beethoven's Opus 132

Approximately twenty years after composing the Razumovsky quartets, in what were to be the last years of his life, Beethoven composed a series of five string quartets and "Große Fuge," which comprise the highest development of musical science achieved to this day. In these quartets, Beethoven launched a revolution in musical composition, by elaborating a new ordering principle for the well-tempered system, which corresponds to a higher power of thought. The singularities of the major/minor mode are seen in an entirely new way; the boundaries

FIGURE 19. *Ludwig van Beethoven, String Quartet Op. 132 in A major, measures 1-12.*



between keys are dissolved and the entire well-tempered system is conceptualized under a new more generalized order type. In mathematical terms, this new ordering principle externally bounds the major/minor mode of the well-tempered system.

At a future time we will examine more fully all these revolutionary compositions. For now, let's look at Opus 132 in A minor, which includes the famous third movement marked, "Heiliger Dankgesang eines Genesenen an die Gottheit, in der lydischen Tonart" ("A holy song of thanks to the Divinity, in the Lydian mode").

The Lydian mode is a division of the octave based on the F-major scale with a B-natural instead of the B♭. This ordering has the unique property, that the interval which divides the octave in half, identified as the "Lydian" interval above, is part of the mode itself, i.e., F-B-natural. However, the potential for compositional freedom is less than in the major/minor mode, because the Lydian mode lacks the major/minor mode's complementary relationship between the fourth and the fifth [SEE Figure 18].

Ironically, Beethoven generates, by reference to this combination of the Lydian mode and the major/minor mode, a higher modality, subsuming the properties of both.

This higher modality or ordering principle of the well-tempered system, is neither the Lydian mode, nor the major/minor mode, nor a simple summation of the two. The higher ordering principle corresponds to a higher power of conceptualization, which Beethoven elaborates through the composition of these last quartets. The listener hears the results of this creative process in the greater density of change achieved in the compositions. At all times, however, Beethoven maintains a unity of effect, because he adheres rigorously to all the principles of Classical musical composition established by the creative discoveries of his predecessors.

After Beethoven's death, the so-called Romantics and moderns made every effort to destroy Beethoven's accomplishment, by claiming that Beethoven, in the late quartets, had liberated them from the constraints of Classical tonality. They were enamored with the greater potential for sensual effects resulting from this perceived "liberation." Not surprisingly, what they produced is best described as organized, or in some cases disorganized, noise.

Beethoven's new conception is expressed in the opening eight measures of Opus 132. Here, the quartet imitates a four-part chorus of human singing voices, announcing the new idea in song [SEE Figure 19].

The piece begins with the 'cello playing—alone, in a low register, and very softly—the ascending half-step G♯-A. Each tone of this interval is equal in time and volume, creating an ambiguity because the listener cannot tell which one is primary. This interval references what a physicist would call a boundary condition. The G♯ is the leading tone to the tonic A, and at the same time the Lydian interval to D.

But there is a further ambiguity. Is this interval that of the leading tone to the tonic, or is it that of the fifth to the minor sixth of C minor, or that of the third to the fourth of E, etc.? Or is it many things at once?

In measure 2, the viola, in its low register, reverses this interval at an octave higher (A-G♯), which reinforces the ambiguous nature of the opening interval. At the same time, the 'cello, in a different register, also plays a descending half-step, but on different tones (F-E). This also references a boundary condition: the minor sixth to the fifth, and the tonic to the leading tone in F.

Aided by the transparency provided by the change in registration the mind of the listener goes two places simultaneously: G♯-A-A-G♯ ('cello to viola); and G♯-A-F-E ('cello).

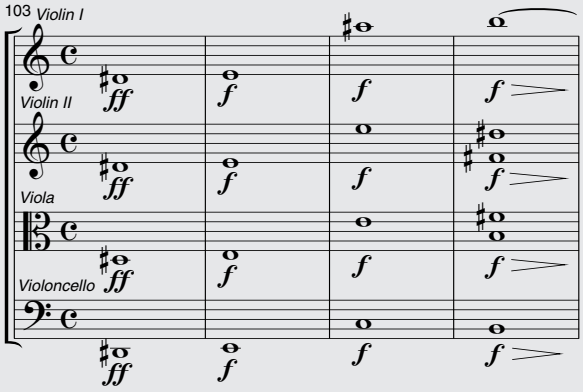
While the mind is forming an "unheard" idea from the comparison of these two heard intervals, the second violin enters, on the last two beats of measure 2, on a B in its low register.

In measure 3, the first violin, in its low register, projects the opening interval up a fifth, playing the ascending interval D♯-E. This also references a boundary condition, as D♯ is the Lydian interval to the tonic A, and the leading tone to E. Simultaneously, the second violin plays exactly the same tones as the viola in measure 2, the descending half-step A-G♯; but, significantly for purposes of transparency, the difference in tone between the viola and the violin causes this to sound different. The viola, at the same time, projects the 'cello's F-E up a fifth, playing another descending half-step (C-B), which references a different but similar boundary condition.

Measure 4 continues the projections just begun. The first violin continues the projection up a fifth from the 'cello line, changing registers and playing the descending interval C-B an octave higher than what was just played by the viola. In imitation, the viola plays what the first violin just played, but drops an octave instead. The first violin returns to the low A, adding an F♯ and a G♯.

Before going on, let us look at what has been generated in these first four measures. By simple projection, inversion, and registration of the opening ascending half-step, Beethoven has juxtaposed a multitude of boundary conditions for the listener, which enable him to form in his mind an "unheard" conception of the manifold from which these boundary conditions arise. Evidencing these

FIGURE 20. *Ludwig van Beethoven, String Quartet Op. 132 in A major, measures 103-106.*



boundary conditions are the Lydian intervals (A-D♯) produced between the two violins in measure 3, and the Lydian intervals generated in measure 4 (A-D♯ between the viola and second violin, and F♯-C between the two violins).

The 'cello re-enters in measure 5, repeating measure 2 (F-E). The viola jumps to a high register and inverts the first violin line from the previous measure 4, playing the ascending interval B-C. The second violin, still in a low register, plays the descending whole-step D-C, and the first violin jumps to a higher register and repeats its first two notes (G♯-A). Measure 6 continues this process of inversion, projection, and registration. The violin, still in the high register, mimics the viola's inversion of its own line, playing the ascending half-step B-C. The second violin mimics the 'cello's F-E, and adds a C. The viola mimics the second violin from the previous measure (D-C), and the 'cello mimics its own opening (G♯-A), which is now heard in an entirely different way from when those same notes were first presented to the listener.

With each new transformation, the listener hears an increasing density of combinations of boundary conditions, as evidenced by the generation of Lydian intervals: in measure five, F-B between the 'cello and viola, and D-G♯ between the violins; and these same intervals in different order in measure 6, G♯-D between the 'cello and viola, and F-B between the two violins.

Further projections and transformations occur in measure 7. The first violin inverts itself (C-B). The second violin inverts the opening 'cello notes (A-G♯). The viola mimics the second violin from measure 4 (F♯-G♯). The 'cello drops to its lowest register, projecting its opening notes (D♯-E) down a fourth,, which were themselves already played by the first violin as a projection up a fifth in measure 3.

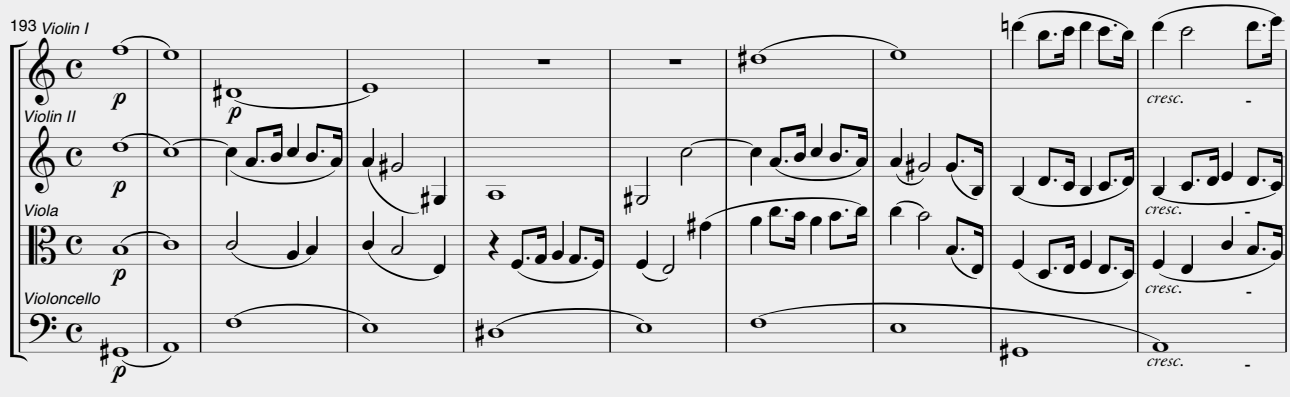
Again, new orderings of these boundary conditions are produced, evidenced by the generation of more Lydian intervals: D♯-A between the 'cello and second violin; F♯-C between the viola and first violin.

A new ordering is generated in measure 8, leading to the rapidly descending minor thirds of the first violin in measures 9 and 10.

Reflect again on these amazing eight measures. Because everything in them is generated by projection, inversion, and registration of the 'cello's ambiguous opening two notes, there is a total unity of effect across all voices and all measures. And, because these two notes themselves reference a boundary condition, while at the same time are ambiguous, there is a greater density of singularities produced. As a result of these two considerations, the mind is led to create a new and higher conception, a reflection of Beethoven's new ordering principle which is of a higher cardinality.

Compare these first eight measures with the previous examples of Haydn, Mozart, and Beethoven. In those examples, the singularities were embedded in the open-

FIGURE 21. *Ludwig van Beethoven, String Quartet Op. 132 in A major, measures 193-202.*



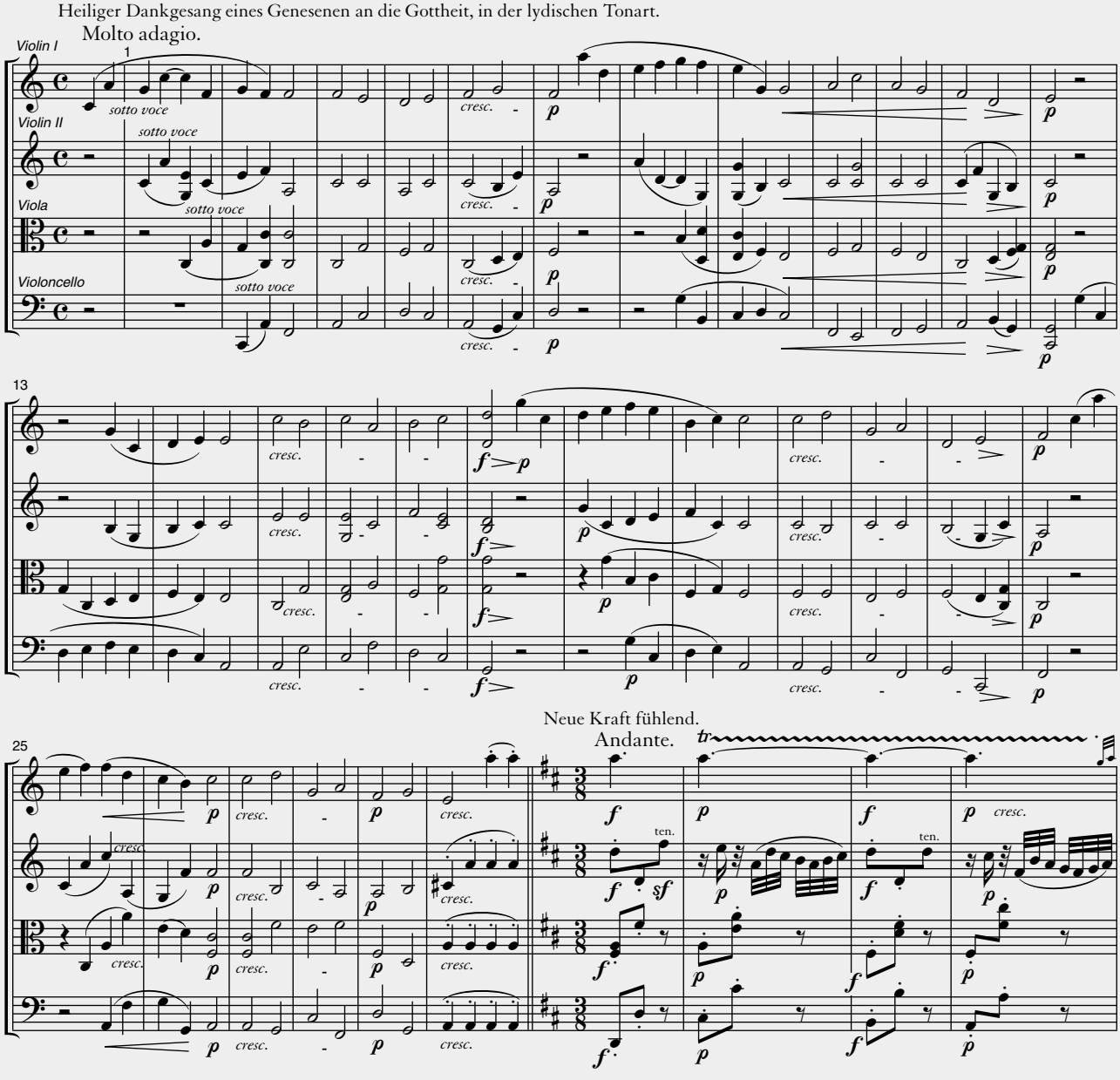
ing intervals, and revealed as those intervals were unfolded. Here the opening interval is itself the singularity.

Having created a new and higher conception in the mind of the listener, Beethoven now puts the listener to work exploring the implications of this discovery. First, in measure 11, the 'cello condenses the first eight measures into a singing line played in its highest register (A-B-C-B-A-G♯), ending ironically on the leading tone (G♯), the same tone on which the piece began.

These tones have been abstracted from the opening eight measures, in the manner Cantor defines for the generation of transfinite numbers; that is, each tone played by the 'cello in this measure, is heard in relationship to the tonality defined in the first eight measures.

For example, in measures 103-106, the entire quartet restates *fortissimo* the first violin's opening line, which itself is a projection from the 'cello's opening [SEE Figure 20]. In measures 193-202, the opening notes are juxtaposed to the 'cello's abstraction, forming a new thought-object from the combination of the two [SEE Figure 21].

FIGURE 22. *Ludwig van Beethoven, String Quartet Op. 132 in A major, third movement, measures 1-34.*



Now, look at the previously mentioned third movement. This movement is composed of five sections: three are marked *Molto Adagio* and written in the Lydian mode, alternating with two marked *Andante* and written in D major [SEE Figure 22].

The movement begins with one of the *Molto Adagio* sections. Here, the quartet again assumes the role of an imitation human vocal choir, singing, as a canon, this holy hymn of thanks to God. These sections are written solely using the eight tones of the Lydian mode, with no sharps or flats, yet there is no lack of development.

The first violin starts alone, ascending a major sixth (C-A) which crosses from a low to a middle register. The violin then descends a whole step to G, and ascends a fourth to C. At the same time, the second violin enters, repeating the ascending major sixth (C-A), but then descending an octave to G in the low register, and then repeating the first violin's ascending fourth to bring it back to its original C [measure 1]. The second violin also adds an E, making explicit the minor third implied by the major sixth (C-A). On the last two beats of this measure, the viola enters, in its low register, repeating again the rising major sixth (C-A), and then continues the line in the next measure, dropping to G and ascending to C, as the 'cello enters with the ascending sixth (C-A) [measure 2].

So in these first two-and-a-half measures, the intervals, ascending sixth, descending whole-step, and ascending fourth, are played as a sequence horizontally (over time) as well as vertically (simultaneously), explicitly directing the listener to "hear" the interval between the intervals. Here the audible singularities generated by complementary intervals—ascending in comparison with descending—and registration, are clearly heard.

In measures 6-8, these intervals are projected and inverted. The first violin, in a high register, starts on A, descends a fifth to D, ascends step-wise a fourth to G, descends step-wise a minor third to E, and finally descends a major sixth to G. The second violin follows the first, except the descending fifth (A-D) is in a lower register, and then it descends a fifth to G—contrary to the first violin's ascending fourth to G. The viola enters with the descending fourth (A-D), but the 'cello introduces something new, a descending minor sixth (G-B) hearkening back to the ascending minor sixth (A-F) of the first movement. This generates the Lydian interval F-B between the 'cello and the first violin, which is generated again two beats later between the viola and second violin.

In measures 12-13, these same intervals are projected in the 'cello, down and into a different register, to G; they are then projected up into a different register in measures 18-19, by the first violin. In measures 24-25, we are back to the opening, but in different registers.

As this section unfolds, the listener seeks to form a One, but because of the ambiguous way the intervals are presented, that One cannot be associated with any particular key or succession of keys. Instead, the listener's mind must form a One that is "above" the separation between keys. Compare this to the "choral" opening measures of the first movement, which achieve a similar effect, but from a different direction, so to speak.

The thought-object thus defined is a new and higher conception of the ordering of the well-tempered system.

The entire *Molto Adagio* is brought into a One with the abrupt shift to the *Andante* at measure 31. Suddenly, the quartet switches to D major, formed by changing the F to F♯ (the Lydian of C) and the C to C♯ (the Lydian of G). Beethoven subtitles this section "Neue Kraft fühlend" ("Feeling new power"), something experienced immediately by the listener.

With the unfolding of this section, the listener forms two distinct objects in the mind: the One associated with the *Molto Adagio* and the One associated with the following *Andante*. These now form a new "unheard" One in the mind.

The *Molto Adagio* returns, but this time changed.

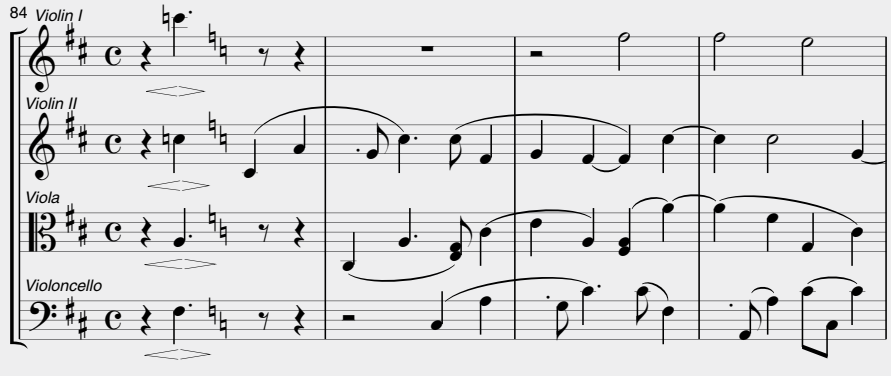
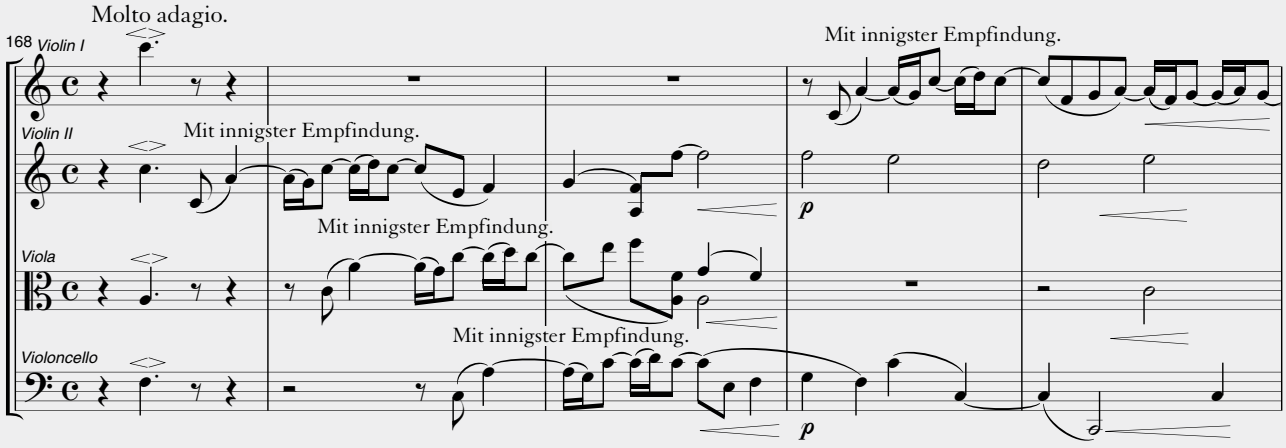


FIGURE 23. *Ludwig van Beethoven, String Quartet Op. 132 in A major, third movement, measures 84-87.*

FIGURE 24. *Ludwig van Beethoven, String Quartet Op. 132 in A major, third movement, measures 168-172.*



The opening intervals are the same (C-A-G-C), but the duration of the G and the second C are cut in half, and are now played as eighth notes, creating a greater density of effect [SEE Figure 23]. This more developed section is again compared in the mind of the listener with the previous two sections, forming yet again a new One.

After thirty-one measures, the *Andante* returns. This is again followed by the *Molto Adagio,* this time marked, "Mit innigster Empfindung" ("With more fervent sentiment") [SEE Figure 24]. Now Beethoven directs the listener to combine everything previously heard, into a newer One. This is achieved by increasing the density yet again, through a rhythmical change and adding a D, which references the *Andante* section, to the generating intervals (C-A-G-C-D-C). This creates in the mind a combination of the seemingly disparate previous *Molto Adagio* and *Andante* sections. This combination reveals an even greater potential implicit in this new and higher conception, lifting the listener to new powers of thought and reaching a peak with the condensation articulated in measures 191-192 [SEE Figure 25].

Beethoven did not limit the new musical conceptions presented in Opus 132 to just one composition, and it were useful, before ending this report, to point the reader to other examples from among the late quartets, so that you may explore them for yourself.

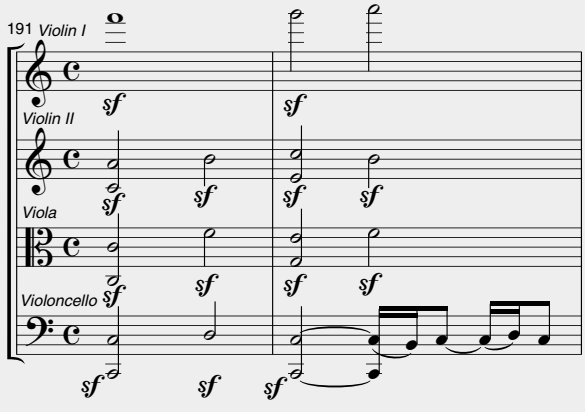
In Opus 131 in C♯ minor (written after the Opus 132, although published earlier), for example, Beethoven opens with a fugue generated from an ascending and descending major third, separated by a half-step. [SEE Figure 26]. These intervals, like the opening to Op. 132, are on the boundaries and generate ambiguities, such as; is the B♯ to C♯ the leading tone to the tonic of C♯ minor or is it the third to the fourth of G♯ minor? From this Beethoven unfolds the longest of his late quartets.

Or, we have the extraordinary "Große Fuge," in which Beethoven composes an entire fugue from a motivic idea made up wholly of singularities generated by the boundary conditions embedded in the well-tempered system [SEE Figure 27].

Looking Back

Now, look back at the four compositions: Haydn's Op. 33, No. 3; Mozart's K. 464; Beethoven's Op. 59, No. 2; and Beethoven's Op. 132. Construct in your mind, as a One, the successive increases in conceptual power, won

FIGURE 25. *Ludwig van Beethoven, String Quartet Op. 132 in A major, third movement, measures 191-192.*



for us by the creative work of over forty years by three of the greatest geniuses humanity has ever produced. From our vantage point, looking back, we can see the kernel of each successive development embedded in the previous one. It appears continuous—but it wasn't. For each successive breakthrough occurred only by a discontinuous leap, secured solely through the creative powers of the composer—the same creative powers which, through these compositions, we may sometimes glimpse in ourselves.

FIGURE 26. *Ludwig van Beethoven, String Quartet Op. 131 in C♯ minor, measures 1-17.*

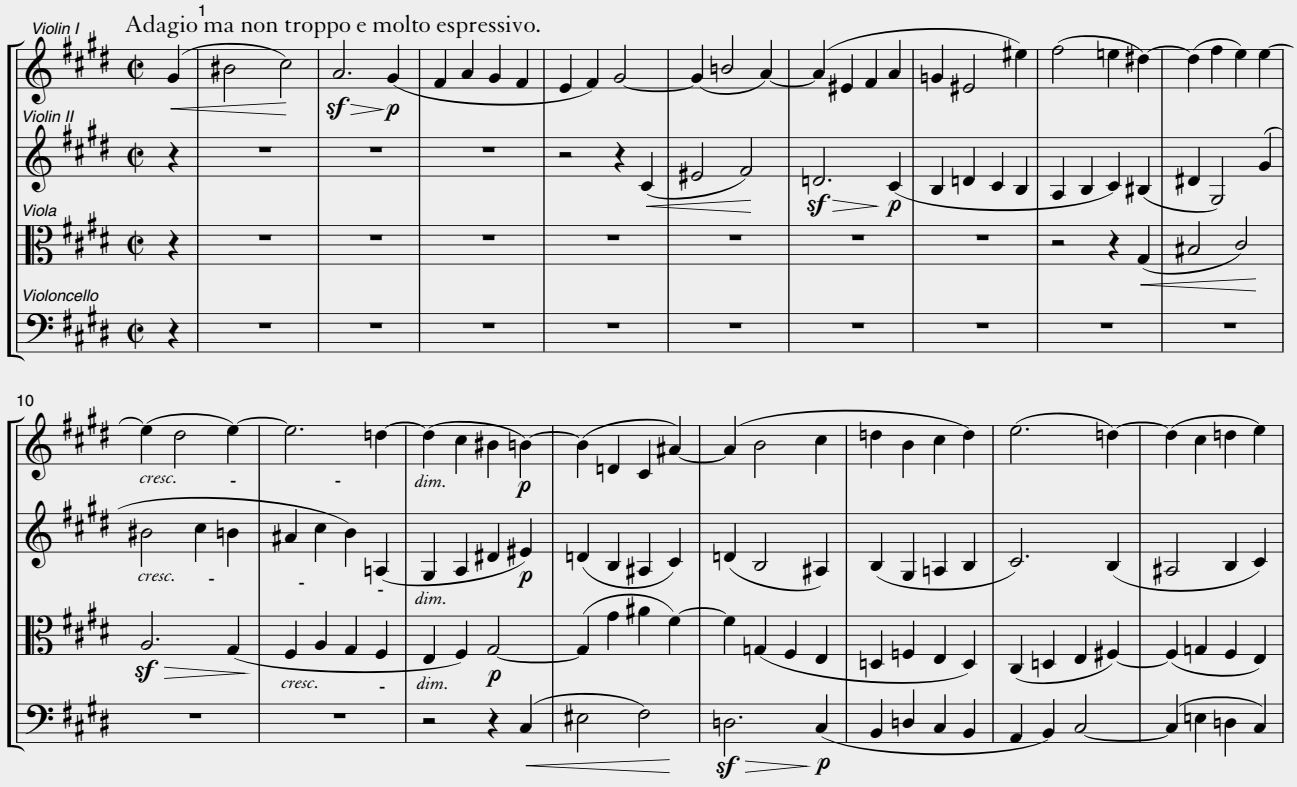
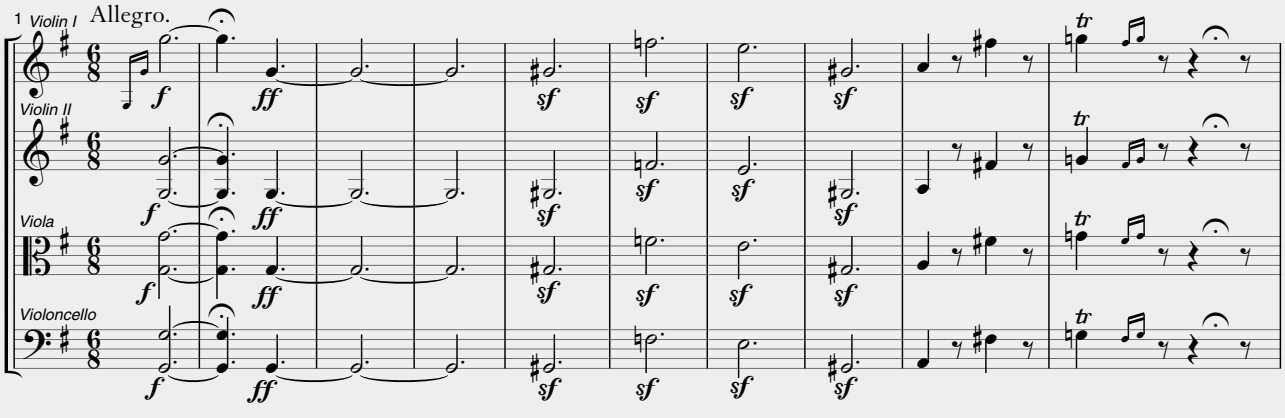
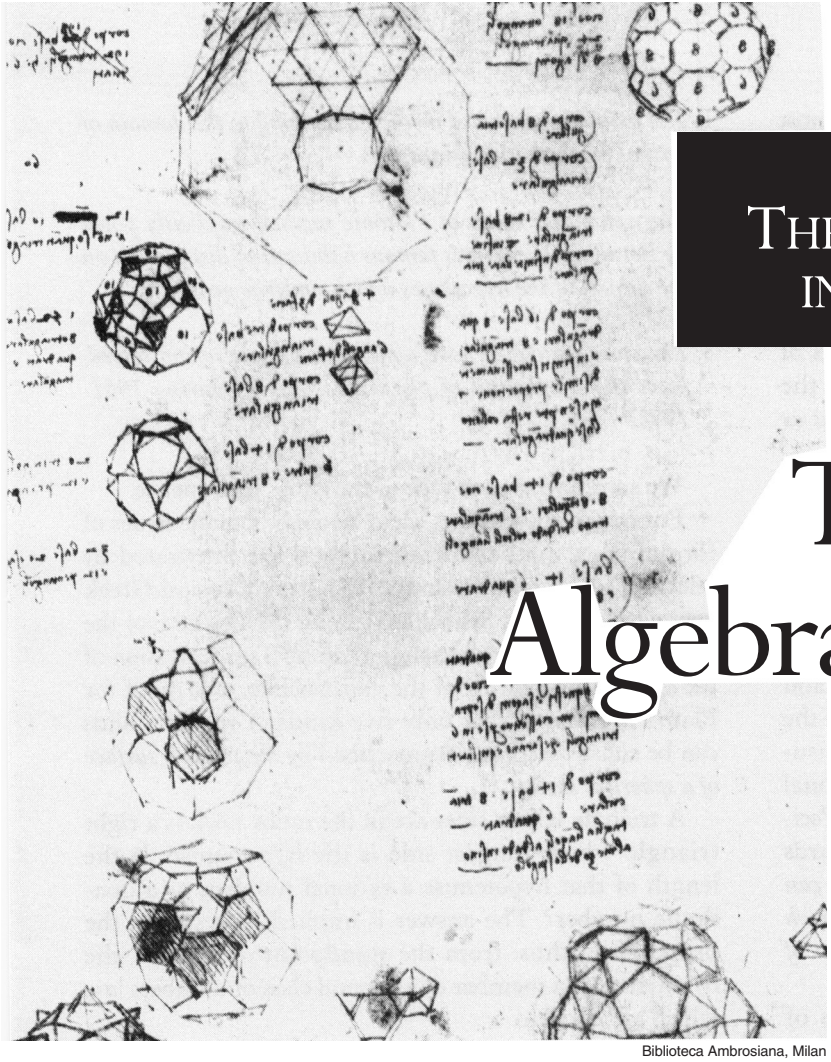


FIGURE 27. *Ludwig van Beethoven, "Große Fuge" Op. 133, measures 1-10.*





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SYMPOSIUM
THE CREATIVE PRINCIPLE IN ART AND SCIENCE

The Fraud of Algebraic Causality

by Lyndon H. LaRouche, Jr.

October 3, 1994

Die Unterscheidung, welche Newton zwischen Bewegungsgesetzen oder Axiomen und Hypothesen macht, scheint mir nicht haltbar. Das Trägheitsgesetz ist die Hypothese: Wenn ein materieller Punkt allein in der Welt vorhanden wäre und sich im Raum mit einer bestimmten Geschwindigkeit bewegte, so würde diese Geschwindigkeit beständig behalten.

—Bernhard Riemann[1]

The central fraud which is incorporated in today's generally accepted classroom mathematics, is succinctly exposed by aid of reference to the fact that the Galileo-Newton algebraic formula for gravitational attraction is derived directly from Kepler's Third Law, and, therefore, according to all formal appearances, is perfectly consistent, algebraically, with that Third Law.[2]

The crux of the point is the following. Despite that formal consistency, that notion of *cause* which is central to the mathematical physics of Aristotle, Galileo Galilei, and Isaac Newton has no ontological existence in Kepler's original discovery of this principle of universal gravitation. Despite the algebraic consistency which appears to underlie the two calculations for gravity, there is an axiomatically irreconcilable ontological difference in physical meaning.

This axiomatic difference accounts, inclusively, for the fact that Galileo and Newton put a merely mechanistic notion of reaction, the term "cause," where Kepler puts the term "reason."

1. *The Collected Works of Berhnard Riemann* (*Bernhard Riemann's Gesammelte Mathematische Werke*), ed. by Heinrich Weber (New York: Dover Publications, 1953; Liechtenstein: Sändig Reprint Verlag Hans R. Wohlend), p. 525. ("The distinction which Newton makes between laws of motion or axioms on the one hand, and hypotheses on the other, does not appear to me tenable. The law of inertia is the hypothesis: If there did exist such a thing in the universe as an isolated material point, and if it moved in space at a determinate velocity, then this velocity would be maintained indefinitely.")

2. Lyndon H. LaRouche, Jr., *The Science of Christian Economy,* in *The Science of Christian Economy and Other Prison Writings* (Washington, D.C.: Schiller Institute, 1991), Appendix V, "How Newton Parodied Kepler's Discovery," pp. 374-377.

Leonardo da Vinci, "Sketches of Polyhedra and Truncations."

Examining this paradox leads us directly to the most profound, persisting conflict within mathematical physics as taught throughout the recent four centuries. Close examination of that paradox will show, that the origin of the issue is the fact that all modern Aristotelians, and other philosophical materialists,[3] either deny the existence of creativity, or, like René Descartes and Immanuel Kant, relegate its existence to the unintelligible domains of superstition: either Kantian "intuitionism" or, in the extreme of the Orphic cult's heritage, a gnostic's *deus ex machina*.

The crucial issue to be considered here, is Galileo's twofold violation of those most fundamental principles of the scientific method which had been employed by all leading discoverers during the preceding two millennia. To wit, *firstly,* Galileo violates the principle of scientific rigor established by Plato's Academy at Athens: the principle by means of which Plato, and also his students and collaborators Eudoxus and Theaetetus, demonstrated the existence of a class of magnitudes called "incommensurables," the which could not be derived from rational numbers. *Secondly,* Galileo falls prey to the fallacy of "scientific objectivity"; he recklessly and foolishly disregards the central principle of Plato's Socratic method: *there can be no competent method of knowledge of the universe which does not account adequately for the existence of the act of valid discovery of a new principle by the knower.*[4]

Those two, fundamental, axiomatic blunders of method by Paolo Sarpi's protégés Galileo and Francis Bacon, permeate all the distinctive features of the work of Galileo, Descartes, and Newton. These are the characteristic, hereditary flaws of generally accepted classroom mathematics today. Examination of those two cited, commonplace axiomatic blunders of accepted classroom and textbook practice, serves here as the appropriate basis for examining the fallacy in the popular notion of "causality."

The Principles of Scientific Method

Within the internal history of science to date, there are three types of axiomatic issues implicitly posed by contrasting Kepler and Galileo on the notion of causality:

1. *The axiomatic issues of method belonging to the domain of formal mathematics (geometry).*

2. *The axiomatic issues of Platonic method implicitly posed by Bernhard Riemann's famous habilitation dissertation on the subject of the hypotheses which underlie geometry.*[5]

3. *The epistemological issue which this present writer solved, from the standpoint of physical economy, during 1951-1952.*[6]

We summarize each type of the issues in sequence.

For our purposes here, the relevant axiomatic issues of formal (e.g., mathematical) method are illustrated by selecting two famous examples from the Classical Greek geometry of Plato's School of Athens: (1) The case of the hypotenuse of the 3,4,5 triangle; and (2) The derivation of the Golden Section from the construction of a proof for Plato's argument, that only five kinds of regular solids can be constructed as circumscribed by *the interior surface of a spherical shell.*[7]

A triangle whose sides are in the ratios 3,4,5, is a right triangle whose longest side is the hypotenuse. Is the length of that hypotenuse a rational number, or a quadratic number? The answer is implied by restating the proposition, thus: from the standpoint of algebra, the hypotenuse is a member of a general class of numbers $|a|_i$, which are equal to

$$[\ (b_i^2 + c_i^2)^{1/2}, \quad |a| < (|b| + |c|)\ ].$$

It belongs to a class of quadratic magnitudes, which the Classical Greeks included among the "incommensurables."

That solution is clear only from the standpoint of geometry, if not so clear from the standpoint of a modernist number theory or algebra.[8] From the standpoint of the methods of geometry, two magnitudes cannot be termed "congruent" merely on the basis of evidence that their agreement appears to lie within less than some

3. The inclusion of the Aristotle of his *Organon* among the materialists here, is no mistake. *Philosophical materialism* is any dogma which is consistent with the axiomatic assumption that ontological knowledge of the actual world is based upon acceptance of formal consistency among nominal definitions of sense-perception, excluding ideas. Thus, all anti-Platonists are intrinsically *materialists:* Eleatics, sophists, Aristotelians, empiricists, positivists, etc.
4. This is also the Christian Platonist's method of *docta ignorantia,* associated with Nicolaus of Cusa's De Docta Ignorantia and later writings.
5. Bernhard Riemann, "*Über die Hypothesen, welche der Geometrie zu Grunde liegen,*" in *Collected Works, op. cit.,* pp. 272-287.
6. Lyndon H. LaRouche, Jr., "The Truth About Temporal Eternity," *Fidelio,* Vol. III, No. 2, Summer 1994, pp. 19-23.
7. Lyndon H. LaRouche, Jr.. "An Economist's View of Gauss's 'Pentagramma Mirificum,' " *21st Century Science & Technology,* Vol. 7, No. 2, Summer 1994, pp. 44-55.
8. Once the Academy at Athens had carried the work of the Pythagoreans to the point of demonstrating conclusively the existence of "incommensurables," it was sheer professional incompetence to attempt to derive a mathematics from the standpoint of the so-called "natural numbers" alone. All formal mathematics must be defined as a product of a set of underlying geometrical axioms; any professional's defiance of the obligation to present proofs in geometrical terms is therefore a fraud against science, a willful *fallacy of composition.*

assigned margin of error. *In geometry, two objects are congruent only if there is coincidence inherent in the ways in which the two are respectively generated, just as, in biology, one distinguishes between marsupials and placental mammals.* In other words, the "equals" sign of formal algebra and the "congruence" sign of geometry are not interchangeable.

Now, consider our second example from mathematics as such.

The usually cited, calculated, algebraic value for the Golden Section is approximately double the cosine (ratio of two sides) of an included acute angle of a certain right triangle, for which the side of a regular pentagon is the hypotenuse.[9] To superficial appearances, this might be seen as either equal, or approximately the value obtained from calculating the algebraic magnitude of the Golden Mean. The widespread error lies not in this calculation as such, but in the assumption that this number is a coefficient which defines the harmonic orderings which Pacioli, Leonardo da Vinci, *et al.* associate with living processes, and Kepler with both living processes and planetary orbits. The commonplace error of assumption made in that way is paradigmatic for the fallacy of Galileo's and Newton's algebraic representation of causality.

Consider here the same issue of principle posed by the hypotenuse of a 3,4,5 triangle. In mathematics (i.e., geometry), *a phenomenon is what it is generated to become. How do Pacioli, Leonardo da Vinci, and Kepler generate the pentagon from which the indicated calculation of a Golden Section's magnitude is derived?* They generate it as Plato did. Since the other four regular solids of the Platonic series are derivatives of the regular dodecahedron, that dodecahedron is uniquely the characteristic of a *transfinite* process of construction, by means of which it is demonstrated that only five kinds of regular solids can be inscribed within the interior surface of a spherical shell.

Since the facets of the dodecahedron are each regular pentagons, the Golden Section gains the derived significance of the process of geometric construction by means of which the pentagon-faceted dodecahedron's uniqueness is demonstrated. Therefore, the determination of the Golden Section is not simply algebraic; it is, rather, the process of construction by means of which the uniqueness of the *spherical* dodecahedron is demonstrated.

It is not the numeric value of the Golden Section which defines the harmonic orderings with which living processes, planetary orbits, etc., are associated. Rather, this harmonic behavior reflects the fact that we exist in a universe which is bounded by a certain curvature of "physical space-time." The harmonic orderings of living processes, planetary orbits, etc., are not a function of some algebraic value given to the Golden Section; they are reflections of the boundedness, the "curvature" of the "physical space-time" in which we exist.

As Plato emphasized, and Cusa, Pacioli, Leonardo da Vinci, and Kepler after him, the domain of space-time geometry has certain "externally" imposed axiomatic features which can be explained only in terms of the fact that that geometry (as we, ourselves) exists in a bounded "physical space-time" of a definite curvature. It is the construction, by means of which we reconstruct Plato's conception of the uniqueness of the Five Platonic Solids, which defines the derived Golden Section's necessary significance to lie not in its algebraic approximation, but rather in its origins as a member of a set generated in this definite way.

This principle of method in Classical mathematics underlies the Athens Academy's notion of non-rational magnitudes called "incommensurables." These include the algebraic (Euclidean) magnitudes, the non-algebraic (transcendental), and the higher transfinite (e.g., the Georg Cantor *Aleph* series). These are ranked in that order by the relative *cardinality,* or *power* of each, such that the type which is of higher cardinality subsumes formally all those types which are of lower cardinality, but none of relative lower cardinality can be made congruent with a higher. In the last type, the *Aleph* series (of virtually null-dimensional magnitude of each term), only relative cardinality is implicitly countable: in first approximation, as a power-series. Thus, it was already clear from the work of the original discoverer of the transcendental value of π, Nicolaus of Cusa, that no algebraic number could ever become congruent with π.[10]

This brings us to the matter of the twofold point of Bernhard Riemann's *Hypothesis* dissertation of 1854.[11] The document speaks for itself, so let us limit ourselves here to drawing out the most relevant implications.

Geometry and Physics

The human perceptual apparatus represents the world of sensory experience to us primarily in terms of vision and hearing.

The geometry of Euclid is an attempt to codify certain assumptions, those which we might tend to make respecting the nature of the visual field as such, without our considering adequately the ontological implications

9. Draw a straight line connecting the first and last of three successive vertices of a regular pentagon. Consider the acute angle formed between either of the sides of the pentagon and this added straight line: $\pi/5$ (e.g., 36°). Half of the length of the constructed straight line is represented by cos 36°.

10. Nicolaus of Cusa, *De Docta Ignorantia,* and *De Circuli Quadratura.*

11. Riemann, *Collected Works, op. cit.*

of the physical developments which we situate as occurring within that visual field.

In contrast to that, study of speech and hearing shows that our physical apparatus of speech and hearing presents a world of vocalized language and singing which is ordered according to harmonic principles inconsistent with the naive axiomatic assumptions of a Euclidean geometry, for example.[12]

Plato is the first known discoverer to present to us an intelligible union of the two, vision and the naturally determined harmonic ordering of vocalized language. Plato shows us, by aid of reference to the five Platonic Solids, that there are harmonic orderings of phenomena in the visual field which correspond to the naturally determined well-tempered octave scale of harmonics in the domain of hearing.

As Riemann emphasized, in the relevant location, he was the first known to have posed the implications of Plato's standpoint in a certain fresh way. This is a discovery which he dates to March 1, 1853, which is the subject of his June 10, 1854 habilitation dissertation. This carefully composed, succinct writing is among the most lucid and profound expositions in all scientific literature. Yet, virtually all the generally accepted authorities commenting on this matter have done contortions to evade certain crucial features in the plain meaning of the text. On this account, one must put to one side all of the generally accepted authorities on the subject of this dissertation, including the partial misreading by Albert Einstein, for example; take Riemann plainly at his word in the original text.

Let us begin, as Riemann does, with the case of space and time as represented by Euclid.[13] It is a natural blunder, that we should attempt, at first, to imagine the visual field as extended indefinitely in straight lines—forward and back, side to side, up and down, and events as occurring at points referenced by means of these straight lines. It were inevitable, that as we take into account such qualities of physical space-time as mass, chemical reactions, and so on, we should attempt, however unsuccessfully, to represent physical processes as a system of events occurring within a Euclidean model of space-time.

It should occur to us, that in attempting to represent physical processes within the terms of space-time, we are representing the mere shadows which the reality of physical processes casts upon our mental image of the kind of "empty space-time" which is the subject of Euclid's *Elements.* We are thus in Plato's "Cave," as famously identified in his *Republic.*

Is there then some means, by aid of which we might supersede the bounds of that nominalist nightmare which is our reliance upon such mere shadows of our visual imagination? In the entirety of his searches through the history of mathematics, Riemann professes to have discovered only three hints as to how this problem of the visual imagination might be superseded. Two of these hints were provided by Carl F. Gauss, echoing the earlier work in the same direction by Plato's Academy at Athens during approximately the two centuries preceding 200 B.C. The third and last was provided by Riemann's own earlier reflections upon the work of the anti-Kant philosopher Johann Friedrich Herbart.[14] On the third point, Riemann's insight, while crucial, indicates the direction in which a solution may be sought; the solution was first supplied by this writer's original discoveries of 1951-1952.[15]

Go back to the Third Century B.C., to the great academician Eratosthenes, whose measurements estimated the diameter of the Earth, by a margin of error of about fifty miles.[16] Similarly, those ancients made credible measurements[17] of the distance of the moon from the Earth, and of the Earth from the sun.[18] We should view these accomplishments of Classical Greek mathematics as addressing the shadowy paradoxes identified by Plato, and by Riemann's habilitation dissertation. We stand upon what appears to us to be the flatness of the surface of the sea or lake on a calm day, and yet we are able to make measurements of shadowy images through which the reality of the sphere-like shape of our planet, and of the distances to the moon and sun are shown to us.

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12. On the derivation, and proof of the well-tempered system of J.S. Bach *et al.,* see *A Manual On the Rudiments of Tuning and Registration, Vol. I,* ed. by John Sigerson and Kathy Wolfe (Washington, D.C.: Schiller Institute, 1992). Just as Bach's chorales prove Helmholtz's apologist, Alexander J. Ellis, to have been a fraud on the empirics of tuning [see Herman Helmholtz, *The Sensations of Tone,* ed. by A.J. Ellis (New York: Dover Publications, 1954)], so the study of the natural genotypes of adult singing-voice species, their naturally determined registrations, and the problems of combining these voice-species in vocal polyphony define the well-tempered tuning as the only "natural" tuning. Confirming B. Riemann ["Mechanik des Ohres," in *Collected Works, op. cit.,* pp. 338-350], in contrast to the fraud on this same matter by Helmholtz, the construction of the human ear also conforms to this well-tempered tuning centered upon C = 256 and A = 430-432.
13. *The Thirteen Books of Euclid's Elements,* trans. by Thomas L. Heath (1925) (New York: Dover Publications, 1956); Riemann, *Collected Works, op. cit.,* pp. 272-273.
14. Riemann, *Collected Works, op. cit.,* pp. 273, 276, 507-520.
15. Lyndon H. LaRouche, Jr., "On LaRouche's Discovery," *Fidelio,* Vol. III, No. 1, Spring 1994.
16. When considered in respect to the Earth's polar diameter.
17. Credible, considering the instruments available.
18. The solar hypothesis was well established among the Hellenic astronomers of that period, centuries before the hoaxster Claudius Ptolemy.

Riemann posed the challenge of doing this in a more general, more modern fashion: decoding the shadows which physics casts upon the visual imagination. In other words, to apply the methods of inference employed by Classical astronomy and Earth geodesy to physical phenomena in general. About two thousand years later, Carl F. Gauss brought the application of these ancient Greek methods of refining astronomical and geodetical measurements into a state of mathematical elegance. We must view Riemann's emphasis in this historical light; Gauss' advanced work on these matters of astronomy, geodesy, and earth-magnetism, provides clues for attacking the shadowy paradoxes of sense-perception.

Riemann's work to this effect may be treated in terms of two functionally interdependent phases. In the first phase, one must consider the methods of measurement to be applied to the geodesy of the paradoxical shadow-realm. This may be identified conveniently as the challenge of measuring the "curvature" of *physical space-time:* reconstructing an image of the physical process from study of the behavior (change) of the shadow which that process casts upon the shadow-world of visual-perceptual space-time. It is useful to name this mathematical problem: "the *geodesy* of physical space-time." In the second phase, we are considering the "subjective issues" which Riemann identifies under the rubric of his criticisms of the work of Herbart: the means by which the human mind may render intelligible to itself those methods of discovery by means of which mankind's power over nature is increased *per capita* and *per* square kilometer. In the second phase, we are addressing the paradoxical question: "What is human knowledge?"

Perhaps the simplest, and also relevant way to grasp Riemann's notions of a general geodetic of physical space-time, is to look at the apparent algebraic consistency of Kepler's and Newton's formulas for gravitational relationships.

Given, the Newton version of the formulation; ask: what is the *curvature* of the physical space-time in which this algebraic formulation is applicable? The answer should be seen immediately; in first approximation, Newton's formula requires a universe whose physical space-time curvature is determined by that set of harmonic relations which Kepler derived from the beginning-point of Pacioli's and Leonardo da Vinci's treatment of the principle of the five Platonic Solids. This should be viewed as a continuation of the successes of the Classical Greeks, such as Eratosthenes, in discovering the measurable geometry of the solar system from measurements made among the shadows locally visible on the surface of the Earth.

We must think of the primary features of our perceptual apparatus, vision and hearing, as screens upon which the shadow of physical reality is projected. We see then the absurdities which must result if we tolerate the *nominalist* dogma of relying simply upon sense-perceptions, in the way in which the empiricists and other materialists do, and Aristotelians more generally, too. By appropriate "geodetic" mappings of the efficient form of relations ("actions") among physical phenomena, we infer a geometry of a different curvature than the zero-curvature space-time of the Euclideans, of Galileo, of Descartes, of Newton. The result we call "physical geometry," or the "geometry" of "physical space-time," a space which is different than the space-time of simple perception, a "physical space-time" whose "geometry" is not the linear (deductive) geometry of visual perception which Euclid's *Elements,* or the dogmas of Galileo, Fludd, Bacon, and Newton wrongly assume.

This illuminates more brightly the fact, that the efficient substance of physical reality exists for man only in the form of a species of ideas which are not the kind of ideas we associate with sense-perception.

The notion of a Riemannian "curvature" of "physical space-time," is the kind of idea which Venetian Aristotelian philosophers and their students, such as Pietro Pomponazzi, Francesco Zorzi ("Giorgi"), Paolo Sarpi, Francis Bacon, Galileo Galilei, Antonio Conti, Isaac Newton, Giammaria Ortes, Lord Kelvin, and all the modern empiricists and positivists, have insisted must be outlawed from science. That was the contention of Paolo Sarpi and his assets Fludd, Galileo, and Francis Bacon, against the work of Leonardo da Vinci and Johannes Kepler. This was the contention which the Venetian Conti and his puppets, such as Voltaire, Giammaria Ortes, Francesco Algarotti, David Hume, Algarotti's pawn Leonhard Euler, *et al.,*[19] made against the *Theodicy* and *Monadology* of Leibniz.[20] This is key to the irreconcilable difference between Galileo's and Newton's notion of *causality,* in contrast to Plato's, Nicolaus of Cusa's, Leonardo da Vinci's, and Johannes Kepler's notion of *reason.*

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19. The members of Frederick the Great's Berlin Academy Voltaire, Maupertuis, and Algarotti were each and all assets of the Venice intelligence service's Abbot Antonio Conti, the latter the inventor of the Newton myth and the coordinator of Europe-wide operations of defamation and other harassment against Gottfried Leibniz and Leibniz's scientific authority. Voltaire, like Maupertuis and Algarotti, was a confederate of Pisa's Abbot Guido Grandi, and also of Giammaria Ortes, in Conti's project to secure the rehabilitation of Galileo Galilei, and to promote the highly exaggerated reputation of Newton as the "British Galileo." Leonhard Euler was for twenty-five years also a member of that Academy, where he functioned as a "mathematician/hod-carrier" for the anti-Leibniz campaigns of Frederick's "favorites," Voltaire, Maupertuis, and Algarotti.
20. *Cf.* Lyndon H. LaRouche, Jr., *Christian Economy, op. cit.,* Appendix XI, "Euler's Fallacies On The Subject of Infinite Divisibility and Leibniz's Monads," pp. 407-425.

So, Riemann situates as the third clue for his dissertation, his own earlier commentaries upon the work of Herbart. We must depart from the Aristotelian empiricist's preferred domain of mere sense-perception, into the domain of that which Plato defines as "ideas," Leibniz as "monads," Riemann as *Geistesmassen,* and the present writer as "metaphor" or "thought-objects."

The Principle of Higher Hypothesis

The principles of human knowledge are not to be first adduced from what modern times recognize as "mathematical physics," but rather from the standpoint of Classical forms of poetry, tragedy, music, and of plastic art-forms such as the paintings of Leonardo da Vinci and Raphael. Nonetheless, it is not merely convenient, but also necessary today, to see the reflections of creativity upon the domain of mathematical formalism. We pose the proposition: how does formal mathematics identify the true principle of *metaphor,* as in poetry, tragedy, and Classical forms of musical composition?

Considered from the standpoint of formal mathematics, such as a geometry modelled upon the conventional Euclid, all human knowledge appears as the product of a combination of four respectively, successively higher levels of intellectual methods of discovery.

On the lowest level of development of human knowledge, there is the method of formal logic. In this case, an expandable list of mutually consistent theorems is underlain by a common fixed set of assumptions, such as the axioms and postulates of a so-called Euclidean geometry. (It is not necessary to explain here why such an array is sometimes called a "theorem-lattice.") On this level, "discovery" is expressed by the proof of the consistency of some new proposition, a proof which establishes that proposition as an additional theorem of the theorem-lattice as a whole.

After that, all higher levels of discovery of valid new principles of human knowledge lie within the domain of *hypothesis,* as Plato defined this.

Given, some well-defined phenomenon, such as an experimental demonstration, whose existence defies consistency with an existing theorem-lattice. That anomalous, or, better, paradoxical result may be solved only by overturning some part or more of the set of interconnected axioms and postulates constituting the "hereditary generating principle" of the relevant theorem-lattice. Once that correction to the array of axioms and postulates is made, the new theorem-lattice defined by this change of "hereditary germ-principle" must be reconciled with the evidence pertaining to the old, formerly established theorems of the overturned theorem-lattice.[21] A validated such axiomatic revolution, producing a new theorem-lattice superior to the old, is a simple *hypothesis.*

Consider the next, higher-order form of discovery.

To illustrate the meaning of the term *higher hypothesis,* reference the given list of the four general levels of cardinality ("power") in mathematics. Looking back across the internal history of mathematics from the vantage-point of Cantor's higher transfinite orderings, the succession of axiomatic-revolutionary changes defining the succession *rational, algebraic, transcendental, Alephs* mathematical types of cardinalities is derivable by a constant method of hypothesis-making. So, in the language of Plato's *Parmenides,* the conception of this type of constant method of hypothesis-making is a *One,* relative to the four *Many* (the four types of cardinalities).[22]

In the course of time and development, valid types of improvements in methods of hypothesis-making have been discovered. These changes do not render useless the earlier methods, but rather introduce new dimensions of power and range of capabilities to human discovery. Plato identifies the principle subsuming such successive advances in quality of higher hypothesis as *hypothesizing the higher hypothesis.* This principle (of hypothesizing the higher hypothesis) ranks higher hypothesis in order of cardinality (relative power); this principle is a One relative to the Many of the arrayed sequence of higher hypotheses.

It is necessary to extend these notions from the scope of the mathematical example given, to include the higher domain of "physical geometry"—"physical space-time," the domain of physics which is reflected as shadows in the field of our visual imagination, our mathematical vision. As Plato pioneers in this work, the examination of the hypothetical conditionality of a geometrical mathematics as such, frees our minds from the hopscotch of logical formalism, and prepares us to resituate mathematics as a tool for mapping the geodesy of the shadows which physical space-time casts upon the visual imagination.

It is the customary folly of the classroom (and elsewhere), to argue that isolated experiment is the basis for

21. For example, the development of so-called "non-Euclidean geometries," as by Gauss, Bolyai, Lobachevski, and Riemann, superseding "Euclidean" formalism.

22. Just as simple hypothesis, expressed as an interdependent set of axioms and postulates, defines the principle of deductive consistency, so a principle of generation of a type of hypotheses, higher hypothesis, defines a higher, governing "consistency" among all members of array (lattice) of that type. Thus, the combination of Euclidean and all non-Euclidean formal geometries is a Many subsumed by a subsuming principle of purely constructive geometry, a principle which subsumes all possible formal geometries developed in the same axiomatic-revolutionary way.

proof of theorems. A popularized sort of pseudo-scientific illiteracy argues that proof lies in the "repeatability" of the phenomena. The function of such experiments is at best negative: nothing is proven by such an individual experimental test of a particular theorem; rather, experiment aids us in uncovering not only outright errors, but, more significantly, the kinds of anomalies which create paradoxes in the set of assumptions brought to the design and reading of the experiment, or to a kindred observation, such as an astronomical one.

The relevant quality of proof is located at no lesser level of conceptualizing than *higher hypothesis.* An historical overview of physical economy is the most immediately accessible illustration of this crucial point:

The only experimental proof of the truthfulness of a change in scientific method of axiomatic-revolutionary forms of discovery, is a resulting increase in the potential population-density of the human species. This is measured statistically as the correlative of changes in the level of realized scientific progress, and analogous forms of progress.

Emphasis is to be placed upon two readily observed sets of facts. First, improvements in the life-expectancy, health, and reproductive demography of society, as measured in dimensionalities of *per capita, per* household, and *per* square kilometer. Second, improvements in the productive powers of labor, also *per capita, per* household, and *per* square kilometer. These two observable sets of conditions are compared with the presence or absence of those changes in culture brought about through application, as technology, of the discoveries considered.[23]

The following two caveats must be included. Just as the intellectual authority of the discovery of a new theorem within a theorem-lattice rests upon a condition of consistency with the "hereditary" axiomatic principle of that theorem-lattice, so the authority of a particular new hypothesis rests upon the particular type of higher hypothesis to which that new hypothesis belongs. Thus, the putative intellectual authority of all such discoveries, of either variety, depends upon the validity of the type of higher hypothesis by which they are subsumed.

That is to emphasize, that every formalist form of theorem-lattice is underlain by a specific set of interdependent axiomatic assumptions: the lattice's underlying "hereditary principle." Each such principle is thus an hypothesis, an hypothesis which is an individual element of the Many hypotheses which are each and all subsumed by (generated by) a specific type of higher hypothesis.

The concept of higher hypothesis, in turn, is defined by the notion of hypothesizing any higher hypothesis as One of Many higher hypotheses. The One array of these Many higher hypotheses, is ordered by a principle of *change,*[24] the principle of change manifest as an ordering of the relative higher rates of increase of potential population-density associated with one choice of higher hypothesis, as compared to another. It is here that the primary form of existence *scientific truthfulness* is located within human knowledge.[25]

Therefore, a reaction to an action does not occur according to some constant mechanical principle, not according to causality as Galileo, Newton, *et al.* define a mathematical representation of their so-called "laws of motion." Rather, the rule is, that the reaction must be according to some universal lawfulness, implicitly God's Law, or *Reason.*

What is the form of God's Law? It would be plain blasphemy in the extreme to suggest that God's laws are fixed in the sense an Aristotelian method implicitly prescribes a fixed list of "Do" 's and "Don't" 's. We must bring into play the distinction which Plato makes between Becoming and Good: as Georg Cantor insists to pedagogically useful effect, the equivalent, contrasted notions of Transfinite and Absolute. The ultimate of the Becoming is a generalization, as a One, of the Transfiniteness which subsumes all possible hypothesizing of the higher hypothesis: the implicit notion of that timeless and universal principle of Higher Creative Intelligence whose self-change orders the ranking in power of the Many, all possible higher hypotheses. God the Creator, is no less than that, and His practice, His Law can be of no lesser quality than that. That, His Law is Reason; that which conforms to the principle of change known as higher hypothesis, is what Kepler and Leibniz signify by *reason.*

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23. See Lyndon H. LaRouche, Jr., "The Truth About Temporal Eternity," *Fidelio,* Vol. III, No. 2, Summer 1994, secs. IV-V, pp. 15-23.

24. The use of capitalized *One* and *Many* here is employed to stress the implicit paradoxes and solution-principle of Plato's *Parmenides.*

25. As noted in the already referenced "The Truth About Temporal Eternity," the generalized notion of hypothesizing the higher hypothesis is equivalent to Plato's idea of the *Becoming.* This notion exists in two forms. In the first, inferior instance, it exists as a *transfinite* conception, the *Becoming;* in the second, as an *absolute* notion, corresponding to Plato's *Good.* This equation of Cantor's "transfinite" and "absolute" to the "Becoming" and "Good," respectively, of Plato is qualified in the location referenced. The difference between the transfinite and absolute notions, is between "physical space-time" and the same universality of all possible "physical space-time" free of the distinctions derived from introducing the notions of space and time. In physical space-time, development is defined by its position in physical space-time; in the absolute, development is the One which subsumes every time and everywhere. That latter One is a principle of Pure, Efficient, Creative Intelligence.

The Physical Implications of This Distinction

Take as an illustration of this distinction the case of the development of the principle of *universal least action* by Leibniz and Johann Bernoulli.[26] Bernoulli's work on refraction of light in a medium of constantly increasing density, showed that curvature's manifest correspondence to the primary isochronic curvature, the cycloid. This is an example of a Riemannian unique measurement of the curvature of physical space-time, a measurement effected in terms of the shadows which the actual universe casts upon the domain of the visual imagination.

This demonstration satisfied the issues of both "shortest time" (brachystochrone) and "constant time" (isochrone). This showed, in terms of the preceding work of Christiaan Huyghens and Ole Rømer,[27] that the treatment of motion by the algebraic methods of Galileo, Descartes, and Newton must be superseded by the higher geometry of the transcendental domain.

That is sufficient identification of the brachystochrone case for our purposes here. The relevant point situated at the center of that case, is the relationship between Leibniz's notion of *least constraint*[28] and Kepler's use of *reason* where the empiricists put *cause*.

Formally, as the term may be attributed to Plato, Nicolaus of Cusa, Leonardo da Vinci, Kepler, or Leibniz, for example, *reason* signifies the rigorous employment of those faculties of valid discovery of principle coinciding with what has been termed "hypothesis" here, and in other of this present writer's locations.

This discovered principle has the approximate force of an estimation of *God's Law* [*natural law*], which the impulse for action in this universe must obey. The natural law's principle acts upon the impulse for action as a *constraint;* the bending of the impulse to that constraint may be viewed as analogous to a "bending" of the action according to what appears to our visual imagination as a curvature of physical space-time. The imagination of a bending of the shadows of reality serves thus as the representation, in a mathematical way, of our knowledge of the reality so reflected.

Thus, among the most relevant predecessors of Riemann's 1854 dissertation on hypothesis is the work of Johann Bernoulli and Leibniz, in using the characteristics of the general principle of refraction of light to demonstrate Leibniz's principle of *universal least constraint*.[29] The fact that the shortest distance in time corresponds to an isochronic pathway, the primitive cycloid, suffices to prove that vision itself is not located within the algebraic space of the Galileo-Newton notions of causality.

Leibniz, Bernoulli, *et al.,* employed this crucial experiment to discredit the reliance upon algebraic methods by the Cartesians and Newtonians, and to insist upon the non-algebraic (transcendental) domain instead. However justified and important that correction was (and remains), this must not be read to the effect of locating causality within the transcendental, rather than the algebraic domain. One must not forget the agency, creative reason, by means of which the ascension from the algebraic to transcendental domain was accomplished: one must focus upon *the act of discovery* which effected this axiomatic-revolutionary change to a mathematical domain of higher cardinality. From the standpoint of the claims to final authority by the high priests of today's generally accepted classroom mathematics, the implication of these two combined considerations—the matters of curvature and the act of its discovery—is devastating.

This brings us to the final step in the core argument of our point: the ontological relevance of the economics proof of the principle of hypothesizing the higher hypothesis. First, consider the outline of the proof:

1. The ontological actuality of the existence of any discovery, whether of a new theorem, or a new principle of nature (an hypothesis of the Platonic quality), is the method employed to *generate* that discovery. In the instance of a consistent new theorem of a theorem-lattice, the method is the hypothesis which is the method

26. See Johann Bernoulli on the "brachystochrone" problem, in *A Source Book in Mathematics,* ed. by David Eugene Smith (New York: Dover Publications, 1959), pp. 644-655. *Cf. A Source Book in Mathematics, 1200-1800,* ed. by Dirk J. Struik, (Princeton, N.J.: Princeton University Press, 1986), pp. 391-399.

27. Christiaan Huyghens, *A Treatise on Light* (New York: Dover Publications, 1962).

28. Leibniz's notion is not to be confused with later empiricist efforts to concoct a contrasting, mechanistic principle of "universal least action." The first instance of the latter, fraudulent concoction was Maupertuis' claim that he had been the first to discover a principle of least action. This Maupertuis brag was such a brazen fraud that even Maupertuis' former patron, the notorious Voltaire, was provoked to break openly with him. There were also protests against the folly of Maupertuis' scientifically illiterate brag from other immediate associates of the Berlin Academy, in addition to the protesting correspondence from the famous Aristotelian fanatic, and opponent of Leibniz, Christian Wolff. It is useful to note, in the context of the recent decades' antics by the famous "Primate among Parasites," that the same Maupertuis invented the dogma copied by Giammaria Ortes [*Riflessioni sulla popolazione delle nazioni per rapporto all'economia nazionale* (*Reflections on the Population of Nations in respect to National Economy*) (1790)], which was later plagiarized by Thomas Malthus [*An Essay On Population* (1798)], which was the stipulated basis for the methods introduced to biology and social policy by Charles Darwin, and which the Huxley tribes succeeded in embedding in the axiomatic basis of modern empiricist biology and sociology.

29. See footnote 26.

of that theorem-lattice. In the instance of a succession of theorem-lattices of respectively higher cardinality (power), we have a lattice of hypotheses, each ordered with respect to the others in terms of cardinality, and all subsumed by a constant method of generating such a succession of hypotheses, an higher hypothesis.

2. In both examples, every new discovery poses the issue of truthfulness of prior knowledge. (a) In the inferior case, the valid new theorem of a theorem-lattice, the prior knowledge, if measured in theorems, is tainted by a demonstrated *fallacy of composition;* however, the principle (the hypothesis) commonly underlying the generation of all the valid theorems of that lattice, both old and new, is affirmed to be *relatively* truthful, *transfinitely truthful.* (b) In the superior case, the discovery of a new hypothesis supersedes the claims of the previously existing hypotheses; each prior hypothesis suffers the taint of *fallacy of composition,* relative to the new. However, the succession of such discoveries, if they are of a (transfinite) type of discovery, is affirmed to be relatively truthful.

3. In both cases, it is the transfinite relative One which is relatively truth, and the terms of the subsumed Many terms, each taken by itself, is shown to be tainted by *fallacy of composition.* In all cases, the truth lies only in the transfinite Becoming, the type of principle of axiomatic-revolutionary discovery employed, not in the experimental facts associated with the particular case. That type of principle of discovery (e.g., higher hypothesis), rather than any particular hypothesis, is always the ontological location of relative truthfulness.

4. This poses the formal question, whether the relative truthfulness of higher hypothesis is merely the truthfulness of the observer (truth of commentary), or whether this knowledge represents *efficient* truthfulness, in the ontological sense? If the principle of higher hypothesis employed is shown to correspond to something which bounds externally the phenomena of change in natural processes, such as the apparent laws of motion, then that correspondence shows the relative truthfulness of the knowledge of principle to be ontologically efficient, rather than merely contemplative.

The fact, that technological progress in the productive powers of labor causes an increase in the potential population-density of the human species, in terms of consumption and productivity *per capita, per* household, and *per* square kilometer, reflects the process of scientific progress, premised upon Plato's Academy at Athens, and unleashed by the mid-Fifteenth Century Golden Renaissance. The fact that the increase in humanity's (re)productive power correlates with the measurable increase of power (cardinality) of the geometrical-mathematical representation of the succession of discoveries employed, shows that the anti-Aristotelian, Platonic principle of creative discovery underlying the Renaissance and its heritage is the relevant standard of ontologically valid truthfulness, and the relative falsehood of the arguments raised by the Enlightenment and other opponents of that Renaissance.

It would be an error to imply that this progress has been solely, or even almost entirely the result of progress in natural science so-called. What we are able to demonstrate formally in mathematical terms reflects the same principle nunderlying creative composition in the Classical (e.g., anti-Romantic, anti-modernist) forms of poetry, drama, music, and painting. It is the whole development of the mind, as poetry, drama, music, and painting typify such breadth, which is the generator of progress, as the creative compositions in Classical art-forms are the principal means by which the individual's capabilities for creative scientific work are developed.

The function of mathematical physics is properly defined in formal terms as Riemann's hypothesis dissertation defines it. We act upon, and are acted upon by a universe unseen by our sense-impressions, a universe whose imaginable reflections are the shadows which the real universe casts upon the screens of our combined visual and auditory imagination. By aid of the scientific tricks of a higher sort of "geodesy," the task of mathematical physics is to decode the actions which are represented to us by means of those sensory shadows, to adduce the reality of that real universe which exists only outside the ken of our mere sense impressions.

If we can prove in such ways that there are changes in the shadowy actions which cannot be accounted for by the action of shadows, as shadows, upon shadows, but that these actions belong to a universe which has a different curvature than that of our visual imagination, we have shown that Plato was right on this point, and all of his critics in fundamental and pervasive error.

In that case, the notion of the ontologically primary expression of existence is shifted away from Aristotle and his quibbling, "Trotskyist-like" imitators. What is ontologically primary is the *change* upon which datum the geodetic measurement of physical space-time is premised.[30]

In that case, then we cannot project "laws of motion" from assumptions respecting percussive or radiant inter-

30. This is the *change* of Heraclitus, and also the *change* which appears as the given hint for the solution of the ontological paradox posed by Plato's *Parmenides.*

actions among seen or assumed[31] shadows. Rather, we must demonstrate that the laws of motion, or analogous action of change are of the form of laws which act "externally," as outside constraints, upon the motion of the shadows. These laws are represented by our highest appreciation of the principles, of the form of higher hypothesis, which have been generated by creative discovery as our present state of knowledge. Thus, we must substitute the universality of "least constraint"—constrained by the law reflected to us as higher hypothesis—in place of the mechanistic Galileo-Newton hypotheses respecting motion.

We must see Kepler's development of the first comprehensive mathematical physics from the starting-point of the uniqueness of Plato's five regular solids as a prime example of the application of this principle of least constraint prior to Leibniz. Hence, Kepler employs "reason," where his plagiarists, the inferior Galileo and Newton, put the mechanistic term "cause."

Once we have adduced the relevant application of such a principle of least constraint, the relations among the actions reflected to us as shadows are to be judged according to the common constraint which those interacting actions must satisfy. Thus, the notion of a definite, non-zero curvature of the physical space-time reflected as shadows upon the visual imagination, is the most important working conception in all mathematical physics.

In Conclusion: Metaphor

The other principal topics bearing upon this matter have been more or less adequately treated afresh in previously published recent locations (in addition to those treatments of the same matters in print or public lectures one or several decades earlier). Nonetheless, the following feature of the matter of metaphor requires a bit of special emphasis here.

All rational human knowledge is derived from the beginning-point of a rigorous definition of the absolute distinction between a mental act of valid creative-mental discovery and a mere deductive opinion, the latter premised upon citing some authority. Without a grounding in that prerequisite, all said in the name of philosophy in general or science in particular is unproven assertion. The Platonic notion of higher hypothesis, as I have repeatedly emphasized the provable (regeneratable) reading of that notion, is the precondition for all competent statements on matters of fundamental principle in philosophy in general, or science in particular. It is here, in respect to an explicit notion of such higher hypothesis, that all truthful human knowledge is rooted, in that all notions of ontological reality are rooted.

The principal difficulty throughout European civilization (in particular) today, may be fairly described as merely a difficulty of false opinion. That false opinion is derived from Venice's Sixteenth Century and later reassertion of the authority of Aristotle's method. The central feature of that Venetian damnation of the human soul is typified by the cases of Pomponazzi, Henry VIII's Zorzi, by the influential Bellarmino and his contemporary Paolo Sarpi. The common ruse for that Venetian damnation of the soul is the Venetian's war against Cardinal Nicolaus of Cusa's method of *docta ignorantia,* the Venetian's argument that the basis for knowledge is the interpretation of sense-impressions, excluding consideration of those kinds of ideas by means of which axiomatic-revolutionary discoveries in knowledge were achieved.

Thus, on these grounds, for example, no adherent of Aristotle's method can be a Christian, or a Jewish follower of Moses. For, that which separates man from the beasts, which places man above the beasts, is the power of creative reason, the quality of creative reason which defines man as in the image of the Creator. Creative reason is the substance of that human soul which the Aristotelian Pomponazzi insisted he did not possess (except, perhaps, in the Orphic way, of being awarded one on his entry into Hades). Creative reason is *imago dei,* is *capax Dei;* without it, there is no *imago Dei,* no *capax Dei.*

Here, in the matter whether the poor have creative reason (and, therefore souls), lies the key objection to Christianity by the Venetian oligarchy. That is the international Venetian oligarchy headed by the ruling "Primate among Parasites" of our time, the "Doge of Edinburgh's" British Royal Family.[32] For these oligarchs, like the evil tyrants of Canaan's thalassiarch Tyre before its imitators, Venice and the London Levant Company, the lower classes must not be educated "above their station," or fed too well, lest those lower classes become more numerous than the better classes find tolerable, or, might even become misled to believe, that members of the lower classes are at least as much in the image of the Creator as those decadent, one might say even "degenerate," royal and other oligarchical families of today.

In short, if the understanding were to spread, that each of us is equally in the image of the Creator at our birth, by virtue of possessing creative powers absent in the beasts, the time allowed for the continuation of usury, Malthusianism, and other expressions of oligarchical

31. "Assumed" = inference of the existence of unseen discrete objects, in the sense of sense-impression's objects, as, for example, in the very small.

32. Or, perhaps, in deference to Prince Philip's long leadership of the anti-Christian, anti-human, World Wildlife Fund, shall we say, more strictly, the "Brutish royal family"?

degeneracy upon this planet might be greatly foreshortened. That, the oligarchy of this planet will not tolerate. Hence, the perpetuation of the Venetian Party, whose current headquarters is generally considered to be London's financial center, the monarchy, and the lackeys who attend to those reputed potencies.

Putting this point most inelegantly (but without error), the rise of the human species' potential population-density above that of the higher apes is due entirely to what are fairly, if loosely described as improvements in culture, improvements which are entirely the product of new ideas generated through mankind's capacity for the kinds of changes in ideas which formal logic must regard as "axiomatic revolutionary." *Man, unlike all other species,* is a species which reproduces itself through the production of ideas, ideas whose existence depends upon the special faculty, however mutilated, which exists even within those oligarchs who may deny its presence within themselves. Thus, the history of mankind is the history of ideas, a history which cannot be judged competently except by reference to that agency which all Aristotelian and analogous method implicitly denies to exist: creative reason, that which sets the existence of mankind above the beasts.

The consciousness of this distinction is the essential quality of the individual's ability to achieve a *valid* sense of personal identity. Whenever one either effects an axiomatic-revolutionary discovery, as in scientific hypothesis, or a comparable achievement in art, or, failing that, nonetheless re-experiences the act of such discovery by earlier scientific discoverers or creative Classical artists, one is participating in an idea, a principle which is itself of "world-historical" importance and benefit for all of humanity. In this way, and only in this fashion, can the individual participate in fulfilling the work of generations before, and contributing to the advancement of all humanity, present and future.

The person who has achieved a conscious sense of his or her participation in history through individual powers of creative reason, ceases to be an individual within the immediate, local here and now of a human herd, and becomes consciously a participant in humanity as a whole. That person is no slave, no serf. That person is qualified to vote intelligently, to speak in the councils of self-government, and to be elected to responsible office in those processes of self-government, or some other executive function in society. In a prudent society, no lesser qualification is demanded as prerequisite for the individual's performance of any among those functions. Without such qualifications, the individual is a tragic wretch, either perhaps a Don Quixote, living shrewdly in a world of fantasy, or, a Sancho Panza, who could never govern an island, because his head cannot govern the passions below his own waistline.

For such reasons, since Paolo Sarpi and his faction elected it were better to take over and corrupt the new institutions of science, rather than seek to suppress them by brute force, the principal concern of Sarpi and his followers has been to work toward the general "dumbing down" of the human species through the exclusion of all consideration of the creative principle of discovery from the mathematical and related representations of science. Sarpi played a direct hand in arranging this practice, through such assets as Galileo, Robert Fludd, and Francis Bacon. Descartes and Newton typify the long list of intellectually corrosive, Venice-controlled figures in the history of actually and putatively scientific institutions. In the Eighteenth Century, the Berlin Academy's Voltaire, Maupertuis, Algarotti, Euler, Lagrange, Lambert, and the French Encyclopaedists typify those corrupted figures of influence operating within scientific institutions directly under the control of Venice intelligence agents, such as Conti and Algarotti, to the purpose of eliminating the heritage of Cusa, Leonardo da Vinci, Kepler, and Leibniz from science. Immanuel Kant, the Marquis de LaPlace, Augustin Cauchy, and the circles of Germans and others under the control of Britain's Lord Kelvin, typify the continuation of this Venice tradition during the Nineteenth Century.

Thus, because of the influence of Paolo Sarpi's cult of empiricism, and kindred influences, one of the more popular hallmarks of pseudo-scientific practice is that tactic employed by the ever-juvenile *idiot savant,* John Von Neumann, in his own and Oskar Morgenstern's *The Theory of Games and Economic Behavior,* in which the authors premise Von Neumann's entire dogma upon the axiomatics of a "Robinson Crusoe model."[33] Similarly, the naive, or miseducated student of science, deludes himself that his observation of the "repeatability" of a phenomenon is in the nature of scientific proof, or, similarly, that science is statistics. The failure to see one's individual self as *imago Dei* and *capax Dei* in terms of consciousness of generation of hypothesis by means of creative mental acts, is the key to toleration of a quality of academic serfdom, is key to the unfortunate condition of a man who might have become a scientist if he had met the first prerequisite, of knowing himself to be in the living image of the Creator by virtue of conscious deployment of his own creative powers of hypothesis.

The "Robinson Crusoe" model was directly a reflection of the influence of the Sarpi school's version of Aristotelian empiricism, the dogmas of Francis Bacon, Galileo Galilei, Thomas Hobbes, René Descartes, John

33. John Von Neumann and Oskar Morgenstern, *The Theory of Games and Economic Behavior,* 3rd ed. (Princeton, N.J.: Princeton University Press, 1953), chap. 1, "Formulation of the Economic Problem," pp. 1-43.

Locke, Isaac Newton, David Hume, Adam Smith, Jeremy Bentham, *et al.* This model begins with man as an individual beast, the solitary individual, governed by an inner repository of what Adam Smith describes with the words: "Nature has directed us to the greater part of these by *original and immediate instincts.* Hunger, thirst, the passion which unites the two sexes, the love of pleasure, and the dread of pain, prompt us to apply those means for their own sake, and *without any consideration of their tendency to those beneficent ends which the great Director of nature intended to produce by them.*"[34]

This same argument, copied directly from such Venetian agents as Maupertuis and Giammaria Ortes, posed so in Smith's 1759 *Theory of the Moral Sentiments,* served as the basis for his notorious dogma of the "Invisible Hand" in his famous anti-American tract, the 1776 *Wealth of Nations.*[35]

In historical reality, human existence is the result of the generation (and regeneration) of valid new higher hypotheses, hypotheses, and theorems, an accomplishment achieved in no other way than through development and exercise of those creative powers of individual minds which the Aristotelians such as Pomponazzi and the empiricists deny to exist, and which the agnostic Aristotelian Immanuel Kant of the *Critiques,* like Orphic Gasparo Contarini, professes to be unknowable this side of Hades. Thus, the vital interest of the human species is the social role of the creative mental powers of the individual in producing and reproducing the ideas upon which the continued existence of society as a whole depends absolutely. Thus, the only moral individual is one whose adopted primary self-interest is not what Smith terms "original and immediate instincts," but, rather, precisely a preoccupation with those kinds of ideas which are formulated and employed in "consideration of their tendency to those beneficent ends" which are plainly identified in the Judeo-Christian Book of Moses, *Genesis* 1:26-28.

The entire empiricist/Enlightenment method of the Seventeenth and Eighteenth Centuries is premised upon the same irrationalist Aristotelian principle which Smith presents in the cited, radically gnostic[36] version. Empiricist method always returns to two presumptions. First, the Hobbesian, Lockean presumption described by Smith, of man as the primal-instinct-governed individual actor and observer as the "cell-form" of all knowable reality. Hence, Robinson Crusoe as the aboriginal founder of political-economy and "chaos theory." Second, the dogmas of Aristotle's method of deductive irrationalism: the denial, by evasion or other means, of the existence of a "divine spark of reason" in the individual person, the denial of a quality of creative reason which is typified by the axiomatic-revolutionary overthrow of each and every claim made by Aristotle respecting either existence or the interpretation of phenomena and dogma.

For more than two thousand years, Aristotle has been the most influential adversary of reason and science, and the most potent force in the weakening of Christianity through resort to that corrupting method. Were it not for the corrosive influences of empiricist Paolo Sarpi and his like, the corruption of science by Sarpi's Venetian methods, as Galileo and Newton typify this, would have been obvious, had it ever come to exist within the leading institutions of science.

Typical of the institutionalized problem of our decadent civilization of today: "Political science" is a pseudo-science, invented by the "Madame Blavatsky" of the French and German Enlightenment, the notorious Madame de Stael.[37] Rip that lying abomination out of our universities, to reside with astrology, witchcraft, Malthusianism, and phrenology among the pathetic superstitions which set poor ignorant wretches apart from sane men and women. In the vacant place in academia so provided, place the study of dirty Venetian and kindred politics within the history of science. Had there not been such dirty politics in the highest places of political authority within the institutions of science (and the charitable oligarchs who fund, and thus control science's peer-review and educational programs), the mechanistic notion of causality would never have supplanted the principle of reason upon which such figures as Plato, Cusa, Leonardo, Kepler, and Leibniz founded it.

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34. Adam Smith, *The Theory of the Moral Sentiments* (1759) (emphasis added).
35. This 1776 work was the product of an assignment given to Smith by his employer, the British East India Company's Lord Shelburne, beginning 1763. That assignment was to prepare work which would assist Shelburne's British Venetians both in prosecuting London's wars to realize the objective finally realized in 1815, to subjugate France, and in crushing the upstart American colonist's insistence upon economic independence and self-government. Smith was assigned to work with the network of Abbot Antonio Conti's Voltaire and Physiocrats in France and Burgundian Switzerland, to devise a dogma of political-economy which was an adaptation of French Physiocrat dogma to the mercantile and financial inclusions of late-Eighteenth-Century British philosophical radicalism. From the standpoint of economics, the principal targets of Smith's enterprise were the continental cameralists in general, and Colbert and Leibniz in particular. Modern "chaos theory" is no more than a ideological buncombe, dredged out of the gutters of mathematical formalism, packaged to restate the moral indifferentism of the cited passage from Smith's *Theory of the Moral Sentiments.*
36. Clearly, Adam Smith's "Invisible Hand," Senator Phil Gramm's remarkable achievement in vulgarizing even the vulgar Professor Milton Friedman, and the modern "chaos theorists," are each and all preaching a secular form of a "mystery religion," in the full-blown, Delphic heritage of the Apollo-Dionysus-Orpheus cult.
37. *Cf.* Michael J. Minnicino (unpublished manuscript).

'Man Measures His Intellect Through the Power of His Works'

How Nicolaus of Cusa's revolution in the Platonic Christian concept of natural law laid the basis for the Renaissance invention of the modern nation-state

by William F. Wertz, Jr.

Graphische Sammlung Albertina, Vienna

"Abraham's Sacrifice."

In his essay entitled "The Truth About Temporal Eternity" (*Fidelio,* Vol. III, No. 2, Summer 1994), Lyndon H. LaRouche, Jr. identifies what he describes as the "subjective" quality which sparked the Fifteenth-Century Golden Renaissance beginning with the 1439-40 ecumenical Council of Florence:

> The central feature of the growth unleashed so uniquely by the Golden Renaissance's influence, has been the establishment of a new kind of political institutions, the institutions of a system of sovereign nation-state republics, each based upon a literate form of a popular language, and all dedicated, in their internal affairs and relations with other states, to a form of *natural law* which is traced historically through St. Augustine's writings, and reaffirmed by Gottfried Leibniz. The Renaissance's rich comprehension of such natural law also defined the notion of science in a new way.
>
> This new form of political institution, wherever it emerged, was committed, inclusively, to fostering those beneficial changes in individual and national practice which are made available to mankind through fundamental scientific progress. It was this coincidence of natural law with both the new notion of a sovereign nation-state republic, and a consistent notion of physical science, which has caused the increase of the total human population from the several hundred millions maximum of times prior to A.D. 1400, to over five billions today, and potentially to a technologically-determined, and rising level of more than twenty-five billions.

Biblical scenes by Rembrandt highlight transformations in man's understanding of natural law.

In a more recent essay, "How Bertrand Russell Became an Evil Man" (*Fidelio,* Vol. III, No. 3, Fall 1994), LaRouche further identifies the three institutional features interdependently characteristic of the Renaissance, which Venice and its oligarchical allies have attempted to suppress:

> (1) the Renaissance's replacement of a system of nested covenants and fealties (the imperial form of society) by a form of sovereign nation-state republic based upon a Platonic Christian notion of intelligibility of natural law; (2) the principle of the new state's function of fostering generalized scientific and related progress in knowledge and improved practice; (3) the notion of intelligibility of the laws of the universe to persons, through the development of that divine spark of reason which is the aspect of man in the image of God: both *imago Dei* and *capax Dei.*

The purpose of this study is to show the importance of re-establishing natural law principles for humanity's ability to survive the current global crisis. I will demonstrate how the Fifteenth-Century cardinal and scientist Nicolaus of Cusa (1401-64) developed the concept of national sovereignty and representative government based upon a revolution in the traditional notion of natural law inherited from St. Augustine and St. Thomas Aquinas, a revolution effected by Cusanus' emphasis upon creative reason as the unique and distinguishing characteristic according to which man is the "living image of God" (*imago viva Dei*) and has the capacity to be a "human god" and a "second creator" (*capax Dei*).

Whereas St. Thomas Aquinas, in his elaboration of the Augustinian concept of natural law, had emphasized the deduction of moral precepts from the Decalogue, Nicolaus of Cusa developed and emphasized the intelligible implications of man's capacity for creativity, the intellectual activity that coheres with the loving emotion of *agapē*. It was from this very starting point that Nicolaus of Cusa was to found modern physical science in his mathematical and philosophical works, laying the basis in the Golden Renaissance for mankind's progress over the next 550 years.

This concept of natural law is coherent with Lyndon LaRouche's physical scientific notion of not-entropy, which contains the necessity of scientific and technological progress—a necessity expressed in the Biblical injunction to "be fruitful, multiply, and subdue the earth," itself an expression of the commandments to love God and one's fellow man.

For the purpose of this study I intend to focus, first, on the concept of natural law as it was first developed by St. Augustine and elaborated by St. Thomas Aquinas. This school of natural law can best be described as Platonic Christian, because, following Plato, it derives natural law from eternal law, based on the idea that since man is created in the image of God, through the right use of reason he can bring his practice into harmony with God's eternal law. The discussion will then be broadened by reference to the writings of Cusanus and of Gottfried Wilhelm Leibniz (1646-1716), the universal genius of the Seventeenth Century.

The Platonic Christian concept of natural law, as developed by Augustine, Aquinas, Cusanus, and Leibniz, is in stark contrast to the Aristotelian concept of natural law espoused by such Venetian-allied Enlightenment writers on questions of human society, government, national sovereignty, and international law as John Locke (1632-1704) and Thomas Hobbes (1588-1679) of England, Samuel Pufendorf (1632-94) of Germany, and Hugo Grotius (1583-1645) of the Netherlands. Although often falsely credited as the initiators of the republican principles upon which the American Revolution was carried out, this school put forward theories of government whose axioms defined man as an animal, and man's natural state as that of warfare of each against all—precisely the oligarchic principles rejected by the American Founding Fathers when they established the first representative self-government ever put into practice in man's history.

St. Augustine, St. Thomas Aquinas, And the Concept of Natural Law

As St. Thomas Aquinas acknowledges in his "Treatise on Law," the Christian concept of natural law was first developed by St. Augustine in his dialogue *On the Free Choice of the Will.* In this dialogue, Augustine, who was a student of Plato, followed the latter in distinguishing between the eternal law of God, which is changeless, and man-made laws, which are changeable, but which are nonetheless subject to the eternal law. Thus Augustine writes: "It is from this eternal law that men have derived whatever is just and lawful in the temporal law."

In a work entitled "Eighty-three Different Questions," Augustine writes: "Ideas are the primary forms or the permanent and immutable reasons of real things and they are not themselves formed; so they are, as a consequence, eternal and ever the same in themselves, and they are contained in the divine intelligence." In the *Summa Theologica,* Aquinas concurs: "Ideas are types existing in the divine mind, as is clear from Augustine."

Since man is created in the image of God and all of creation derives its existence from participation in the eternal ideas of the Creator, man himself is able to create tempo-

ral, i.e., man-made laws in harmony with eternal law, through the exercise of the eternal law impressed upon his own mind.

As Augustine says in *On the Free Choice of the Will,* the eternal law "is impressed upon our nature." Thus, "... when reason, or mind, or spirit, rules over the irrational movements of the soul, then that is in control in man which ought to be, by virtue of that law which we found to be eternal." Hence, what Augustine means by natural law is the eternal law impressed upon our nature as creatures endowed with reason. Man is acting in harmony with natural law if he loves eternal things rather than temporal things. Natural law is thus derived from eternal law and is discerned through the right use of reason.

The love of temporal things, i.e., of the creature rather than the Creator, contrary to the right use of reason, is a violation of natural law and therefore leads necessarily to unhappiness, both for the individual and for the society which is so ordered. For if all men loved only eternal things based on the right use of reason, there would be no need for temporal (man-made) law—that is, the laws governing the daily life of society—as this is required only to restrain the actions of those men who, contrary to the right use of reason, love temporal things. And thus, temporal law

> imposes restraint through fear and accomplishes its purpose by constantly harassing the souls of unhappy men for whose government it has been designed. As long as they fear to lose these goods, they practice a kind of moderation in their use capable of holding together a society that can be formed from men of this stamp. The law does not punish the sin committed by loving these things, but the crime of taking them from others unjustly.

Rijksmuseum-Stichting, Amsterdam

"Adam and Eve."

This Augustinian concept of law is elaborated by St. Thomas Aquinas in his "Treatise on Law" in the *Summa Theologica*. Like Augustine, Aquinas argues that eternal law is the type of the Divine Wisdom." Aquinas continues:

> Since all things subject to Divine Providence are ruled and measured by the eternal law . . ., it is evident that all things partake somewhat of the eternal law, insofar as, namely, from its being imprinted on them, they derive their respective inclinations to their proper acts and ends. Now among all others, the rational creature is subject to Divine Providence in the most excellent way, insofar as it partakes of a share of providence, by being provident both for itself and for others. Therefore, it has a share of the Eternal Reason, by which it has a natural inclination to its due act and end; and this participation of the eternal law in the rational creature is called the natural law.

On this basis, Aquinas argues that the light of natural reason is "an imprint on us of the Divine Light" and that "natural law is nothing else than the rational creature's participation of the eternal law."

Thus, for both Augustine and Aquinas, the concept of natural law derives from the fact that man is *imago Dei,* the image of God, by virtue of his mind or reason. According to Aquinas, "Man is united to God by his reason, or mind, in which is God's image." Moreover, natural law, which is instilled in man's mind by God so as to be known by him naturally, is derived from participation in eternal law which is the type or the Word of Divine Wisdom. The fact that Aquinas defines natural law in this way proves that his concept of natural law, like Augustine's, is based on the method of Plato rather than that of Aristotle, who rejected the Platonic

eternal ideas and the Platonic concept of the participation of created nature in those ideas.

Aquinas does admit the existence of other precepts of natural law besides reason, however. Man has natural inclinations, in accordance with the nature which he has in common with all substances and with other animals. Every substance seeks the preservation of its own being and all animals are naturally inclined to sexual intercourse, the education of offspring, etc. But since the rational soul is the proper form of man, these natural inclinations are subordinated in man to his rational inclination to know the truth about God and to live in society:

> All the inclinations of any parts whatsoever of human nature, for example, of the concupiscible and irascible parts, insofar as they are ruled by reason, belong to the natural law, and are reduced to one first precept . . ., so that the precepts of the natural law are many in themselves, but are based on one common foundation.

Like Augustine, Aquinas also distinguishes between eternal law, which is changeless, and temporal or human laws, which are subject to change. According to Aquinas, "No one can know the eternal law as it is in itself, except God Himself and the blessed who see God in His Essence. But every rational creature knows it in its reflection, greater or less." That is, again, temporal or human laws are derived from eternal law by means of natural reason. However, since the eternal law is not known by man as it is in itself, human laws cannot be altogether unerring. "The human reason cannot have a full participation of the dictate of the Divine Reason, but according to its own mode, and imperfectly."

Ultimately, this distinction between Eternal Law and Divine Reason on the one side and temporal law and human reason on the other reflects the Platonic distinction between God, Who is Absolute Being or the Good *per se,* and created nature in the realm of Becoming, whose nature it is to become increasingly more God-like, without ever being able to achieve absolute perfection.

Nonetheless, since all forms of law derive from eternal law, temporal law must also be subject to the dictates of Divine Reason. As Augustine wrote in *On the Free Choice of the Will:* "In temporal law there is nothing just and lawful but what man has drawn from the eternal law." Or Aquinas: "Human law has the nature of law insofar as it partakes of right reason; and it is clear that, in this respect, it is derived from the eternal law. But insofar as it deviates from reason, it is called an unjust law, and has the nature not of law but of violence." Furthermore, just as Augustine wrote in *On the Free Choice of the Will,* "For an unjust law, it seems to me, is no law," so Aquinas, "A tyrannical law, since it is not in accordance with reason, is not a law, absolutely speaking, but rather a perversion of law . . . ."

Aquinas writes further:

> The force of a law depends on the extent of its justice. Now in human affairs a thing is said to be just from being right according to the rule of reason. But the first rule of reason is the law of nature . . . . Consequently every human law has just so much of the character of law as it is derived from the law of nature. But if in any point it differs from the law of nature, it is no longer a law but a corruption of law.

Thus, even when Aquinas accepts that certain secondary precepts of natural law can be blotted out insofar as reason is hindered by vicious customs and corrupt habits, he nevertheless maintains that "natural law, in its universal character, can in no way be blotted out from men's hearts." In fact, as I develop more fully in Appendix I, Aquinas goes so far as to argue that the moral precepts of the Decalogue are valid only because and insofar as they belong to natural law.

The historical limitation reflected in Aquinas' notion of natural law, however, is that he conceived the issue of natural law to lie primarily in the deduction of moral precepts from the Supreme Reason of God; i.e, the emphasis, as derived from the form of the Decalogue, is primarily upon what one should not do in order to achieve harmony with the Good. (Appendix II provides examples of this method for deriving moral precepts from natural law.) However, where Aquinas fails—and this is where Cusanus brings about a revolution—is to emphasize the positive implications of the law of love. For, in order to accomplish good, as opposed to merely to avoid doing evil, one must go beyond the effort to derive moral precepts based upon Eternal Reason, to directly imitating the Mind of God as Creator: one must express love toward one's fellow man by creating the conditions under which he too can exercise his creative capacity to do good.

Both Augustine and Aquinas were aware of the distinction Plato makes between deductive logic and creative intellect. In his discussion of the Incarnation Aquinas argues that the human intellect alone has a capacity for receiving God *capax Dei:*

> The Son of God is said to have assumed flesh through the medium of the soul, both on account of the order of dignity, and the fittingness of the assumption. Now both these may be applied to the intellect, which is called the spirit, if we compare it with the other parts of the soul. For the soul

is assumed fittingly only through the fact that it has a capacity for God, being in His likeness, which is in respect of the mind, which is called the sprit, according to Eph. 4:23: "Be renewed in the spirit of your mind."

But although Aquinas recognizes that it is the intellect, as opposed to other parts of the human soul, which has a capacity for God, he does not fully and rigorously develop the difference between inferior "rationality," or deductive reason, on the one hand, and superior "intellect," or the capacity for creative reason, on the other.

Cusanus recognized that what makes man the living image of God (*imago viva Dei*), is alone man's creative intellect. From this starting point, we will see how he was able to attain the higher level of hypotheses required to resolve the political problem of the interactive relationship between the form of government and law, and the capacities of the populace. But it is useful to first see how this problem posed itself to St. Augustine, as presented in Book I of the dialogue *On the Free Choice of the Will.*

According to Augustine, it is right to enact a law permitting a people who esteem their private interest of less importance than the public good, to set up for themselves magistrates to provide for the public welfare. However, if these same people, after having grown corrupt, should prefer the individual to the common good, should offer their vote for sale, and should entrust the government to wicked men, it would also be right for some honest man to strip these people of the power to elect public officials and to subject them to the rule of a few good men or even to that of one man.

According to Augustine, these two man-made laws may appear to be contradictory, but they are not; because temporal laws may be justly changed in the course of time, despite the fact that temporal law necessarily derives its justice from a changeless and eternal law called supreme reason. Thus, "if those people elect officials at one time and at another time do not, each motivated by justice, this alteration of the temporal law derives its character of justice from that eternal law whereby it is always just for responsible people to elect their officials, but not for irresponsible people."

But if temporal self-government is to be deemed just only if the people are responsible, the issue is: How can we guarantee a responsible people? That is, how can we guarantee that the people will turn their love to eternal things through the use of reason? This question, so frequently discussed in the Platonic dialogues, was addressed and answered by Nicolaus of Cusa in a way that led to the creation of the new political institution of the nation-state in the Europe of the Golden Renaissance.

Nicolaus of Cusa's Revolution In Natural Law

The key to understanding the revolution effected by Nicolaus of Cusa in the traditional notion of natural law which he inherited from St. Augustine and St. Thomas Aquinas is, first, the emphasis he places upon creativity as the distinguishing characteristic of *imago Dei* and *capax Dei,* and secondly, the emphasis he places upon man's moral relationship, as microcosm, to the universe, or macrocosm, which he describes in effect as not-entropic.

For Nicolaus of Cusa, for man to be *imago Dei* does not merely mean that man has a rational soul capable of deducing through the right use of reason moral precepts as to what he should not do, as in the case of the Decalogue and its corollaries. Rather, Nicolaus of Cusa expressly introduces the idea that for man to become an adopted son of God he must ascend in his mind above mere sense perception and formal-logical rationality to the level of creative intellect. As microcosm, he must then act on the basis of his creative intellect, to further develop the potential of the macrocosm, out of love of God and his fellow man.

In *On Beryllus,* Cusanus writes:

> For just as God is the Creator of real entities and of natural forms, man is the creator of rational entities and artificial forms. These are nothing other than similitudes of his intellect, just as the creatures of God are similitudes of the divine Intellect. Therefore, man has intellect, which is a similitude of the divine Intellect, in creating. Therefore, he creates similitudes of the similitudes of the divine Intellect, so the extrinsic artificial figures are similitudes of intrinsic natural forms. Hence he measures his intellect through the power of his works and from this he measures the divine Intellect, as the truth is measured through its image.

In *On Conjectures,* Cusanus makes a similar statement:

> Conjectures must go forth from our minds as the real world does from infinite divine Reason. For, since the human mind, the lofty similitude of God, participates, as far as it can, in the fecundity of the creatrix nature, it exserts the rational from itself, as the image of omnipotent form, in the similitude of real entities.

In these two passages, Cusanus develops the idea that what makes man *imago Dei* is that he is a creator. It is his very nature to create "rational entities" or "conjectures" or what Lyndon LaRouche has called "thought-objects" or hypotheses. In creating "rational entities" or "conjectures," man, according to Cusanus, is capable of inventing something new.

In *The Game of Spheres,* Cusanus writes that "the power of the soul is to reason and therefore the power to reason is the soul . . . . For this reason the soul is the inventive power of the arts and of new sciences." In inventing something new, man first creates a "rational entity" and then decides to create extrinsically that which he has created in his mind by transforming his thought-object into an "artificial form," or a new technology, whether in the arts or the sciences. The capacity to do this is what distinguishes man from a beast because, as Cusanus states, no beast has such inventive power.

What is more, in saying that man "measures his intellect through the power of his works," Cusanus is arguing, as Lyndon LaRouche has since shown, that the truth of a thought-object is measured by the demonstrated increase it effects in the power of man's labor over nature.

In numerous of his writings, Cusanus makes absolutely clear that this labor power derives not from the deductive or syllogistical power of the rational soul, but rather from the creative intellect, which is that part of the soul which possesses *capax Dei.*

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"Joseph Telling His Dreams."

Directly connected to this concept of man as creator is the view merely implicit in St. Augustine, but developed expressly by Cusanus, that the universe itself is by nature not-entropic. As I have developed more extensively in an article entitled "Nicolaus of Cusa's 'On the Vision of God' and the Concept of Negentropy," (*Fidelio,* Vol. II, No. 4, Winter 1993), Cusanus considered the physical universe to be capable of further development by man's creative power. Although not co-eternal with God, because it is created by God out of nothing, the universe is nonetheless perpetual. As he writes in *On Learned Ignorance,* "the world-machine cannot perish."

In *On Learned Ignorance,* Nicolaus of Cusa writes that "God is the enfolding and the unfolding of all things." Insofar as man imitates Christ, who as Maximal Reason is the creator of the world, by himself exercising his creative intellect, man is capable of being the instrument of the further unfolding of all things enfolded in God.

In *On Learned Ignorance,* Cusanus further stipulates that the "unfolding" of the universe is

> like a number series which progresses sequentially . . . . [W]hether we number upwards or downwards we take our beginning from Absolute Oneness (which is God)—i.e., from the Beginning of all things. Hence, species are as numbers that come together from two opposite directions—[numbers] that proceed from a minimum which is maximum and from a maximum to which a minimum is not opposed.

In a later work, "On the Quadrature of the Circle," Cusanus demonstrates, by proving that the circle is ontologically a higher species than a polygon, that this number series is characterized by successively higher levels of power or cardinality. Cusanus' discovery that the relationship of the circle to the polygon is not merely irrational, as the Greeks had thought, but rather transcendental, set into motion the development of modern science, including the science of physical economy.

In *On Conjectures,* Cusanus elaborates on the implications of this discovery for man:

> Man is indeed god, but not absolutely, since he is man; he is therefore a human god. Man is also the world, but not everything contractedly, since he is man. Man is therefore a microcosm or a human world. The region of humanity therefore embraces God and the whole world in its human potentiality.

From this view of man as microcosm emerges a more advanced expression of natural law. According to natural law as developed by Cusanus, man must organize human society not merely to adhere to certain moral precepts. Humanity as a whole must become increasingly more Christ-like, which is to say must increase its power over nature by inventing new arts and sciences capable of transforming the macrocosm so as to advance its own human potentiality.

The failure to do this, to organize human society so as to realize the "intellectual growth" of humanity as mediated through the transformation of nature, is itself a violation of natural law. And although the universe as a whole cannot perish, the failure of human society to assume its creative responsibilities in respect to the macrocosm will necessarily result in humanity's descent into hell and a concomitant reversal of not-entropy in that portion of the physical universe most immediately affected by man's refusal to realize his *capax Dei*.

It was from the starting point of natural law necessitating the "intellectual growth" of humanity that Nicolaus of Cusa was to fashion a concept of man's self-government in his political treatise *On Catholic Concordance*.

The Concept of the Nation-State

The concept of the nation-state, which began to emerge with Dante Alighieri's *On World Government* (1310-13) and was more fully elaborated in Nicolaus of Cusa's *On Catholic Concordance* (1433), was devised as the most appropriate vehicle by which man could organize himself so as to realize his divine potential, as created in the image of God the Creator, for what Dante referred to as "intellectual growth."

The first such nation-state was France under Louis XI (1423-83), and it was in the France of Jean Baptiste Colbert (1619-83) after the Thirty Years War that the world experienced the development of the modern form of national political economy. The U.S. form of government, as expressed in the U.S. Declaration of Independence and the U.S. Constitution, and the American System of political economy developed under U.S. Treasury Secretary Alexander Hamilton, derive indirectly from the revolution in natural law effected successively by Dante and Nicolaus of Cusa and implemented initially in the France of Louis XI.

Because the U.S. Declaration of Independence represents perhaps the most succinct historical expression of the natural law basis of the principle of national sovereignty, we may introduce the axiomatic principles involved by an examination of its initial four paragraphs.

A. The Laws of Nature and of Nature's God

The first thing that strikes a modern reader of the Declaration of Independence is that in it, the Founding Fathers declared that they were entitled to assume "separate and equal station" among the powers of the earth based upon the "Laws of Nature and of Nature's God." Thus, in the first sentence of the Declaration of Independence, they derive the right of "a people" to "dissolve the political bands which have connected them with another" and to establish themselves as a sovereign nation, having "equal station" among other sovereign nation-states, directly from God, the Creator, and the natural law which rules His creation.

While it is true that the Founding Fathers were opposed to the creation of a theocracy under a particular established religious denomination, it does not follow that the concept of God can be divorced from the foundation of the American republic, as was maintained by former Supreme Court Justice Hugo Black, (himself a lifelong Ku Klux Klan member and 33rd-degree Scottish Rite Freemason), and argued today by the American Civil Liberties Union and the Anti-Defamation League.

But what did the Founding Fathers mean by the Laws of Nature?

Historically, there are two contrary concepts of natural law. First, the Platonic Christian concept of natural law, presented above, that is based upon the idea that man is created in the image of God (*imago Dei*), and, through the right use of his natural reason, man is capable of bringing his moral practice into harmony with the lawful ordering of the universe created by God.

The contrary, Aristotelian concept of natural law sees man not in the image of God, but rather as a depraved animal whose mind is a *tabula rasa* or blank slate. Reduced to such an animal-like state of nature, society is characterized by continuous warfare of each against all. Thus, according to this concept, man forms governments by agreeing to subordinate himself to an arbitrary dictatorship, in order to protect himself from other men. This was the view advocated, for example, by such Seventeenth-Century Enlightenment spokesmen as Thomas Hobbes, John Locke, Samuel Pufendorf, and Hugo Grotius, and is often identified theologically with the extreme radical Protestant view that negates man's likeness to God subsequent to the Fall.

Now, it is absolutely clear from the second paragraph of the Declaration of Independence that the concept of natural law upon which the nation is founded is the Platonic Christian concept.

B. *Imago Dei*

According to the Declaration of Independence, it is self-evidently true "that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness." Because man is created in the image of God the Creator, and therefore, like the Creator, is endowed with reason, it is self-evident to him through the use of that reason that all men are created equal and are thus sovereign individuals under natural law. It follows, therefore—contrary to the arguments of today's advocates of multiculturalism—that there is only one human race. Moreover, because all human beings are created equal and are equally in the image of God, they all have certain inalienable rights. In other words, natural reason dictates that all human beings, since they are all equally created in the image of God, are endowed with certain irreducible rights as sovereign individuals, including life, liberty, and the pursuit of happiness.

As Lyndon LaRouche has pointed out, the latter principle of the right to "life, liberty, and *the pursuit of happiness*" most clearly associates the U.S. Declaration of Independence with the Christian Platonism of Gottfried Wilhelm Leibniz, in direct opposition to the Aristotelian dogma of John Locke's "life, liberty, and *property.*"

C. Consent of the Governed

In the third paragraph of the Declaration of Independence, we read that "Governments are instituted among Men, deriving their just powers from the consent of the governed." This concept, which, as we shall see, was first put forward by Nicolaus of Cusa, presupposes that, since God is free, all men who are created in His image, are free by nature. Therefore, governments, to be true to the Laws of Nature, derive their power from the consent of the people. This concept of the necessary "consent of the governed" is not, however, contrary to the notion that the authority of government ultimately derives from God. For, since God's law is infused in all men, the authority of government is from God by way of man, namely, by the consent of man, himself governed by natural reason. Moreover, the powers of government are only "just" to the extent that they derive from the consent of the governed acting in harmony with God's law infused in their minds.

On this basis, in the fourth paragraph of the Declaration of Independence, the Founding Fathers declare that whenever any government or any law enacted by a government contradicts natural law and becomes destructive to the inalienable rights of man, "it is the Right of the People to alter or abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form as to them shall seem most likely to effect their Safety and Happiness." Although governments should not be changed for "light and transient causes," if a government "evinces a design to reduce them under absolute Despotism, it is their right, it is their duty to throw off such Government, and to provide new Guards for their future security."

On Catholic Concordance

There is no known documentation that any of the Founding Fathers was directly influenced by reading the political writings of the Fifteenth-Century cardinal Nicolaus of Cusa. Nonetheless, it is well documented that many of the Founding Fathers were influenced by the philosophy of Gottfried Wilhelm Leibniz, whose own writings were the primary means by which the philosophy of Cusanus was introduced into the American colonies.

The book which, more than any other, paved the way philosophically for the Declaration of Independence, was *On Catholic Concordance,* written by Nicolaus of Cusa in the year 1433. The reader who is unfamiliar with Nicolaus of Cusa will be shocked to see the extent to which the principles in the Declaration of Independence, written in 1776, are clearly stated almost 350 years earlier by Cusanus.

In the following excerpts from *On Catholic Concordance,* Cusanus outlines the principles which later came to be expressed in the Declaration of Independence:

> . . . from the beginning men have been endowed with reason which distingishes them from animals. They know because of the exercise of their reason that association and sharing are most useful—indeed necessary for their self-preservation and to achieve the purpose of human existence. Therefore by natural instinct they have joined together and built villages and cities in which to live together. And if men had not established rules to preserve peace, the corrupt desires of many would have prevented this union from improving human life. For this reason cities arose in which the citizens united and adopted laws with the common assent of all to preserve unity and harmony, and they established guardians of all these laws with the power necessary to provide for the public good. It was clear that by a marvelous and beneficent divine law infused in all men, they knew that associating together would be most beneficial to them and that social life would be maintained by laws adopted with the common consent of all—or at least with the consent of the wise and illustrious and the agreement of the others.
>
> All legislation is based on natural law and any law which contradicts it cannot be valid. Hence since natural law is

naturally based on reason, all law is rooted by nature in the reason of man. The wiser and more outstanding men are chosen as rulers by the others to draw up just laws by the clear reason, wisdom, and prudence given them by nature and to rule the others by these laws and to decide controversies by the maintenance of peace. From this we conclude that those better endowed with reason are the natural lords and masters of the others, but not by any coercive law or judgment imposed on someone against his will. For since all are by nature free, every governance, whether it consists in a written law or is living law in the person of a prince—by which subjects are compelled to abstain from evil deeds and their freedom directed towards the good through fear of punishment—can only come from the agreement and consent of the subjects. For if by nature men are equal in power and equally free, the true properly ordered authority of one common ruler who is their equal in power cannot be naturally established except by the election and consent of the others and law is also established by consent.

All legitimate authority arises from elective concordance and free submission. There is in the people a divine seed by virtue of their common equal birth and the equal natural rights of all men so that all authority—which comes from God as does man himself—is recognized as divine when it arises from the common consent of the subjects.

Free election based on natural and divine law does not originate from positive law nor from any man upon whose will the validity of the election depends.

It is the common opinion of all the experts on the subject that the Roman people can take the power to make laws away from the emperor because he derives his power from the people. . . . When they order something contrary to a divine commandment it is evident that the command does not share in the divine rulership, and so one should not obey it. . . . No one is obliged to observe an unjust law, and no living person is exempt from a just one.

As can be seen from the above excerpts, Cusanus derives the concept of government by the consent of the governed from the self-evident fact that all men are created equal and have equal natural rights insofar as they are created in the image of God and are thus endowed with the capacity for creative reason (*capax Dei*). Thus government derives its just power from God as mediated through the consent of the people. That Cusanus is not advocating pure democracy, which, because it is not based upon reason, tends to devolve towards mob rule, but rather a democratic-republican or representative form of government, is evident by the fact that those who govern must do so in accordance with Divine Reason and those who are governed must give their consent based on the same reason infused in all men and women by nature.

Supranational Government vs. A Community of Sovereign Nations

In *On Catholic Concordance,* Cusanus develops the notion of national sovereignty, as did Dante Alighieri (1265-1321) before him in his *On World Government.* But, since the nation-state did not yet exist, both Dante and Cusanus were forced to develop it within the context of the existing Holy Roman Empire. From their standpoint, the conception of national sovereignty did not exclude the idea of a higher form of government, as long as that government was in harmony with the principles of natural law. It was thus the hope of Dante, Cusanus, and even Leibniz, that the Holy Roman Empire could be so reformed as to perform the role of a world government of last resort, which, because it was above the individual nation-states, could adjudicate between them and guarantee the peace based upon its greater adherence to natural law.

However, in order to allow the development of sovereign nation-states, both Cusanus and Dante insisted upon a strict separation of church and state within a transformed Holy Roman Empire. In Book III of his *On World Government,* Dante attacked the so-called "Donation of Constantine," a spurious Roman Empire document purporting to grant imperial political power to the Church. According to Dante, the authority for temporal world government must come directly, without intermediary, from God—and not from the Papacy or Church institutions. Similarly, in Book III of *On Catholic Concordance,* Nicolaus of Cusa argues that the Holy Roman Empire itself comes from God, as mediated through the consent of the Romans; he also correctly argued, based upon historical sources, that the "Donation of Constantine" was a fraudulent, fictitious document.

By establishing that temporal government does not derive its authority from the Church, but rather from God as mediated through the consent of the governed, Cusanus laid the basis for the later emergence of the sovereign nation-state and the idea of a family of nation-states subordinate to the principles of natural law.

Although today we would not agree that it were possible for a world government to reflect adequately the principles of natural law—certainly, the United Nations does not reflect such principles today—nonetheless, the efforts of Dante, Cusanus, and Leibniz to reform the Holy Roman Empire so as to allow for the development of national sovereignty are reflective of the underlying ideas expressed by Lyndon LaRouche

in *The Science of Christian Economy,* that

> sovereign nation-state republics are *almost* perfectly sovereign. This sovereignty is to be subordinated to nothing but the universal role of what Christian humanists, such as St. Augustine, Nicolaus of Cusa, and Gottfried Wilhelm Leibniz, have defined as that natural law fully intelligible to all who share a developed commitment to the faculty of creative reason.

In *On World Government,* Dante argues that "the proper work of mankind taken as a whole is to exercise continually its entire capacity for intellectual growth, first, in theoretical matters, and, secondarily, as an extension of theory, in practice." Dante argues that a world government is necessary to establish the universal peace required to accomplish this purpose. "World-government . . . must be understood in the sense that it governs mankind on the basis of what all have in common and that by a common law it leads all toward peace." However, Dante recognized that "not every little regulation . . . could come directly from the world-government." Therefore, he writes that "nations . . . have their own internal concerns which require special laws."

In *De Vulgari Eloquentia,* a book aimed at developing the vernacular Italian language, Dante argues that, since man as distinct from animals is endowed with reason and communicates through speech, and that since the vernacular is a more natural form of communication, whereas the proliferation of local dialects is an obstacle to such communication, the creation of a literate form of vernacular language common to an entire nation-state (such as Italy) is a necessary precondition for the intellectual growth of a people and for the development of its capacity to exercise self-government increasingly more intelligently. As Lyndon LaRouche emphasizes in *The Science of Christian Economy,* the development of a literate form of popular language common to an entire nation-state is the necessary precondition for the participation of a citizenry in policy deliberations based on natural law.

In *On Catholic Concordance,* Nicolaus of Cusa puts greater emphasis than does Dante on the sovereignty of the provinces within the Church or the nations within the Empire. In arguing on behalf of sovereignty, Cusanus cites the decrees of the Nicene Council:

> . . . the Nicene decrees clearly committed the lower clergy and the bishops to their metropolitans, for they saw it as most prudent and just that matters should be settled in the areas where they had arisen. . . . The Nicene Council decided that the synod of the province is to decide the things that concern each province. The same definition by the Nicene Council declares that it is to govern and administer everything. . . . Whatever arises within the province should be heard and finally decided by fellow members of the province.

As Lyndon LaRouche concludes in *The Science of Christian Economy,*

> What we must establish soon upon this planet, is not a utopia, but a *Concordantia Catholica,* a family of sovereign nation-state republics, each and all tolerating only one supranational authority, *natural law,* as the classical Christian humanists recognized it. Yet, it is not sufficient that each, as a sovereign republic, be subject passively to natural law. A right reading of that natural law reveals our obligation to co-sponsor certain regional and global cooperative ventures, in addition to our national affairs.

There are several important points that need to be made based upon the above discussion. First, even though we would not today advocate the equivalent of the Holy Roman Empire or a world government, the nation-state cannot be conceived of as absolutely sovereign, since its sovereignty derives from natural law which, as the ordering principle of all of God's creation, is supranational.

A corresponding concept of world government which is more appropriate to today's world, is that all nations should be governed by natural law as a supranational principle. The concept which flows from this is that of a family of sovereign nation-states which share a community of principle based on natural law. Such a community of sovereign nation-states subordinated to common principles of natural law will necessarily be at peace with one another.

One consequence of such a community, is that any government which violates the supranational authority of natural law and "evinces a design" to reduce its own people or those of another nation under absolute despotism, may lawfully be abolished. Insofar as it systematically abuses the laws of nature, it has abandoned the very basis for its own claim to sovereignty.

Does this mean that the doctrine of "limited sovereignty," cited as the basis for United Nations interventions today throughout the world, is valid? No, not at all. In the case that a government systematically abuses the inalienable rights of its citizenry or those of its neighbor, as in the cases of the Pol Pot government in Cambodia which committed genocide against its own population, the Hitler government of Nazi Germany, or the current fascist government of Serbia, that government's sovereignty is indeed limited for the very reason that it has violated the supranational authority of natural law.

But, the doctrine of limited sovereignty currently being put forward to justify United Nations interventions, in violation of the principle of national sovereign-

ty, is a different matter, however, *because the policies of the United Nations are themselves in violation of natural law.*

As long as the United Nations acts as the enforcement arm for the usurious, "free trade," genocidal population-reduction and technological-apartheid policies of the International Monetary Fund and World Bank, it has no right to "limit" the sovereignty of any of its member states. What is more, in carrying out such policies, it itself has become a form of government destructive of the ends of man and therefore should be either altered or abolished according to the principles of natural law expressed in the American Declaration of Independence.

Furthermore, as LaRouche emphasizes, it is not sufficient to conceive of national sovereignty only negatively, as passive adherence to natural law. The Golden Rule can be expressed both negatively and positively. Negatively, we should do nothing to another, except that which we wish done to us. Positively, we should do unto others, as we would have them do unto us. From the Christian standpoint, the latter, positive expression of the Golden Rule has precedence. It is not enough merely to forbear from violence against others. Natural law requires active benevolence.

Rijksmuseum-Stichting, Amsterdam

"The Return of the Prodigal Son."

Thus, national sovereignty is not autarchical or isolationist. It is not based upon self-love narrowly defined. Rather, every nation has a responsibility to participate in and co-sponsor regional and global cooperative efforts with other nations to the mutual benefit of the human species as a whole.

Certainly no nation should become involved in "entangling foreign alliances" in violation of natural law. However, every nation is obligated to participate with other anti-oligarchical, sovereign nation-state republics in those projects which defend, maintain, and improve civilization as a whole. Thus, such endeavors as the economic development of Eurasia or the economic integration of the Ibero-American continent, for example, if they are accomplished in a manner coherent with natural law, are not only not antagonistic to national sovereignty, but can contribute to fulfilling the purpose of the nation-state, both in respect to the development of its own people and in respect to its contribution to the development of its neighbors.

On the other hand, regional or global programs premised upon usurious so-called free trade in violation of natural law, are antagonistic to national sovereignty and are the kind of "entangling foreign alliances" which George Washington advised us to eschew.

The positive basis in natural law for the harmonious relationship among many sovereign nation-states, is the same as that for the harmonious relationship of many sovereign individual citizens in a single sovereign nation—the Christian expression of the solution to Plato's *Parmenides* paradox of the One and the Many. Contrary to the Enlightenment view of Thomas Hobbes and Samuel Pufendorf, the solution to this paradox is not the suppression of the Many by the One.

In his *On Catholic Concordance,* Nicolaus of Cusa addresses this problem directly. Cusanus argues that, since man is created in the image of God the Creator, that which distinguishes man from an animal is creative reason. Every single human being has this capacity to be in the likeness of his or her Creator (*capax Dei*). Discord among men and among nations occurs if men or nations sin by acting in opposition to the divine laws of reason imprinted upon their minds. Concordance among men

and nations, on the other hand, occurs to the extent that the many are in "rational harmony with the Word" or *Logos*. Such rational harmony with the Word gives rise to "a concordance of all rational creatures." This concordance, because it is based on the very nature of man, does not do violence to him, but rather is the sole means by which his sovereign individuality can be preserved and his end achieved. As Cusanus writes: "And this is our fundamental premise—that the Word is the wisdom of the Father, and wisdom is life." (Proverbs 8)

Such a concept of natural law, of course, runs totally contrary to the geopolitical notions of "balance of power" and "divide and conquer." Neither individuals nor nations are, from the standpoint of natural law, inherently antagonistic to one another. Any attempt to achieve "peace" by manipulating one individual or nation against another will result not in peace, but inevitably in discord and war.

Instead, the concept of natural law leads directly to the issue of the economic development of nations, as the means by which the capacity shared by all human beings to be *capax Dei* may be fostered. Hence, in the Declaration of Independence, among the grievances cited by the Founding Fathers to justify their separation from Great Britain were that King George III had violated the laws of nature by endeavoring "to prevent the population of these States," "cutting off our Trade with all parts of the world," and "imposing Taxes on us without our Consent." Although it is not explicitly cited in the Declaration of Independence, it is also well known that the colonies were forbidden by law from developing manufactures and were thus restricted to being raw-materials exporters.

Thus, when the Declaration of Independence argues that it is "the Right of the People to . . . institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness . . . and to provide new Guards for their future security," we must conclude that the Founding Fathers were asserting the right of a people to organize its powers in such a way as to develop the economy of the nation and to expand its population. Only if such powers are invested in the sovereign nation-state can the government facilitate the "intellectual growth" of its citizenry.

In *The Science of Christian Economy,* Lyndon LaRouche identifies this crucial feature of the principle of national sovereignty as follows:

> The essence of good modern statecraft is the fostering of societies, such as sovereign nation-state republics, the which, in turn, ensure the increase of the potential population-densities *per capita* of present and future generations of mankind as a whole, and which societies promote this result by the included indispensable, inseparable means of emphasis upon promoting the development and fruitful self-expression of that *divine spark* which is the sovereign individual's power of creative reason.

As LaRouche has demonstrated, for a society to continue to survive, it must increase its potential population-density. This necessitates the creation of national governmental agencies, including a national bank, capable of fostering economic development as mediated through scientific and technological progress.

The necessity of fostering such progress is a law of nature, and any government which attempts to suppress the economic development of a people is in violation of natural law and must either alter its course of policy or be abolished.

This concept of natural law, implicit in the Declaration of Independence, is enunciated in the Book of Genesis. After creating man in His own image, God said: "Be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth." (Genesis 1:28)

If we look at the policies which are being imposed by the International Monetary Fund both on the nations of the Third World and the newly liberated former communist nations of Eastern Europe and the former Soviet Union, it is immediately apparent that they are in violation of these "Laws of Nature and of Nature's God." According to the Declaration of Independence, every nation has the right to "organize its powers," including its powers to promote its own economic development, "in such form, as to them shall seem most likely to effect their Safety and Happiness."

The efforts by the I.M.F. to force nations to dismantle their public-sector industries, to subject their national budgets to I.M.F. austerity conditions, to dismantle their militaries, to impose forced sterilization programs in order to reduce their populations, and to refuse them high technology necessary to the development of their peoples are thus, by the standards of our own Declaration of Independence, a violation of the principles of natural law so grave that if we as a people were true to our founding principles, we would not only *not* support, but would help to abolish them as tyrannical.

Leibniz vs. Pufendorf on Natural Law

Those who have wanted to subvert the commitment of the U.S. population and its government to natural-law principles, as those are reflected in the Declaration of

Independence, have spared no effort in rewriting U.S. history. So just as we are now falsely told that the American Revolution was based upon the economic theories of Adam Smith's *The Wealth of Nations,* we are also told that the concept of natural law upon which the Declaration of Independence and U.S. Constitution are based is the Enlightenment viewpoint of such Venetian Party spokesmen as John Locke, Samuel Pufendorf, Hugo Grotius, and Thomas Hobbes. Although these four differ from one another in regard to secondary matters, they share the same general assumptions about man. For purposes of efficiency, it is necessary to present only the argument of Samuel Pufendorf, as refuted by Gottfried Wilhelm Leibniz, and certain crucial features of the argument of Hugo Grotius, to firmly establish why this concept of natural law is *not* that upon which our nation was founded. This approach is facilitated by the fact that Pufendorf explicitly locates his theory in the context of the writings of the other three.

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"Christ and the Woman of Samaria, among Ruins."

In his *On the Duty of Man and Citizen* (1673), Pufendorf begins by divorcing his conception of natural law from moral theology. Having thus separated the laws of nature from nature's God, Pufendorf adopts an atheistic concept of natural law which defines man as not in the image of God. Rather, he takes man as he is after the Fall, "as one whose nature has been corrupted and thus as an animal seething with evil desires." He explicitly argues that "it would be inappropriate to try to deduce natural law from the uncorrupted nature of man." Thus, Pufendorf reduces man to the condition of an animal dominated by two passions—self-love and self-preservation—ignoring man's truer, elevated nature *in the image of God.* He writes:

> In common with all living things which have a sense of themselves, man holds nothing more dear than himself, he studies in every way to preserve himself, he strives to acquire what seems good to him and to repel what seems bad to him. This passion is usually so strong that all other passions give way before it. And if anyone attempts to attack a man's safety, he canot fail to repel him, and to repel him so vigorously that hatred and desire for revenge usually last long after he has beaten off the attack.

Therefore, according to Pufendorf, man concludes that "in order to be safe, it is necessary for him to be sociable," that is, to escape the state of nature in which each is constantly at war with all, man must subordinate his liberty to the will of a superior. "In becoming a citizen, a man loses his natural liberty and subjects himself to an authority whose powers include the right of life and death."

Pufendorf continues: "In a state all have subjected their own will to the will of those in power in matters affecting the state's security, so that they are willing to do whatever the rulers wish."

In the chapter, "On the Characteristics of Civil Authority," he elaborates on his concept of sovereignty:

> Every authority by which a state in its entirety is ruled, whatever the form of government, has the characteristic of supremacy. That is, its exercise is not dependent on a superior; it acts by its own will and judgment; its actions may not be nullified by anyone on the ground of superiority. Hence it is that authority in this sense is unaccountable . . . . Conformably with this, the sovereign authority is superior to human and civil laws as such, and thus not directly bound by them.

Moreover, according to Pufendorf, the people do not have the right to rebel:

> Sovereign authority, finally, has also its own particular sanctity. It is therefore morally wrong to the citizens to resist its legitimate commands. But beyond this even its severity must be patiently borne by citizens. . . . And even when it has threatened them with the most atrocious injuries, individuals will protect themselves by flight or endure any injury or damage rather than draw their swords against one who remains the father of their country, however harsh he may be.

In respect to foreign policy, since the states are in the state of nature with each other, they are thereby constrained to act defensively, not benevolently, on the expectation that friendly states may become enemies, and that peace may become war. This argument leads necessarily to geopolitical balance of power policies and to a perpetual state of warfare.

Pufendorf derives his notion of "sociality" as the source of natural law from Grotius. Grotius argues in *The Law of War and Peace* that "the source of all law" is the "care to preserve society." Grotius explicitly identifies this trait with what the Stoics call "friendliness."

Grotius then argues that "what we have just said would have validity, even if we granted what cannot be granted without great wickedness, that there is no God, or that he has no care for human affairs." Even though Grotius states that "the opposite belief has been instilled in us, partly by our reason, partly by an unbroken tradition, confirmed by many proofs and miracles attested through every age," in making this statement, he has nonetheless argued that it is not necessary to presuppose the existence of God as the basis for natural law.

In fact, Grotius does not define the first general principles of natural law as love of God and of our fellow man, but rather, following the Stoics, he argues that the first general principles are self-preservation and the desire for society. As a result, he expressly distinguishes between the New Testament law of love, and the law of nature. This leads him to the view that in joining society, men "submitted themselves to some other man or men," and promised to "conform to any decision taken . . . by those to whom authority had been committed."

Having effectively divorced natural law from moral theology, Grotius then reduces natural law to a form of customary law. For he writes that whenever many men

> at different times and in different places declare the same thing to be true, their unanimity must be ascribed to a universal cause, which, as we inquire into it, can be nothing else than a correct inference from the principles of nature, or some general consensus. The former means a law of nature, the latter a law of nations.

The effect of inferring natural law inductively, primarily from examples from Greek and Roman history, is to separate natural law from moral theology. Moreover, deriving the law of nations by consensus denies the supranational authority of natural law.

On the question of sovereignty, Grotius, like Pufendorf, argues that the ruler's acts are "not subject to the legal control of anyone else, and cannot be rescinded at the pleasure of another human will." Moreover, he explicitly rejects "the opinion of those who maintain that everywhere and without exception, sovereignty lies in the people" and argues that "it is not universally true that all government was created for the benefit of the governed."

Leibniz, in his *Opinion on the Principles of Pufendorf,* after first criticizing Pufendorf for divorcing natural law from moral theology, further criticizes him for locating natural law not "in the nature of things and in the precepts of right reason which conform to it, which emanate from the divine understanding, but . . . in the command of a superior."

This issue, which Leibniz has identified, most uniquely differentiates the true concept of natural law upon which our nation was founded from the one which has subverted our institutions, to the extent it has been accepted as valid.

To better examine the implications of Pufendorf's location of natural law in the command of a superior, Leibniz asks whether natural law is based upon the arbitrary will of God or derives from the divine idea of justice which informs God's will? If the former is true, then God would be a tyrant and his creation would have no necessary lawful order discoverable by the mind of man. But this is absurd.

As Nicolaus of Cusa argues in respect to the Gospel of John, God the Father was never without his consubstantial Son, the Word or Reason, through which all things are created: "In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God. All things came to be through Him, and without Him nothing came to be."

Leibniz concludes by summarizing his own view of natural law in opposition to that of Pufendorf:

> The end of natural law is the good of those who observe it; its object, all that which concerns others and is in our power; finally, its efficient cause in us is the light of eternal reason, kindled in our minds by the divinity.

Conclusion

Ironically, as Lyndon LaRouche has stressed, the advances that man has achieved in the last five-and-a-half centuries, and his potential to advance further in the

next century, derive from the Platonic Christian notion of natural law as that was developed by Nicolaus of Cusa and reaffirmed by Gottfried Wilhelm Leibniz, especially as that notion found expression in the founding of the United States of America. However, unfortunately, this concept of natural law, although still the motor force of all progress made by mankind, is no longer hegemonic culturally. Rather, the opposing fraudulent Aristotelian concept of the Venetian Party's Enlightenment has become culturally dominant.

As LaRouche wrote at the conclusion of his essay, "How Bertrand Russell Became an Evil Man,"

> Five-and-a-half centuries after the Council of Florence, Venice and its outgrowth, the "Venetian Party," has come to dominate not only the financial institutions of the world, and most of the political ones, but also dominates the institutions of science, arts, and education generally. Under this reign, the world has been brought to the verge of a general collapse of an apocalyptic quality like that of the Fourteenth Century, but much worse. Time is running out rapidly.

The unprecedented task for mankind at this moment of world history is to effect a renaissance, such as that of the Fifteenth Century, without having to go through a Dark Age like that of the Fourteenth. Lyndon LaRouche has referred to this task as "building a bridge from Hell to Purgatory." If we are to build such a bridge in the face of the current ongoing collapse, it will require that we effect a "reverse paradigm shift" in the immediate period ahead, through a revival of the concept of natural law as the Golden Renaissance and the founding of the American Republic have bequeathed it to us.

APPENDIX I

Natural Law and Scripture

As opposed to Aristotelian religious fundamentalists, who interpret Scripture literally, as if isolated judicial precepts contained within it were eternally binding, and who counterpose arbitrary scriptural authority to science, the Platonic Christian tradition of St. Augustine, St. Thomas Aquinas, Nicolaus of Cusa, and Gottfried Wilhelm Leibniz regards Scripture as a necessary, divinely inspired aid to human reason, which must, however, be interpreted from the standpoint of the reason God has imprinted upon our minds.

Thus, for example, Aquinas insists that the precepts of the Old Testament (Old Law) are only valid insofar as they reflect natural reason and the law of love. As Aquinas wrote: "The Old Law showed forth the precepts of the natural law, and added certain precepts of its own. Accordingly, as to those precepts of the natural law contained in the Old Law all were bound to observe the Old Law; not because they belonged to the Old Law, but because they belonged to the natural law."

In making this statement, Aquinas points to the fact that the Apostle Paul (Rom. 2:14) argues that "the Gentiles, who have not the Law, do by nature those things that are of the Law." In other words, the moral principles contained in the Decalogue of the Old Law belong to the law of nature as instilled in the mind of man. Therefore, since morality is in accordance with the right use of reason, even though the Old Law was not revealed to the Gentiles, through the exercise of reason all men are capable of discovering those universally valid moral precepts revealed in the Divine Law.

In the New Testament of the Bible, when Christ is asked, "Which commandment in the law is the greatest?" he answers, "You shall love the Lord, your God, with all your heart, with all your soul, and with all your mind. This is the greatest and the first commandment. The second is like it: You shall love your neighbor as yourself. The whole law and the prophets depend on these two commandments." (Matt. 22:37-40) (*Cf.* Dt 6:5 and Lv 19:18)

What Thomas Aquinas argues in his "Treatise on Law" is that, although these two principles are not explicitly contained in the Decalogue, they are "the first general principles of the natural law, and are self-evident to human reason, either through nature or through faith. Therefore all the precepts of the Decalogue are referred to these as conclusions to general principles."

This same conception is put forth by Nicolaus of Cusa in his dialogue *On the Peace of Faith* as the very basis for establishing peace among all nations. What Cusanus has the Apostle Paul say in the dialogue is the following:

> The divine commandments are very brief and are all well known and common in every nation, for the light that reveals them to us is created along with the rational soul. For within us God says to love Him, from whom we received being, and to do nothing to another, except that which we wish done to us. Love is therefore the fulfillment of the law of God and all laws are reduced to this.

Aquinas also writes, "the precepts of the Decalogue can be reduced to the precepts of charity."

Now, according to Aquinas,

> Since the Decalogue is from God, its moral precepts as to the notion of justice which they contain, are unchangeable; but as to any determination by application to individual actions, for instance that this or that be murder, theft, or adultery, or not—in this point they admit of change; sometimes by Divine authority alone; sometimes also by human

> authority, namely, in such matters as are subject to human jurisdiction . . . .

However, such change must be based not upon the arbitrary will of either Divine or human authority, but rather upon reason.

For example, argues Aquinas, citing Augustine's *On the Free Choice of the Will,*

> The slaying of a man is forbidden in the Decalogue insofar as it bears the character of something undue, for in this sense the precept contains the very essence of justice. Human law cannot make it lawful for a man to be slain unduly. But it is not undue for evil-doers or foes of the commonwealth to be slain . . . .

For, to argue otherwise would be to say that God Himself violated the moral precepts of the Decalogue and commanded man to violate the same. The apparent contradiction between the moral precept of the Decalogue commanding "Thou shalt not kill," and the slaying of a murderer by the state or of an enemy in warfare, can only be resolved in the way suggested by Augustine and Aquinas, i.e., by reference to the notion of justice.

That does not mean, however, that the punishments specified in the Old Law, such as the death penalty, must be applied today as a fundamentalist, literal interpretation of the Bible would suggest. The determination of justice must take into consideration the moral development or perfection of man as a process over time; and justice must be tempered by love.

Hence, according to Aquinas, the moral precepts of the Decalogue are unchangeable and belong to natural law, but judicial precepts of the Old Law which are not derived from natural reason, lose their binding force: "The obligation of observing justice is indeed perpetual. But the determination of those things that are just according to human or Divine institution must be different, according to the different states of mankind." Thus, the responsibility for interpreting the revealed (Divine) Law, rests within man's exercise of the reason which makes him *imago Dei.*

APPENDIX II

Moral Precepts: Natural Law and The Sermon on the Mount

From a Christian standpoint, natural law is expressed most perfectly in the counsels of Christ in his Sermon on the Mount, for the reason that natural law is the participation of human reason in eternal law, which is the type of Divine Wisdom. Christ himself, who is the Word-become-flesh, is the highest expression of such participation. In *On Learned Ignorance,* Nicolaus of Cusa writes that "Christ is the center and the circumference of intellectual nature" and that "Christ, the head and source of every rational creature, is Maximal Reason, from which all reason derives."

Despite the fact that many of Christ's counsels would seem to run against what is commonly defined as human nature, man is true to his real nature, as in the living image of God, only to the extent that he subordinates his will to the Supreme Reason of God. Natural reason, aided by Divine Law, tells us that we should love our Creator and love our neighbor as ourselves, and that therefore we should do good to our enemies and forgive those who injure us.

Since reason tells us that we should hate the sin and not the sinner, and since we are all sinners and Christ came to save sinners, not the righteous, it should be clear that from the standpoint of natural law, it were morally preferable to correct evil in such a way as to not shed the blood of another human being.

However, under extreme necessity, it is not contrary to love of God and love of one's neighbor to use force against evil, if it is done for the common good and for the good of even those with whom one must fight. Under those conditions, force is employed not out of hatred, but rather out of love for one's enemy, not for the sake of vengeance, but to defend the public good and to liberate even one's enemy from a condition that violates the image of God within him.

In his commentary *On the Lord's Sermon on the Mount,* Augustine argues that

> A punishment that is designed for the purpose of correction is not hereby forbidden; for that very punishment is an exercise of mercy, and is not incompatible with the firm resolve by which we are ready to suffer even further injuries from a man whose amendment we desire. But no one is fit for the task of inflicting such punishment unless—by the greatness of his love—he has overcome the hate by which those who seek to avenge themselves are usually enraged . . . . The moral is that, when a man inflicts a penalty, his intention ought to be to make the offender happy by a correction, rather than unhappy by a punishment; and that if necessity demands it—whether he possesses or lacks the authority to restrain the offender—he ought to be ready at all events to tolerate calmly even further injuries done to him by a man whose correction he is seeking to bring about.

This was the case in the American Revolution and in the U.S. Civil War, both of which were fought as a last resort against tyranny and the institution of slavery. Nonetheless, as necessary as such wars may have become,

the best way to avoid them before the fact, and to ensure that the conclusion of one war does not sow the seeds for another, is to heed Christ's counsel in the Sermon on the Mount and strive to be perfect just as our heavenly Father is perfect.

- Thus, we must oppose imposition of the death penalty as being in violation of the principle of charity, which underlies the concept of natural law. Even though both Augustine and Aquinas accept capital punishment, clearly, in most of the world today, imprisonment is an alternative which guarantees the public safety and therefore the death penalty cannot be justified as a last resort. This argument is bolstered by application of the concept of natural law developed by Augustine and Aquinas, according to which, since no one can know the eternal law as it is in itself, human laws cannot be altogether unerring (although they can and must be brought into increasingly less imperfect harmony with the Good itself through the use of the natural reason impressed upon us).

© British Museum

"Christ at Emmaus."

- As the ongoing Serbian military aggression against Bosnia presents the case, a defensive war to prevent genocide clearly meets the requirements of a just war from the standpoint of natural law. However, we should not forget that the underlying cause of war in the world today is the lust on the part of the Venetian oligarchy for a Malthusian one-world order, and that therefore the most effective way to eliminate the potential for war is to mobilize to replace those Malthusian economic policies with a policy of economic development which reflects love of God and love of one's neighbor.
- As the U.S. Declaration of Independence emphasizes, the right to rebel against tyranny is consistent with natural law. Where possible, however—as was the case in the peaceful revolutions of 1989 in the former Soviet Union and in Eastern Europe, whatever other limitations those revolutions had insofar as they were incomplete—it is preferable that tyrannical governments be overthrown without resort to violence. But, as we see in the case of these peaceful revolutions, the task now is to bring the economies of the nations liberated from communism into harmony with natural law, rather than subjecting them to the violence of the liberal capitalism of the I.M.F. and international financial institutions. For the liberal capitalism of the Venetian oligarchy is nothing but the modern form of usury, as Lyndon LaRouche has argued most recently in his essay, "The Truth About Temporal Eternity":

> No Christian, nor any other follower of Moses, can tolerate the philosophy of John Locke or the 'free trade' dogma of the slave-trading, opium-trading British East India Company's hired apologist, Adam Smith. To promote the practice of 'free trade' is to break every part of the Decalogue into little pieces, and, having done that, to spit in the Face of God. This is no mere opinion, nor is it exaggerated; it is provably a scientific certitude more relentless than the laws of planetary motion of our solar system. It is long past the time someone ought to have said that straight out, loud and clear.

For the core of Adam Smith's dogma is a radical Aristotelian rejection of the law of love and its replacement by the law of animal lust for temporal gain. Nor is this merely a matter of personal immorality; as LaRouche has stressed, a monetary system based upon usury is one in which sooner or later the economic host will be devoured by the usurious parasite, resulting in a homicidal collapse of society as a whole.

Independent Committee Reviews Evidence

Legal Experts Call For LaRouche Exoneration

On September 3, Curtis Clark, a California trial attorney, released the statement of an independent committee of international jurists and public officials convened to review the case of American economist Lyndon LaRouche, who in 1988-89 was tried, convicted, and sentenced to fifteen years in Federal prison, of which he served five.

The independent committee drafted its statement after having reviewed six volumes of evidence in the LaRouche case. The statement has appeared as a paid advertisement in the Boston Globe, Washington Post, Richmond Times-Dispatch, Beaumont Enterprise, Arkansas Democrat-Gazette, Birmingham News, Birmingham World, Florence Times Daily, Wilmington News Journal, and Roll Call. The text of the statement follows.

* * *

We, the undersigned, assembled in Vienna, Virginia, on Sept. 1 and 2, 1994, having studied numerous documents concerning the case of *United States vs. Lyndon H. LaRouche, Jr. et al.,* have come to the conclusion that there has been a gross, even conspiratorial, misuse of prosecutorial and investigative powers by officials and agents of the U.S. Government. The common purpose and concerted action of the conspirators was to secure criminal convictions of Lyndon LaRouche and his associates to destroy their political movement.

Throughout the investigation and during the trial, the prosecution, in collaboration with others and in furtherance of the conspiracy, engaged in a course of conduct intended to conceal or otherwise prevent the discovery of the innocence of LaRouche and his associates; concealed or otherwise prevented the disclosure of other exculpatory evidence and evidence relevant to the defense; falsely characterized facts or evidence in an effort to mislead the court, the jury, and the defense; solicited and presented false testimony; and obtained false convictions by wrongful and deceptive acts.

We are concerned because these legal questions not only touch on important issues regarding the Constitution of the United States of America, a codification of natural law, but present issues vital for the tradition and culture of human rights and dignity throughout the world. The disregard of the rule of law has caused and may cause a chain of further violations and lead to further miscarriages of justice. A violation of any democratic constitution anywhere in the world undermines freedom everywhere in the world.

No Fair Trial

There have been grave violations of the fundamental right to a fair trial, including (a) political motivation of the criminal charges themselves; (b) repeated instances of prosecutorial misconduct, such as the deliberate and illegal withholding of exculpatory evidence and the presentation of manufactured evidence; and (c) the lack of impartiality on the part of the trial judge in the U.S. Federal Court in the Eastern District of Vir-

'National Classical Music Month' Celebrated

EIRNS/Stuart Lewis

On Sept. 30, 750 people attended a concert sponsored by the Schiller Institute at the Meridian Hill Baptist Church in Washington, D.C. in celebration of "National Classical Music Month," as decreed jointly by both Houses of Congress and proclaimed by President Clinton. The concert launched a city-wide Classical literacy project, known as "Exhibit A," in conjunction with the recently formed National Conservatory of Music Movement aimed at re-initiating the efforts undertaken a century ago by Antonin Dvořák and Jeanette Thurber to establish a National Conservatory of Music in the U.S.

ginia, demonstrated in many ways, including his failure to empanel an unbiased jury.

The total character of this miscarriage of justice cannot be better expressed than by the words of U.S. Federal Judge Martin V. Bostetter, who ruled in the related bankruptcy case [*In re Caucus Distributors, Inc.* (E.D.Va. 1989), 106 B.R. 890] that "an evaluation of the government's filing [of a bankruptcy petition against companies run by associates of LaRouche] on an objective level leads this Court to conclude that the alleged debtors have established that the government filed the petition in bad faith," and that "the government's actions could be likened to a constructive fraud on the Court, wherein the Court may infer the fraudulent nature of the government's verdict." These findings were previously expressed by Judge Robert Keeton of the U.S. District Court during the government's first unsuccessful criminal prosecution, wherein he described the "institutional and systemic prosecutorial misconduct that occurred during the first trial" [*U.S. v. LaRouche et al.* (Memorandum and Order "Emerson Hearing" August 10, 1988, at p. 56)].

The conclusions expressed here were reached by the undersigned as a result of due deliberation. We were invited to assemble in an independent capacity by the Commission to Investigate Human Rights Violations and the Schiller Institute. We assembled in order to review new evidence never considered on its merits by any competent court of jurisdiction, even though it was submitted to both the courts and the Department of Justice. Invited to present their arguments before us were lawyers for the defendants as well as the main prosecutors of the case; the latter, unfortunately, did not appear. This procedure was adopted in order to enable the participants to form their own legal opinions about the evidence. Together we had the opportunity to study documents directly, to hear the commentaries of defense lawyers Ramsey Clark and Odin Anderson, and to discuss among ourselves and evaluate the documents and their relative convincing evidentiary value. We agree with the assessment by former United States Attorney General Ramsey Clark that this case viewed in context "represented a broader range of deliberate cunning and systematic misconduct over a longer period of time utilizing the power of the Federal government than any other prosecution by the U.S. Government in my time or to my knowledge."

We are mindful of the unlawful persecution and prosecution of dissenters the world over and the threat it poses to the rule of law, freedom, and democracy. We therefore beseech the President, Congress, and all others to investigate, redress, and reform the injustices committed here so that they may never occur again.

Signed (affiliations for purposes of identification only):

Curtis Clark, Esq., trial attorney, San Luis Obispo, California;

The Hon. James Mann, Esq., former member, U.S. House of Representatives, South Carolina

The Hon. Theo W. Mitchell, Esq., State Senator, South Carolina

J.L. Chestnut, Esq., Selma, Alabama; author, *Black in Selma*

James Wilson, Esq., Vice President, Alabama New South Coalition

The Hon. Rufino Saucedo, member (PRI), Congress of Mexico; member, Human Rights Committee of the Mexican Congress

Patricio Ricketts Rey de Castro, Esq., former Minister of Education, Peru; journalist

Chor-Bishop Elias El-Hayek, Collegial Judge, Montreal Regional Tribunal; former professor of Philosophy of Law, Notre Dame School of Law

Professor Kurt Ebert, member, Center of European Law, University of Innsbruck; director, Institute of Austrian and German Legal History, Austria

Viktor Kuzin, chairman, Bureau for Human Rights Defense Without Borders, Moscow; former member of the Moscow City Council

Godfrey Lukongwa Binaisa, Esq., former President, Republic of Uganda; former Attorney General, Republic of Uganda

Appended to the statement was an annotated review of the key findings of the evidence examined. Arrangements to review this addendum, or the full materials considered by the legal panel, can be made by contacting the Schiller Institute at P.O. Box 20244, Washington, D.C. 20041, (202) 544-7018.

Michael Gelber Memorial Fund Established

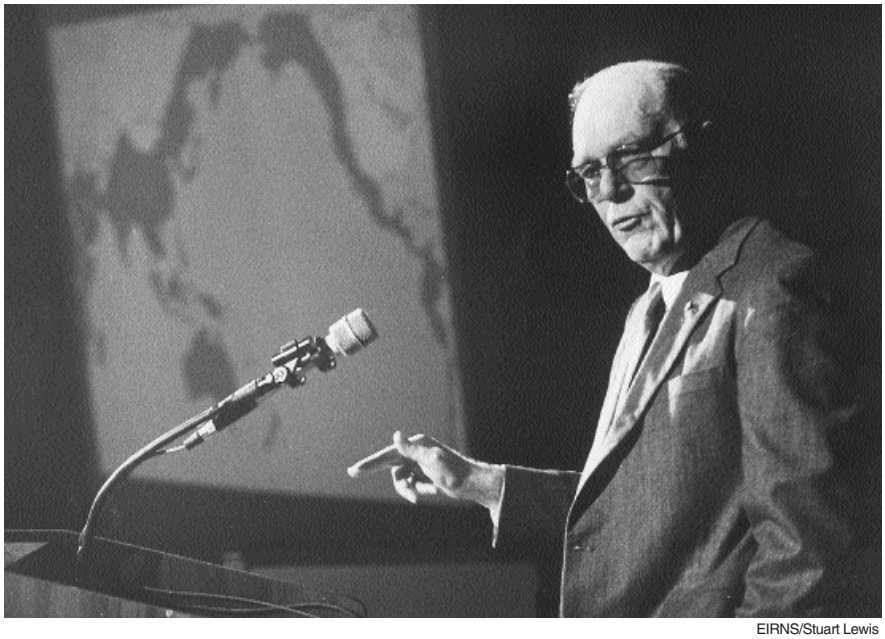
A resolution creating the Michael Gelber Memorial Fund was passed at the September 1994 annual meeting of the Schiller Institute Board of Directors, in commemoration of long-time Schiller Institute member and activist Michael Gelber. Michael's premature and tragic passing in late 1993 has left a void in Schiller Institute activities that is still felt to this day.

The purpose of the Fund, according to the resolution, is to "give American organizers of the Schiller Institute the opportunity to go to Europe, in order to relive the 600-year war between the Renaissance and the Oligarchy."

It is the desire of Debra Gelber, Michael's wife, "that the American organizers who participate in this program are able to come back with those qualities that Michael Gelber embodied: to profoundly communicate these ideas to their fellow Americans who have been sadly cheated out of the Golden Renaissance."

The first recipients of this "travelling fellowship," Peter Bowen and Jeffrey Orr, left for Europe in early September.

Those wishing to contribute to the Fund, should make their checks payable to the Schiller Institute Michael Gelber Memorial Fund, and mail them to P.O. Box 20244, Washington D.C. 20041.



EIRNS/Stuart Lewis

Using maps to show development projects, Lyndon H. LaRouche, Jr. presents program for global reconstruction.

Institute Conference: Mobilize Victory vs. Oligarchy!

'Bridging Hell to Purgatory'

More than 1,000 people came together in Northern Virginia over Labor Day weekend under the banner of the Schiller Institute and the International Caucus of Labor Committees (ICLC), to discuss the perspective for victory over the international financial oligarchy that now threatens human civilization. Keynoting the conference were Lyndon LaRouche, chairman of the ICLC, and his wife Helga Zepp-LaRouche, founder of the Schiller Institute.

The theme of the conference, which occurred on the twenty-fifth anniversary of the Labor Committees and the tenth anniversary of the Schiller Institute, was "Winning the Battle for the Golden Renaissance." As LaRouche outlined in his keynote, the world has reached a turning point, where the bestial policies of the Anglo-Dutch financial grouping, with their drive for United Nations world government, are becoming incompatible with the very existence of human civilization. Thus, the heirs of the Italian Golden Renaissance, who champion human creative reason (since man is made in the image of God), must seize the moment to "build a bridge from Hell to Purgatory," in LaRouche's words, by implementing a massive infrastructure program for the Eurasian land mass.

The political movement led by the LaRouches went into this conference with considerable optimism. In the Spring, the Schiller Institute had declared a global mobilization against the U.N.'s Cairo (De)Population Conference, and, working in parallel with the Vatican and others, had succeeded in virtually blowing up the enterprise in the Malthusians' faces.

We must now use the momentum from our success in the anti-Cairo mobilization to build an effective movement for global economic reconstruction, argued Helga Zepp-LaRouche in her keynote address. As we do so, we must also finally bury the ideologies which the financial oligarchy has used to destroy human creativity. She used the example of Martin Heidegger, once among the most acclaimed philosophical thinkers in the Twentieth Century, whose Nazi past was definitively exposed in 1987.

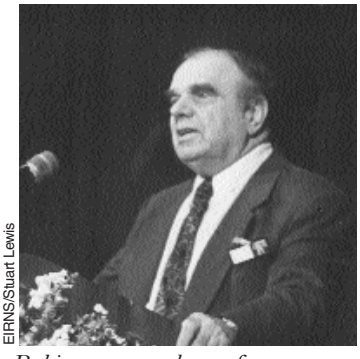
The Economic Crises

The major economic case study presented was that of the health care crisis in the United States. Marcia Merry gave an overview of the history of health care in the U.S., and the tradition of the Hill-Burton Act of 1946. Implementation of the Act led to considerable progress up until the early 1970's, she demonstrated, after which time the logistical basis for supplying medical care either stagnated, or began to be dismantled.

Richard Freeman dramatized the dis-

EIRNS/Philip Ulanowsky

EIRNS/Stuart Lewis



EIRNS/Stuart Lewis

Above: Schiller Institute vice-president Amelia Boynton Robinson opens the conference. Right: Najib Sacirbey, personal representative in the U.S. of the President of Bosnia-Hercegovina, conveys greetings. Left: Rev. James Bevel speaks at conference workshop.

mantling of the system by telling the story of New York City's health care system.

Speaking from the medical community were Drs. Abdul Alim Muhammad, Minister of Health for the Nation of Islam, and Donald McNay, an orthopedic surgeon from Virginia. Dr. Muhammad presented two imperatives for health care reform: parity of treatment for African-Americans, and a program of universal testing and crash biological research on the AIDS pandemic. Dr. McNay reflected on the shift in medical philosophy which has resulted in a health care system that will tolerate euthanasia.

The Political Crises

Dennis Speed, Sheila Jones, the Rev. James Bevel, and Nancy Spannaus collaborated to present a history of the Civil Rights movement, and the lessons to be drawn from it. Centered around two hours of film footage, through which Speed presented the rise and the eventual splintering of Dr. Martin Luther King's movement in the 1960's, the panel dramatized the paradigm shift into the post-industrial rock-drugs-sex counterculture, a shift which the financial oligarchy effected through the political assassinations and cultural assaults of that decade.

The film provoked the audience through a wrenching review of the Civil Rights era, presented as tragedy, culminating in the SCLC's rejection of the Rev. Bevel's proposal for a fair trial of King's alleged assassin, James Earl Ray. But, as Spannaus pointed out, the 1960's also saw the emergence of the Labor Committees, who embodied the philosophical and economic method which could have turned defeat into victory then, and exists as a tested institution which can do so today.

The final presentation dealt with the evil Bertrand Russell and his Venetian antecedents. Russell's advocacy of the use of the nuclear bomb against Japan, as a bludgeon for the global destruction of national sovereignty and scientific progress, was presented by Carol White. White was followed by Webster Tarpley, who went through the Venetian assault on Platonic science that culminated in Russell—starting with the grouping around Cardinal Gasparo Contarini which combatted Nicolaus of Cusa; continuing with the empiricist Paolo Sarpi, who battled astronomer Johannes Kepler; and concluding with Antonio Conti, who worked to destroy Leibniz.


EIRNS/Stuart Lewis

Schiller Institute founder Helga Zepp-LaRouche.

LaRouches Lead Week-Long Seminar in Slovak Republic

During the week of August 7-14, Lyndon and Helga LaRouche visited the Slovak Republic, where they participated in a week-long seminar on economics and culture, sponsored by the Schiller Institute and the Slovak foundation Spolupatricnost ("We belong together"). The 120 participants, mostly younger people, had gathered from seventeen nations of Eastern and Western Europe.

Lyndon LaRouche's science of physical economy was the seminar's main subject, and each day opened with a class presented by LaRouche.

One of the high points of the seminar was a concert in the historic house of the Brunswick family in Dolna Krupa, performed by Austrian pianist Prof. Dr. Kurt Ebert from Innsbruck. Professor Ebert, who is also a professor of law, is among those who have worked intensively for, first, Lyndon LaRouche's freedom from prison, and now, his exoneration.

Another high point of the week's events consisted of a concert at the Mirror Room in the ancient Slovak city of Trnava, which featured Slovak and Russian artists Maria Tajtakova, Egon Krak, and Alexander Stepanov, Italian pianist Monica Ripamonti-Taylor, and her American husband, violinist Seth Taylor.

A reception in the center of the Old Town of Bratislava was hosted by Dr. Jozef Miklosko, president of Spolupatricnost, who is among his country's leading mathematicians, and was the first Vice Prime Minister of Czechoslovakia after the fall of the communist regime, before the separation itno the Czech Republic and the Republic of Slovakia. At the reception, Professors Wolter Manusadjan and Taras Muranivsky, respectively president and vice-president of the Universal Ecological Academy ("Academy of 100") in Moscow, announced Dr. Miklosko's election to Academy membership. Lyndon LaRouche was elected to the Academy in 1993.

On August 12, the Schiller Institute hosted a press conference at the House of Journalists in Bratislava, during which Lyndon LaRouche emphasized that he viewed it as his main task to bring about a solution to the global economic crisis, an outcome which would be possible only if the American administration changed its policy to one along the lines of his "Productive Triangle" proposal first advanced back in 1989. Today, the Delors Plan (named for Jacques Delors, the outgoing president of the European Union) of trans-European infrastructure projects is a step in the right direction. LaRouche said he was working to ensure that President Clinton would give greater support to these plans than he had already begun to do.

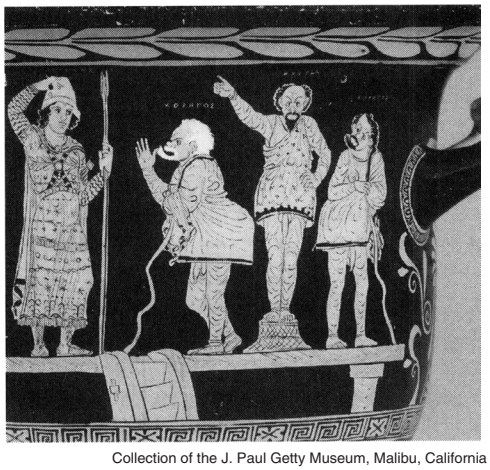
'A Passion for Antiquities'

No matter what the theme, the opportunity to view rarely seen examples of Greek, Roman, and Etruscan art should never be missed. This is certainly the case for "A Passion for Antiquities," an exhibit on display now through Jan. 15, 1995 at the J. Paul Getty Museum in Malibu, California, and re-opening Feb. 15-April 23 at the Cleveland Museum of Art.

The Getty Museum is the perfect place to view these works of ancient art from the private Barbara and Lawrence Fleischman Collection. On a bluff overlooking the Pacific, the museum is itself an exact replica of a First Century A.D. Roman villa. The first floor of the villa is home to the best collection of ancient art west of the Mississippi; the second floor houses works by Rembrandt, Raphael, and many other notable Gothic and Renaissance artists.

In an exhibit of Classical Greek or Roman art, most museum-goers expect to be dominated by lifesize statues, torsos without heads, heads without torsos, magnificant *bas-reliefs,* or row after row of vases. Such works are from temples and public buildings, and the Getty's permanent collection has a good sampling of them.

But, since the 223-piece Fleischman Collection is privately owned, it tends to demonstrate a different approach to acquiring and displaying works of art. The bulk of the collection is composed of smaller pieces, many of which played an integral part in the everyday life of the ancient world. But rather than diminishing the value of viewing such a collection, this enhances it: for, although no individual piece demonstrates the level of artistic or metaphorical genius associated with the greatest artists of the ancient world, yet, the collection demonstrates the depth of love for the beautiful at all levels of daily life in the Classical age.



Collection of the J. Paul Getty Museum, Malibu, California

Comic actors contest against tragedians on this 4th Century B.C. *bell krater (detail).*

Metaphors of Daily Life

The exhibition is organized according to the eye of the collector. Rather than a chronological and cultural organization (i.e., a Classical Greek group, a separate Etruscan group, etc.), it is grouped according to subject matter. For example, there is one section devoted to the role of men, and another to the role of women.

In the section on women in the ancient world, there are three pieces that combine the image of beauty and power of metaphor. One is a black-figured amphora depicting the wedding procession of Alcestis and Admetos (by command of the gods, Alcestis was to later sacrifice her life to save that of her husband). The others are two bronze figurines—no more than five inches in height—which, although they come from two different epochs, are displayed together. From the early Fifth Century, the figure of Eriphyle is seen fingering a necklace hidden below her gown, a necklace for which she betrayed her husband. And from the late Hellenistic period, approximately First Century B.C., there is a figure of an old woman, whose combination of beauty, pathos, and age, when present in such a tiny figure, are reminiscent of a drawing or etching by Rembrandt.

Collection of the J. Paul Getty Museum, Malibu, California

Late Hellenistic Statuette of an Old Woman, 1st Century B.C.*-1st Century* A.D.

As you enter the room dedicated to the role of men in ancient society, you are greeted by a beautifully sculpted head of a youth, dating from the Fifth Century. Of all the Fleischman Collection, this work is the best representation of the Classical metaphor of the divine beauty of man. Another outstanding display is the Fourth Century *bas-relief* of a young hunter, which once formed the left wall of funerary shrine (*naiskos*), and depicts a companion of the deceased. This sadly smiling figure typifies both the pastimes of youth, and the heroism of the hunt.

Two vases in this section demonstrate the use of myth, war, and athletics as the source for metaphor throughout

the ancient Mediterranean. One large amphora, painted by an artist known as the Berlin painter, portrays a Greek warrior pursuing a Scythian foe, and another by the same painter portrays the story of Heracles defeating King Geryon and stealing his cattle. Both are from the late Sixth to early Fifth centuries B.C. That such stories permeated the entire ancient world, can be see in a late Seventh century Etruscan *pithos* (a very large vase for storing wine); here, Homer's Odysseus and his men are blinding the cyclops Polyphemus.

For the Classical Greek mind, there were no divisions between the metaphors of drama, poetry, and the plastic arts, and a particularly interesting section of the exhibit shows works devoted to the theater and the god Dionysus. A red bell krater by the Choregos painter features an unexpectedly ribald comedy starring Aigisthos and Pyrrhias, engaged in a contest between tragedy and comedy [SEE inside back cover, this issue]. In contrast to the dramatic actors, the comics wear typically amusing costumes and exaggerated masks.

Hundreds of other examples of religious and domestic art can be seen in the exhibit. There are bronze and marble statuettes of gods and goddesses, for use in small home or village temples. One excellent example is a statuette of Tyche, the Greek goddess of Fortune, which seems to be copied from a colossal public monument. And there is an antefix (section of a building cornice) from a small Etruscan temple, that depicts mythological followers of Dionysus [SEE inside back cover, this issue].

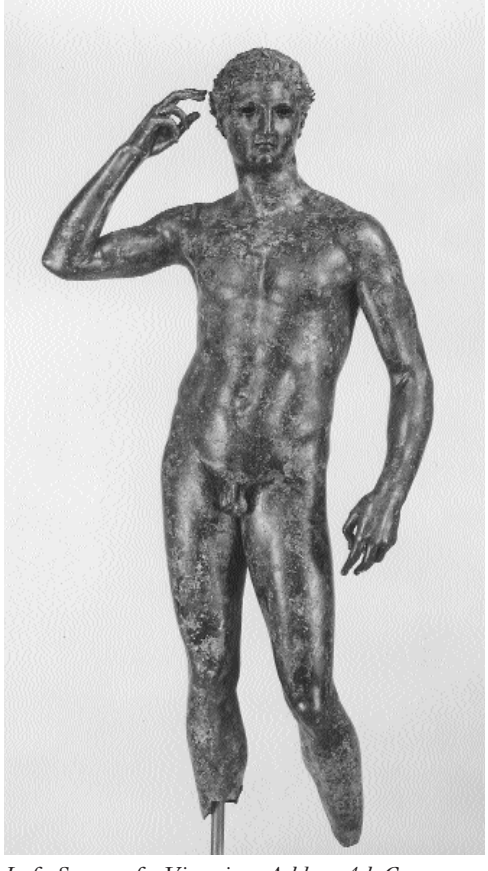
Poetry vs. Pornography

Although there are some excellent works from the Greek Classical period (mid-Fifth to mid-Fourth Century B.C.), both the Fleischman and Getty collections are dominated by works of the later Hellenistic period (c. 325-100 B.C.), or even artworks from the still-later Roman world. This lack of works from the Classical period is a major flaw in the exhibit, although it is understandable, as such works are extremely rare, especially outside Greece itself. The decline in beauty and metaphorical vigor from the Classical to subsequent periods is quite visible if comparative works are available. The disastrous paradigm shift from the Classical to the Hellenistic/Roman periods is positively stunning, as two distinctly different concepts of man and God are readily seen.

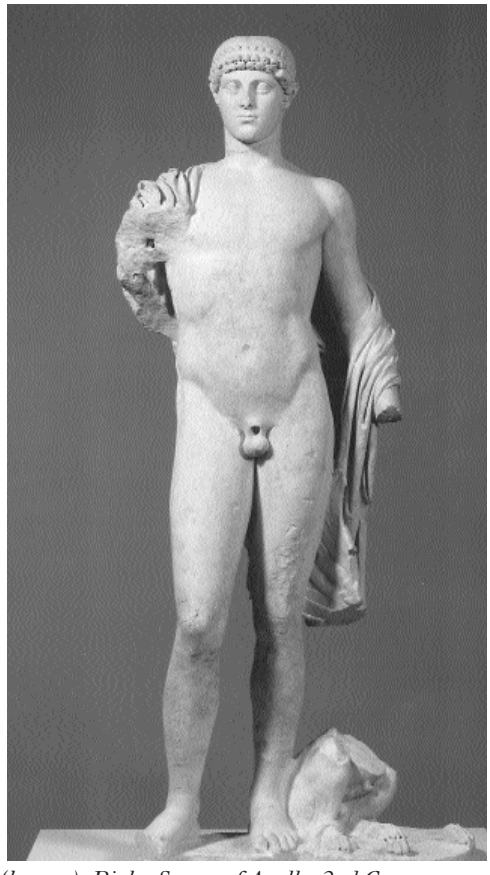
There is a marvelous example of this within the permanent Getty collection. Compare two statues: one is a life-size bronze figure of an athletic victor from the Fourth Century B.C., and the other is a Roman rendition of the god Apollo. The beauty, form, and archetypal qualities of the bronze demonstrate the central metaphor of the Classical period: man has divine potentials which are reflected in works of godlike beauty. But the Romans reverse the equation. For them, the gods are in the image of man: Apollo is presented as a hedonist, a soft, cynical, sybaritic youth. The "technical accomplishments" of the two works are comparable, yet one is poetry, the other pornography.

Despite this weakness, "A Passion for Antiquities" holds many rewards for the visitor. As the collector, Lawrence Fleischman, explained his decision to make the collection available to the public: "No matter what our ethnic origin, we have all been raised in the Western aesthetic. The roots of this are in Greek, Etruscan, and Roman culture. It is very important at this time that our youth are given the opportunity to see these beautiful things. What are our standards? What are our role models? They are to be discovered in this beauty."

—Ted Andromidas



Collection of the J. Paul Getty Museum, Malibu, California



Collection of the J. Paul Getty Museum, Malibu, California

Left: Statue of a Victorious Athlete, 4th Century B.C. *(bronze). Right: Statue of Apollo, 2nd Century* A.D. *(marble). The paradigm shift from Classical Greek to Roman periods shows two distincly different concepts of man and God in these works from the permanent collection of the Getty Museum.*

Proving God's Existence

St. Anselm of Canterbury (A.D. 1033-1109), a Platonic Christian who was regarded in his day as "the second Augustine," uniquely set the stage for the later development of modern science, in that he based all of his argument not on the authority of Scripture, but on the force of reason alone.

The first three volumes of this set (the second volume is currently out of print), include the complete writings of Anselm, and the fourth contains a number of critical essays by Jasper Hopkins. I will focus for the purpose of this review on Anselm's proof of the existence of God as it is presented in the *Proslogium* and is elaborated upon in Anselm's *Reply to Gaunilon,* the monk who attempted to refute Anselm's argument in the short work entitled *On Behalf of the Fool.*

After thanking God for having created him in His triune image, so that he might remember, conceive, and love Him, Anselm says in Chapter II of the *Proslogium* that we believe God is something "than which nothing greater can be thought." According to Anselm, even the fool who says in his heart that God does not exist, is convinced that something exists in the understanding, at least, than which nothing greater can be thought. And yet that than which nothing greater can be thought, cannot exist in the understanding alone. For, if it were only in the understanding, then it could be thought to exist also in reality—which is greater.

"Therefore, if that, than which a greater cannot be thought existed only in the understanding, then that than which a greater *cannot* be thought would be that than which a greater *can* be thought! But surely this conclusion is impossible. Hence, without doubt, something than which a greater cannot be thought exists both in the understanding and in reality."

Most commentators historically have focussed on the argument as developed thus far to the exclusion of what follows.

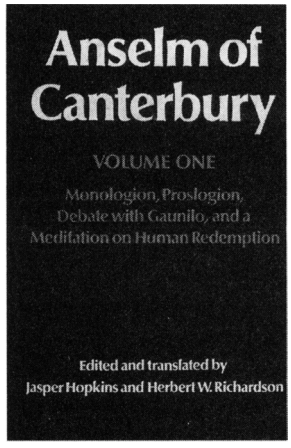
In Chapter III, Anselm argues that God exists so truly that He cannot even be thought not to exist. "For, there can be thought to exist something whose non-existence is inconceivable; and this thing is greater than anything whose non-existence is conceivable. Therefore, if that than which a greater cannot be thought could be thought not to exist, then that than which a greater cannot be thought would not be that than which a greater cannot be thought—a contradiction. Hence, something than which a greater cannot be thought exists so truly [really] that it cannot even be thought not to exist."

Anselm continues: If a mind could conceive of something better than God, "the creature would rise above the Creator and would sit in judgment over the Creator—an utterly preposterous consequence." Indeed, whatever else exists, except God alone, can be conceived not to exist.

In Chapter IV, Anselm argues that the fool says what cannot be conceived, that God does not exist, only insofar as he uses the word God nominally, without understanding the essence to which the word refers.

In Chapter I of his *Reply to Gaunilon,* Anselm clarifies that "that than which a greater cannot be thought can only be thought to exist without a beginning. Now, whatever can be thought to exist but does not exist can be thought to begin to exist."

Thus, as Anselm argues in Chapter IV, everything, with the exception of that which exists supremely, can be thought not to exist. "Indeed, all and only things which have a beginning or an end or are composed of parts—and whatever (as I have already said) at any place or time does not exist as a whole—can be thought not to exist. But only that in which there is no conceivable beginning or end or combination of parts, and only that which exists as a whole everywhere and always, cannot be thought not to exist."



Anselm of Canterbury
edited and translated by
Jasper Hopkins and
Herbert W. Richardson
Edwin Mellen Press, Toronto, 1976
hardbound, Vol. I, $79.75; Vol. III, $89.95; Vol. IV, $89.95

In Chapter IX of the *Reply,* Anselm further argues that "someone who conceives of that than which a greater cannot be thought does not conceive of what is able not to exist but rather conceives of what is not able not to exist. Hence, it is necessarily the case that what he conceives of exists—because whatever is able not to exist is not what he conceives of."

Further History of the Argument

St. Thomas Aquinas seems to have rejected Anselm's proof, arguing in the *Summa Theologica* that although the existence of God is self-evident *of itself,* it must nonetheless be demonstrated from the effects of his creation, since His existence is not necessarily self-evident *to us.*

But the brilliance of Anselm's argument is that any rational mind created in the image of God (*imago Dei*) and having the capacity for God (*capax Dei*) is led to the existence of God as that being than which a greater cannot be conceived, because everything created, including the human mind, has a beginning and thus necessarily presupposes an Absolutely Infinite Creator. The

demonstration by means of effects is thus subsumed by the proposition that God is something than which a greater cannot be thought.

In his "Defense of Learned Ignorance" (1449), Nicolaus of Cusa embraced St. Anselm's argument by writing: "No one was ever so foolish as to maintain that God, who forms all things, is anything other than that than which a greater cannot be conceived."

In the 17th Century, Descartes put forward a flawed, "rationalist" version of Anselm's proof, which became known as the "ontological" proof of the existence of God. In his *New Essays on Human Understanding,* Gottfried Wilhelm Leibniz commended Descartes for reviving Anselm's argument and criticized the Scholastics, including Aquinas, for dismissing Anselm's argument as fallacious, but Leibniz did not consider Descartes' proof to be adequate.

Taking advantage of the inadequacy of Descartes' "ontological" argument, Immanuel Kant concluded that God's existence is merely a useful idea, but not provable. Kant's criticism, like that of Gaunilo's before him, is ultimately based upon his Aristotelian (empiricist) method, according to which only that exists, which exists contingently as an object of the senses. This method necessarily denies the existence of that which exists non-contingently.

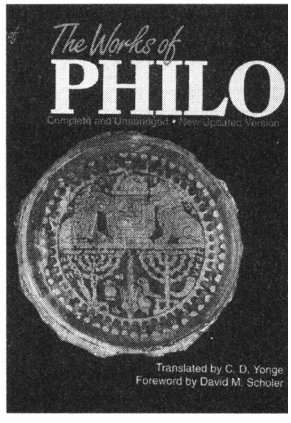
Although Anselm's proof and Leibniz's attempts to improve upon it have been followed by the contributions of others, the most important contribution to this subject is found in the essay by Lyndon LaRouche entitled "On the Subject of God" (*Fidelio,* Vol. II, No. 1, Spring 1993).

LaRouche supplements the proofs of Plato, Augustine, Anselm, and Leibniz by applying the distinction between the Absolute Infinite and the transfinite, which Georg Cantor derived in part from the work of Nicolaus of Cusa in proving the impossibility of squaring a circle. LaRouche writes that " 'the hypothesizing the higher hypothesis,' the highest state of mind corresponding to comprehension of Plato's and Cantor's *Becoming,* is bounded by the unchanged cause of change (for increase of potential population-density), the Good. This relationship of the lesser (Becoming) to its master (Good) parallels somewhat the bounding of the inferior species, a polygonal process, by the higher species, circular action."

In the critical essays which appear in Volume IV, Jasper Hopkins, who later went on to translate many of the works of Nicolaus of Cusa, unfortunately is only too ready to agree with the Aristotelians who have historically attacked Anselm's proof as "unsound." Nonetheless, his translations of Anselm's complete works are to be recommended as an invaluable source of the writings of a great Christian Platonist, who insisted on the primacy of the principle of intelligibility.

—William F. Wertz, Jr.

Creation According to Moses



The Works of Philo, Complete and Unabridged
translated by C.D. Yonge,
Foreword by David M. Scholer
Hendrickson, Peabody, 1993
918 pages, hardbound, $30.00

Philo Judaeus of Alexandria, Egypt lived from 20 B.C. to A.D. 50. He was the Greek-Jewish philosopher who synthesized the best of Plato and the Septuagint (Hebrew Bible in Greek translation). According to Eusebius, he collaborated with Peter the Apostle in Rome.

The significance of this one-volume edition being re-issued last year in an updated version, must be seen in the historical context of both the ongoing Vatican-Jewish-Islamic dialogue against the genocidal "population control" policies promoted at the U.N. conference in Cairo, Egypt last September, as well as the moves on the part of the Israeli and Arab leaderships, and the U.S. Clinton Administration, to establish peace in that troubled part of the world.

In numerous of his writings, Lyndon LaRouche has pointed out that we are indebted to Philo's "A Treatise on the Account of the Creation of the World, as Given by Moses" for being the first explicit elaboration in the Judeo-Christian tradition of the concept that man is created in the image of God (*imago Dei*) insofar as he is capable of creativity, and that it is this creativity which distinguishes man from mere beasts. "On Creation" can thus be read as an affirmation of the outlook of Plato's *Timaeus,* and as a direct attack on the contrary Aristotelian viewpoint.

As the translator Yonge points out in the Preface to the original 1859 edition, ". . . it appears to have been a saying among the ancients that, 'either Plato philonises, or Philo platonises.' " We encounter Philo's Platonist outlook throughout these works, as when he describes the difficulty of discovering and communicating truth, and its relation to creativity, in terms reminiscent of Plato's parable of the Cave, and of the later reflection of this in St. Paul, that "we see as in a mirror darkly": "[N]o one, whether poet or historian, could ever give expression in an adequate manner to the beauty of his ideas respecting the creation of the world; for they surpass all the power of language, and amaze our hearing, being too great and venerable to be adapted to the sense of any created being."

To the question, then, how man can attain knowledge, Philo responds: love God, and love wisdom. He makes use of literal, allegorical, moral, and analogical methods throughout his works, to introduce the reader to various biblical characters who embody these teachings, most importantly the philosopher-king-priest-prophet Moses. Some Philo biographers think these essays were original-

ly sermons, delivered by the Alexandrian rabbi on the Jewish sabbath.

In "On Creation," Philo directly attacks various of Aristotle's assertions about God, and God's relationship to the created world. He writes: "For some men, admiring the world itself rather than the Creator of the world, have represented it as existing without any maker, and eternal; and as impiously as falsely have represented God as existing in a state of complete inactivity, while it would have been right on the other hand to marvel at the might of God as the creator and father of all, and to admire the world in a degree not exceeding the bounds of moderation. But Moses, who had early reached the very summits of philosophy, and who had learnt from the oracles of God the most numerous and important principles of nature, was well aware that it is indispensable that in all existing things there must be an active cause, and a passive subject; and the active cause is the intellect of the universe, thoroughly unadulterated and thoroughly unmixed, superior to virtue and superior to science, superior even to abstract good or abstract beauty."

Philo emphasizes that the intellect is superior to the external senses: "God . . ., when he had determined to create this visible world, previously formed that one which is perceptible only by the intellect, in order that so using an incorporeal model formed as far as possible on the image of God, he might then make this corporeal world, a younger likeness of the elder creation, which should embrace as many different genera perceptible to the external senses, as the other world contains of those which are visible only to the intellect." And later: "[W]e must form a somewhat similar opinion of God, who having determined to found a mighty state, first of all conceived its form in his mind, according to which form he made a world perceptible only by the intellect, and then completed one visible to the external senses, using the first one as a model."

Philo then says, "this is the doctrine of Moses, not mine. Accordingly he, when recording the creation of man, in words which follow, asserts expressly, that he was made in the image of God—and if the image be a part of the image, then manifestly so is the entire form, namely the whole of this world perceptible by the external senses, which is a greater imitation of the divine image than the human form is. It is manifest also, that the archetypal seal, which we call that world which is perceptible only to the intellect, must itself be the archetypal model, the idea of ideas, the Reason of God."

Finally, Philo makes it absolutely clear that man is in the likeness of God not in respect to his body, but in respect to his creative intellect: "So then after all the other things, as has been said before, Moses says that man was made in the image and likeness of God. . . . And let no one think that he is able to judge of this likeness from the characters of the body: for neither is God a being with the form of a man, nor is the human body like the form of God; but the resemblance is spoken of with reference to the most important part of the soul, namely, the mind: for the mind which exists in each individual has been created after the likeness of that one mind which is in the universe as its primitive model . . . ."

If one wants to understand the mind and soul of the powerful moral intellect of Lyndon LaRouche, one should get this book and study it.

—*Sander P. Fredman*

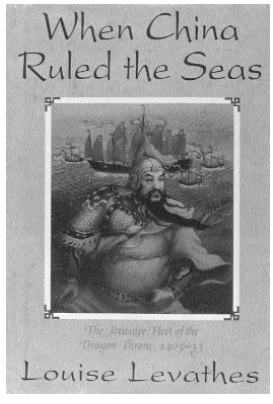
In Search of Ideas To Save China

For those searching for an alternative for China, the history of the immediate past deserves special attention.

There are two consecutive and lengthy dynasties stretching from the middle of the Fourteenth Century to the early Twentieth that left us a weak, decadent, and divided China. The first of these dynasties, the Ming (1368-1644), was marked by the restoration of traditional institutions, as advocated by some formal Confucians; the succeeding one, the Qing or Ch'ing (1644-1911), which was the last imperial dynasty, was ruled by the Tungusic people of Manchuria who conquered China and ruled for almost three hundred years.

Both imperial monarchies, at least at the beginnings of their rule, expanded the Chinese Middle Kingdom broadly. However, it is of interest to compare the two, because in the early Qing, ruled by the emperor Kang Xi and his million Manchurians, China revived its Confucian moral and philosophical teachings among the elites, and China even learned Western sciences, and 300,000 people, including government ministers, at one point, converted to Christianity; whereas, the early Ming emperor Zhu Di, aided by his many eunuch and Taoist advisers—and often against the will of the few existing Confucian scholars—overtaxed his subjects in order to build the monumental Forbidden City, to wage five major expeditions against the Mongols, to consume Korean "comfort women" by the hundreds, and to send gigantic fleets out into the world.

Another striking fact is that in the pivotal period of the transition—when the Qing replaced the Ming—Jesuit missionaries came from afar with sciences. They couldn't save the country,



When China Ruled the Seas: The Treasure Fleet of the Dragon Throne, 1405-1433
by Louise Levathes
Simon & Schuster, New York, 1994
252 pages, hardbound, $23.00

but they taught Kang Xi to read Latin, they translated Western mathematics texts into Chinese, they built advanced observatories for the imperial court, and they reported what they saw in China

back to Europe. Despite later rejection by the emperors, the Jesuits, 208-churches strong at their peak, were to make the early Qing distinct from all the proceeding dynasties at their best.

Three books published recently in the U.S., can lead readers to further explore this period of China's history.

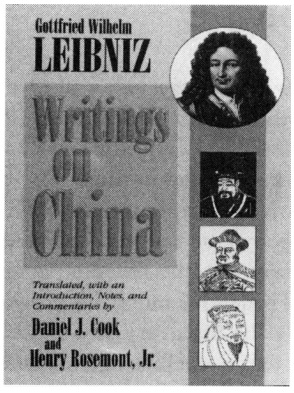
Louise Levathes' book, *When China Ruled the Seas,* traces the adventures of Zheng He (Cheng Ho, 1371-1433), an extraordinary eunuch at the Ming court, who, as China's greatest maritime explorer, made seven long voyages between 1405 and his death almost thirty years later, knocking on the doors of states as distant as Arabia and eastern Africa.

This study is valuable because the author has attempted, at least technically, to solve the puzzle of why China voluntarily gave up the opportunity to rule the seas and abandoned the then-largest fleet in the world, thus inviting Japanese naval invasion within a hundred years; and further, why China lost its capability to defend itself when Western powers came much later to rule the seas, and the world.

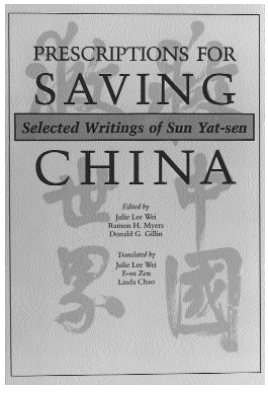
The book provokes one to wonder, along with its author, what would have happened if the Portuguese navigator Vasco da Gama (1460-1524), who arrived in East Africa on his way to India eighty years later, had actually met Zheng He—given that the former's ship was only eighty-five feet long, while the latter's was four hundred?

For us, a more searching question would be: if this Muslim admiral Zheng, who was educated in the Confucian Classics, had landed on the European continent, would he have invited some Renaissance Christians back to China? Leibniz, who once referred to China as an "Oriental Europe," would most likely have said "yes." For Leibniz, reflecting on the writings and translations of the Jesuits on the Chinese classics, characterized Confucianism as follows:

"To offend Heaven is to act against reason; to ask pardon of Heaven is to reform oneself and to make a sincere return in work and deed in the submission one owes to this very law of reason. For me, I find this all quite excellent and quite in accord with natural theology. . . . It is pure Christianity, insofar as



Gottfried Wilhelm Leibniz: Writings on China
translated, with an Introduction, Notes, and Commentaries by Daniel J. Cook and Henry Rosemont, Jr.
Open Court, Chicago, 1994
157 pages, paperbound, $16.95



Prescriptions for Saving China: Selected Writings of Sun Yat-sen
edited by Julie Lee Wei, Ramon H. Myers, and Donald G. Gillin
Hoover Institution Press, Stanford, 1994
328 pages, paperbound, $26.95

it renews the natural law inscribed on our hearts . . . ."

The newly released Leibniz *Writings on China* is therefore most welcome; first, because it is a timely work that appears at a moment when some sinologists and Chinese scholars are joining efforts to study the connections between the two civilizations—of which Leibniz should be credited as the first profound discoverer; and second, and more importantly, the authors have supported Nicholas Rescher (author of *The Philosophy of Leibniz*), in defending the name of Leibniz against Bertrand Russell's slandering, as the authors point out in the preface: "We believe that after going through Leibniz's China writing, readers will appreciate that Rescher, not Russell, has taken the more accurate measure of one of the greatest thinkers of Western civilization, and one of the very few among those greats who attempted to see beyond its confines."

As Russellite views on Western civilization still remain popular in China, the above message will warn all those participating in the current promotion of Confucianism in today's China (which is now sinking into a deep pit of money worship). Because there are a surprisingly good number of Chinese—both domestically and abroad—who don't understand Chinese civilization, or misinterpret Confucianism, Leibniz's appreciation of Confucian natural theology provides a much needed guideline for those who like to view Chinese civilization from the point of view of the "round eyes."

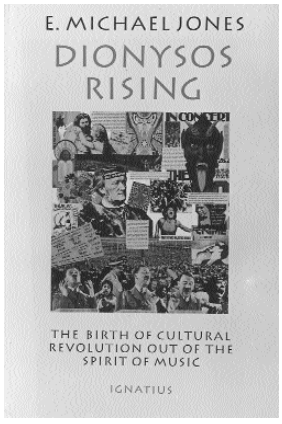
Another crucial volume for those who are considering combining the strength of Christianity and Confucianism to save China—not as an empire, but as a republic—is the new *Prescriptions for Saving China: Selected Writings of Sun Yat-sen.*

Supported by the National Sun Yat-sen University in Kaohsuing, Taiwan, the project to undertake a translation of selected works of Dr. Sun Yat-sen was begun in 1987. And so we have now more than forty "prescriptions," from the man who brought the Qing dynasty to an end, available in English for the first time.

It should be noted that Sun Yat-sen, the revolutionary intellectual who was the founding father of the Republic of China, was himself both a profound Confucian and a devoted Christian. And therefore, Sun Yat-sen, when searching for ideas to save China, would no doubt have been delighted, too, if he had been given the chance to read Levathes' book analyzing the rise and fall of the Ming based on the fate of its fleet, and especially to study Leibniz's writings on Confucian natural theology.

—*Cho Wen-pin*

The Freudian Slippery Slope



Dionysos Rising: The Birth of Cultural Revolution Out of the Spirit of Music
by E. Michael Jones
Ignatius Press, San Francisco, 1994
204 pages, paperbound, $16.95

The problem with this book is not that the author's heart is in the wrong place. To the contrary, Dr. Jones, the editor of the Catholic periodical *Fidelity,* abhors the satanic, Dionysian evil of Richard Wagner, Friedrich Nietzsche, Thomas Mann, Arnold Schönberg, Aleister Crowley, and Mick Jagger, and their "art"—and warns of the peril into which they have led Western culture and civilization.

The problem, rather, is that his analysis of this evil is such a mishmash of psycho-musicology, that the reader is left wondering if there is any explanation for evil beyond what one can discover between the bedsheets.

Jones' central thesis, developed in the first chapter on Richard Wagner, is that Wagner, in order to bring down the Christian morality that stood in the way of his libidinal pursuits (he was a notorious adulterer), purposefully de-linked Classical music from reason and from its Christian roots, by substituting chromaticism for the diatonic scale, and text for tonality.

The remaining three chapters then develop how this Wagnerian "cultural upheaval" was subsequently adopted and developed, in turn, by Nietzsche, Mann, Schönberg, Theodor Adorno, Crowley, and Jagger, based on each man's peculiar sexual needs. The final product, Jagger's "Sympathy for the Devil," is the openly satanic embodiment of Wagner's merely less-overtly satanic intent. Today's rock-drug-sex counterculture and the concomitant breakdown of the family are traceable, Jones concludes, to this century-long devolution of culture which began with Wagner.

Jones is right about what happened; he's wrong about why it happened. For, like his admirer Friedrich Nietzsche, Wagner's motivation was hatred of Christianity, and of the Christian culture embodied in the music of Bach, Mozart and Beethoven—not his sex drive. His libidinal pursuits were the product of that hatred, not its cause. Likewise, Nietzsche's embrace of the idea that "God is dead" was not the product of his syphilitic affliction, as Jones implies, but its cause.

In Jones' explanation of Wagner's viewpoint, we see his confusion: "His rebellion was the rebellion against the moral order; his musical innovation was simply the discovery of a musical analogue to the rebellion against reason that his troubled conscience and increasingly impetuous desires craved."

Much of what Jones develops is useful, factual material on the development of New Age culture. He fails, however, to competently explain *why* it happened: Jones correctly denounces Freud as part of the New Age, yet embraces neo-Freudianism to explain how the New Age came to be.

Britain's 'Traditional' Venetian Values

Readers will grasp the problem best by referring to an example from the final chapter on Mick Jagger. Jones cites an editorial written by London *Times* editor William Rees-Mogg on July 2, 1967, urging that Jagger be released from prison, where he had been sentenced for drug charges. Rees-Mogg wrote, "If we are going to make any case a symbol of the conflict between the sound traditional values of Britain and the new hedonism, then we must be sure that the sound traditional values include those of tolerance and equity."

Jones asserts that what Rees-Mogg and the British establishment wanted was to "reserve to itself the same sort of sexual freedoms" that Jagger was advocating so openly. "When Jagger flaunted what they acknowledged in private, they found that they did not have the heart to press the issue." In other words, says Jones, Rees-Mogg was motivated by his sex drive.

But this entirely misses the point. What are the "sound traditional values of Britain," to which Rees-Mogg refers? Colonialism, racism, oligarchism, and war, to name but a few. Rees-Mogg was speaking on behalf of a British oligarchy that had *created* Mick Jagger and the Rolling Stones, along with the drug trade (remember the Opium Wars?), as a conscious weapon to destroy the West, and had no intention of letting Jagger rot in jail. Rees-Mogg wasn't simply defending his own sexual proclivities (whatever they may be); he was defending the British-Venetian world order!

Today, Rees-Mogg is at the forefront of an assault on the institution of the presidency of the United States, through the Whitewater and related scandals, which is intended to finish off this last, weakened bastion of republicanism. Indicative of Jones' misguided view of the *motivation* behind strategic events, is the fact that *Fidelity,* the journal he edits, recently featured the alleged sexual affairs of President Clinton in a cover story which reduced British political machinations against the institution of the U.S. Presidency to a problem of Clinton's passion!

People like E. Michael Jones need to begin to understand how real cultural warfare works, or else that British assault will succeed, and the New Age will indeed conquer the world.

—Marianna Wertz

Note: The Leonardo da Vinci drawings in this issue are identified as follows: p. 4, Windsor RL12376 (detail); p. 14, Windsor RL12581 (detail); p. 14, Uffizi 423E; p. 23, Windsor RL12542r (detail); p. 37, Windsor RL12570; Atlanticus 272v-b (detail); back cover left, "Deluge," Windsor RL12378 (detail); back cover right, "Investigation of Rectilinear and Curvilinear Figures as Measurements of the Area of the Circle," Atlanticus 167r-ab (detail).

'An Old Man and His Grandson'

On first impression, this work—completed in 1480 by the Florentine painter Domenico Ghirlandaio (1449-94), the master of Michelangelo—depicts a loving familial relationship between an old man and his grandson. However, upon closer observation, it quickly becomes clear that there is much more being portrayed than this simple pairwise relationship.

First, we notice the old man's ugly, disfigured nose; his loving look at his grandson occurs despite this disfigurement, despite the aging process and human mortality itself. It is an affirmation of life even in the face of suffering and evil.

That in his love for his grandson, the old man has triumphed intellectually over death, is communicated in the fact that the child, looking forward to life, does not flinch at the ugliness of his grandfather's external disfigurement, which lies directly in his line of sight. Instead, he confidently embraces life, because he sees beyond the visible disfigurement, beyond sense-perception, to the reality of love in his grandfather's eyes and countenance as a whole.

Thus, the disfigurement is a discontinuity which forces the viewer to transcend mere sense-perception, and to use his creative reason to resolve the paradoxical relationship portrayed in the painting in the love of the old man and the child for one another, despite ugliness and the trials that the child will face as he too grows older.

This resolution, however, must be located in a broader context: the child's parents, not depicted in the painting; the landscape seen through the open window; and the church at the base of the rolling hills in the landscape. Although the old man and the grandson do not look out the window, but rather at each other, the love they share neither begins nor ends with them. The house itself is undoubtedly the fruit of the past creative labor of the old man and is perhaps sustained by the current labor of the child's parents.

The creative love of the old man and his grandson finds expression not just in their immediate pairwise, familial relationship, but rather in the responsibility of man to act upon the macrocosm, an idea reinforced by the image of the church. It is an expression of past, present, and future efforts on the part of individual men and women to exert the dominion of creative love over the physical universe.

The creative love which they share is the love of God, of the creative image of God and the capacity for God within all men. It is this creative love which unifies the many, while preserving the individuality of each. By its very nature, this creative love cannot be merely contemplative: It must be employed for the increase of man's power to transform the physical universe for the benefit of man. Exerting the dominion of creative love over the macrocosm, is the means by which man carries out the work of the Creator. This is man's vocation. He is beckoned by the light in the open window. This is the resolution of the paradox of the One and the many, the paradox of life and death.

—William F. Wertz, Jr.

A Passion for Antiquities

Collection of the J. Paul Getty Museum, Malibu, California

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Collection of the J. Paul Getty Museum, Malibu

Left: Red-figured Bell Krater, Apulian, c. 380 B.C.
Center: Antefix (building decoration) in the Form of a Maenad and Silenos Dancing, Etruscan, early 5th Century B.C.
Right: Head of the Young Dionysus, Roman, 1st Century A.D.

A Passion for Antiquities," currently on display at the J. Paul Getty Museum in Malibu, California, is the first time the privately-owned Fleischman Collection has been presented to the public. Organized according to the eye of the collector, the exhibiton of Greek, Etruscan, and Roman art demonstrates the depth of love for the beautiful at all levels of the daily life in the Classical age.

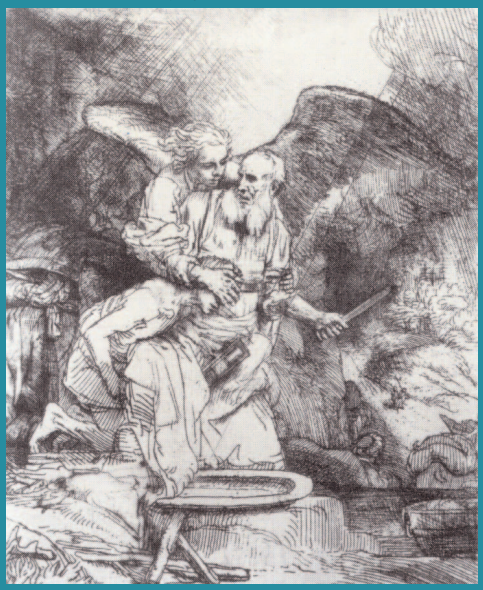
In This Issue

SYMPOSIUM

The Creative Principle in Art and Science

As Lyndon LaRouche has emphasized in previous issues of *Fidelio,* modern European civilization is characterized by an essential political and philosophical conflict between the Platonic tradition of the Fifteenth-Century Golden Renaissance, and the enemy Aristotelian tradition of oligarchical Venice. To the Platonic tradition, it is the quality of creative reason which makes man truly human—what the Bible calls *in the image of the Creator.* It is precisely this quality of creativity which the Aristotelian oligarchs must deny philosophically, and suppress politically, fearing that its effective exercise would threatened their continued political rule. We devote this issue of *Fidelio* to rendering the principle of creativity intelligible to our readers, through a symposium of articles on poetry, music, and physical science, featuring contributions by both Lyndon LaRouche and Helga Zepp-LaRouche. We aim—by making the principle of creativity accessible to our fellow citizens—to unleash a process of intellectual development that will create the type of men and women, wittingly *imago Dei,* who can contribute to the creation of a new Renaissance today.

Biblioteca Ambrosiana, Milan



Graphische Sammlung Albertina, Vienna

Nicolaus of Cusa's Revolution in the Concept of Natural Law

The invention of the modern nation-state republic, committed to fostering the intellectual growth of its citizenry as mediated through scientific and technological progress, derives from the revolution in the traditional concept of natural law wrought by Nicolaus of Cusa through his emphasis on the capacity for creativity of every sovereign individual. Reviving this Renaissance concept is urgently needed today, if humanity is to meet the challenge of the present world crisis.