



Our 'Times' of Decay: Grammar and Science

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This is a report on the subject of how to write, read, and edit, all for the purpose of communicating with people who are capable of being provoked into cognitive modes of thinking. To define the area on which our attention is to be focussed, I begin by situating the immediate political relevance of what is, today, a seldom-taught principle of intelligent communication.

I shall show here, that it can be conclusively demonstrated, that a neighbor's, or fellow employee's cultivated faith in the authority of the *New York Times* style, would probably have bad effects on that person's mental health. I refer to studies of the relationship of certain habits of speech and writing, to forms of expression to be considered as functionally *schizophrenic*.

An epidemic of such cases today, confronts us with what is described more precisely as a form of *mass schizophrenia*. This distinguishes schizophrenia as a sickness of decadent cultures, from the alternate use of the term, that to point to an aberration localized to the mental life of some individual within society. Schizophrenia as a mass pathology, appears in the form of a popularized habit of *disassociation* of conscious thought from reality, such as reacting, on the real world, in response to imagined events in a fantasy-life. The two forms of schizophrenia, mass and individual, have some common characteristic features, but there are also functional differences. Most notably, mass schizophrenia signifies the impact of a widely shared delusion, usually signifying a popular one.

In respect to the *Times'* style as such, the typical issue is, the departure from the most elementary distinction of literate speech, the principle of prosodic utterance. The most conspicuously simple evidence of the ways in which that publication's style violates the prosodic principle, is its dogma respecting punctuation. However, the issues go much deeper than that.

I shall prove the need to use the term schizophrenia, in due course. For the moment at hand, the most immediate evidence of this, is not merely the hysterical manner in which, according to *New York Times* rules, those prosodically necessary breaths, called commas, are omitted from punctuation. More significant, is the damaging effect on the mind, which results from that "Pavlovian" quality of conditioning, which the *Times* and its accomplices perpetrate, through invoking repeatedly some magical authority claimed by that newspaper's advocates. The effects of such drill and grill, include impairment of the individual's inborn cognitive potential for performing the functions of specifically human qualities in speaking, qualities which are indispensable for scientific discovery, and also for the composition, comprehension, and performance of great Classical poetry and drama.¹

On this account, one should emphasize the increasing illiteracy in modes of speaking and writing, as observed among university-educated representatives of successive generations, over the course of the Twentieth Century. We must recognize these changes as charting a process of decadence in even rudimentary aspects of the capacity to think clearly. Implicitly, we are discussing here, the reason why no machine which could ever be designed, nor the methods of prose composition aimed at by the *Times'* doctrine, could ever replicate that naturally inborn ability of a human being, the power to discover a validatable universal physical principle.

For the purpose of defining the pattern of pathological symptoms so addressed here, I have the relative personal advantage, of having been familiar with generations born during, and even before the 1860s, those of even my great-grandparents' generation, and, more emphatically, my grandparents' and parents' generations, as well as my own, and also that of the Baby Boomers, and so on. This represents, in total, a span of first-hand personal experience of exposure to the characteristics of nearly two centuries of U.S. cultural history. The pattern to be seen in comparing the written literature, including what passes for textbooks, among each of these generations, is correlated with other evidence of a long-wave process of intellectual and moral decay, which has been induced among the university-educated strata of the population.

The evidence includes the demonstration, that even some present Justices of the U.S. Supreme Court, are incapable of a literate reading of the U.S. 1776 Declaration of Independence, or the 1789 U.S. Federal Constitution. The impact of the *Times'* dogma and related innovations in education, editorial practice generally, dictionaries, and so on, correlates with the clinical evidence from study of oral statements heard. The pattern of changes so registered, correlates with successive layers of impairments in the expressed ability of successive generations, the impairment of the ability to think clearly, rationally, and truthfully, in scientific and other matters.

¹ Cf. Dr. Lawrence S. Kubie, "The Fostering of Creative Scientific Productivity," *Daedalus*, Spring 1962.

For the qualified historian, the nature and cause of this downward cultural trend in globally extended modern European civilization, should be obvious. If we trace the cultural history of Europe over approximately the recent 2,600 years, since Solon's reforms at Athens, all upward turns in the existence of European civilization as a whole, such as Europe's Fifteenth-Century Renaissance, or the circumstances which made the U.S. Declaration of Independence successful, have been the result of a leading influence of a revived cultural impetus supplied by the Classical Greek heritage. All retrogression which has occurred within European civilization, including known cases of willful plunges into new dark ages, has been a poisonous fruit which is the combined heritage of ancient Babylon and the Delphi cult of the Pythian Apollo, the heritage expressed by those depraved cultural characteristics which ancient pagan Rome supplied to both feudal society and modern European culture. That pathetic heritage of Rome, is called *Romanticism*.

Mass hysterias of the type associated with *Romanticism*, are correlated with modern replications of the ancient Roman form of the role of *vox populi*, such as today's *popular opinion*, in controlling large masses of the lower ranks of society. So, the Roman practice of "bread and circuses," like modern popular mass-entertainment, typifies this ancient method of dictatorial social control practiced in the name of "democracy" in the U.S.A. today.

In today's U.S., this sort of mass behavior is exhibited by masses of voters, for example, whose support for certain political parties or candidacies, mimics the slave competing for handouts at the back door of the slave-master's big white house. The slave is thus controlled more effectively in this way, as today's voters in the recent national election were controlled, as efficiently, in net effect, as by a uniformed *Gestapo*. The shackles they wear on their minds, are, thus, those they place dutifully upon themselves.

Instead of a rational cause-effect relationship, the victims of mass hysterias such as the *vox populi* syndrome, propitiate what they deem authority, like ants stroking aphids for the sweet substance the aphids secrete, continuing to do so even when the relevant "aphid" has run out of such substance. Thus, the fantasy associated with that propitiatory ritual, is used as a substitute for a conscience, among the victims of a managed public opinion. That fantasy-life, such as that associated with the Hollywood "fan clubs," is used, in turn, as a mechanism of social control by dictators. The notorious Hitler Nuremberg rally, typifies the role which Romanticism plays in such a dictatorship. As in the Roman rituals of bread and circuses, Hitler rallies, or popular mass entertainment in the U.S.A. today, such as bodily contact sports, including public sexual marathons, performed before mass audiences of so-called "fans," those mechanisms of social control, as applied to political campaigns, commercial advertising, and so on, often succeed all too well, at their dupes' expense.

Thus, since the birth of European civilization, in Classical Greece, the pulsations of our now globally extended civilization's history, have been regulated by alternating surges and reversals, in the struggles between two principal contending currents: the rational upsurges, the Classical, versus the Romantic cults of both ancient and modern *vox populi*. So, the possibility of the 1776 U.S. Declaration of Independence, and 1787 Constitution, depended absolutely upon the benefits from a particular renaissance of the Classical Greek heritage in European civilization as a whole, that which erupted in Europe during the middle to late Eighteenth Century. Opposite to the Classical impulse, was the terrible reaction which sent Europe backwards, in the direction of feudalism, during the Sixteenth Century, as also the first half of the Nineteenth Century, the latter reflecting that resurgence of Romanticism which was brought about through the widely radiated, successive impacts of the "Nuremberg-Rally-like" circuses of 1789–1794 Jacobin Terror and Caesar-modelled Napoleonic succession, in France.

These pulsations associated with alternating roles of reason (Classical) and the irrational (Romantic), are often regulated by great crises in the existence of a culture, as the 1929–1932 Depression prompted the shift from the rabid irrationalism of the 1920s "Flapper Age" and "Charleston" dance-orgies, to that concern for hard realities of life, which turned a majority of the U.S. population toward Franklin Roosevelt's leadership. In other words, a shift from emphasis on fantasy-life, toward concern with matters of real cause-effect relations in a world of hard realities. If a turn toward reality fails, as in the case of the 1933–1934 imposition of the Hitler dictatorship in Germany, then a turn back from a temporary flirtation with rationality, to an even more savage form of Romanticism, were likely.

Those who have studied closely such pulsations in the history of what is now a globally extended European civilization, have often used, maliciously, their knowledge of the principles I have just described, to orchestrate the mass behavior of entire populations for the worse, or even the worst. The notorious Walter Lippmann's *Public Opinion*, is an example of this.²

One of the worst among these plunges into Romanticism, has occurred during the post-World War II decades. This was most emphatically the case, in the aftermath of the assassination of President John F. Kennedy, the resignation of Germany's Chancellor Konrad Adenauer, and the repeatedly attempted assassinations and *coups d'état* orchestrated against French President Charles de Gaulle. Typical of that presently continuing plunge toward the depths of Romanticism, is the neo-Confederacy "Southern Strategy," launched, in 1966, as the crucial feature of the Nixon campaigns for the 1968 Presidential nomination and election. This latter, frankly racist turn, was complemented by, and consistent with the Nixon campaign's correlated degeneration, into basing its social and economic policy on the

² Walter Lippmann, *Public Opinion* (New York: Macmillan and Co., 1947 reprint from 1922).

Mont Pelerin Society's mass-murderous cult of "shareholder values." The widely radiated influence of such forms of irrationalism as radical positivism and existentialism, typifies a generation-by-generation, increasing loss of the ability to grasp ideas, a loss which is notable among those generations of university-educated strata who entered adolescence during or after the middle to late 1960s.

The most crippling of the effects of these trends, is the currently fashionable substitution of idiosyncratic forms of so-called popular "values," for truth. Not only is this substitution a reversion toward the same general depravity as the Nineteenth-Century Kantian Romanticism of G.W.F. Hegel and Karl Savigny; this has been introduced into post-1945 U.S. practice by those circles of the Frankfurt School's Theodor Adorno and Hannah Arendt, who attributed the origins of their own efforts to ban truthfulness from U.S. life, to Immanuel Kant himself.

So, as part of that trend, the currently popular cult of "sensitivity," typifies a loss of any sense of personal accountability for even simple truthfulness, a trend which is to be found among a large and growing ration of our university graduates, and among others affected by present-day existentialist and radical-positivist trends. The popularization of that off-shoot of cultish "systems analysis," called "bench-marking," which was lately introduced as a substitute for competent engineering practice, is a sign of the terrifying moral and intellectual decay within the domain of physical science and engineering. The advocacy of "shareholder value" even by Justices of the U.S. Supreme Court, is an example of today's descent into a political and moral decadence of the most pervasive kind.

The Present Danger

It follows from such evidence, that the political relevance of presenting this subject-matter here, at this nodal point in current history, is the following fact, one among the most important facts of current human experience, world-wide, at this time.

The world is presently gripped by the onrush of what will become soon, in its magnitude, the greatest financial collapse on this planet in all known human existence to date. For reasons I have developed in earlier locations, unless the "neo-liberal" and related policies which have caused this, are overturned, the present crisis will usher in a planetary new dark age of significant duration, perhaps for as long as generations to come.

This collapse, together with its threatened sequelae, was not predestined. Excepting those types of natural catastrophes which we have yet to learn to control, mankind chooses its destiny by acts of free will; the onrushing financial collapse is no exception to that rule. Natural catastrophes aside, there is no evidence of predestination in the history, or the known evidence pertaining to the prehistory of mankind.

This present world-wide financial crisis, for example, was the outcome of a step-by-step, moral and intellectual decay in the quality of the human will, an ever deeper slide into Romanticism, in the making of economic and other categories of policy-making of nations and other leading institutions.³

As I have outlined the case in locations published earlier, this present descent toward a new dark age, has been the result of a specific, sharp, new downturn within that century-long trend toward decay, which has dominated the world since approximately the time of the 1901 assassination of U.S. President McKinley.

As I have emphasized in earlier locations, a terrible, new, worse phase of corruption has unfolded over the course of the recent thirty-five years, since the assassination of President John F. Kennedy. The 1966–1968 launching of what became known as the Nixon “Southern Strategy” expresses that moral corruption. If we study the loss of rationality in both government and the populations generally, in Europe and the Americas, since approximately thirty-five years ago, all of the proximate, contributing causes leading into the present global crisis, are mistakes which have their common root, in an underlying and grave loss in those moral qualities on which cultures depend for their functionally definable, willful fitness to survive.

In and of themselves, mistaken economic policies can have very bad effects, as the present results of policies of globalization, privatization, and related fads, have ruined the world. However, when we recall the way in which President Franklin Roosevelt saved the U.S. from the mistaken policies accumulated earlier, under Teddy Roosevelt, Woodrow Wilson, Calvin Coolidge, and Andrew Mellon, a mistaken policy is not the worst threat which might confront a nation. More important, is the moral capacity of the nation to correct a mistaken policy before that wrongful policy-trend reaches the point of virtually destroying the nation

³ In the history of Judaism and Christianity, the idea of predestination occurs typically as a result of a pagan doctrine of the form “God is dead.” In history’s experience with such religious cults, the idea of predestination is associated with the dogma, that by creating the world, God made Himself incapable of interfering with the laws which He had embedded in the Creation. According to his personal spokesman, Dr. Samuel Clarke, Sir Isaac Newton’s empiricist theory of the universe, is typical of such cults. The idea of predestination, such as the belief in a predetermined date for a battle of Armageddon, appears only as the influence of such cults, and is found most frequently among the relatively illiterate classes and the insane. In real Christianity, reality confronts man with choices, such as that which the Old Testament’s Jonah was ordered to deliver; what ensues is not something which was fatally predetermined to occur, but which will be the result of the free-will choice of the pathway to the future which a people, a nation, a culture may select. What can be forecast, is the likely outcome of a particular choice, including a failure to make an available choice. That decision, or non-decision will determine what confronts the people who have chosen one of those selections. As the world’s most successful of the documented long-range forecaster of recent decades, I may personally assure you, that we may, and must forecast the likely choices, and their consequences, including the terrible consequence which a people will choose, as long as they cling foolishly to certain axiomatic-like cultural and related assumptions, such as the assumptions of what has become increasingly prevailing U.S. popular opinion since about the time of President Nixon’s adoption of his “Southern Strategy” and neo-liberal dogmas.

itself. The possibility of repeating today the much-needed kind of turn-around from disaster which FDR accomplished, depends upon the existence of a certain degree, and spread, of relative sanity in the population as a whole. On that account, the U.S.A., among others, is presently in far worse danger than it was at the very depths of the plunge into the depression, during 1929–1932. That is the context in which I situate the present discussion of literary practice in the present *Times*.

Admittedly, the 1933–1945 upturn in U.S. policy-shaping under President Franklin Roosevelt, has proven itself to be no more than a temporary, several decades-long reversal of a century-long cultural trend downward.

We must recognize the fact, that the gravest current threat to civilization, not only in the U.S.A., is today's loss of much of that degree of sanity which enabled the U.S.A. to choose FDR's leadership out of the Depression, during 1933–1944. What has made our chances of survival worse today, than at the time of FDR's 1932 election, is today's relatively much greater loss of rationality in public conduct, worse than that which was already severe then, which was suffered by the U.S. population at the close of the 1920s. The partial renaissance led by that President, shows itself, in retrospect, as a cultural up-tick of about two generations duration, within a past century in which the overall direction, most of those decades, has been chiefly downward.

A typical cause of the afflictions suffered, or looming, for the U.S. now, has been the present *Times* of moral and intellectual decay.

The greatest part of the damage done to such effect, has been catalyzed by the combination of generally accepted current, pathetic trends toward fanatical forms of philosophical irrationalism in educational policies. Such is the corruption introduced, on both sides of the Atlantic, by the so-called "Frankfurt School" of Theodor Adorno, Hannah Arendt, *et al.*, as combined with the impact of the mass-entertainment and popular news media. The *New York Times*' style book has contributed significantly to that awful present-day result. I focus here on showing the effects to which that newspaper's role has contributed.

The specific folly thus attributed to that newspaper, is shown by considering the way in which drill and grill applied under its influence, has contributed to the induced habit of attempting to make not only writing, but also speaking, conform to the prescriptions of today's generally accepted secondary and higher education in literature. This has specific, damaging effects upon the cognitive potential of the mind subjected to such conditioning. Thus, doctrines of practice congruent with those demanded by the *Times*' style book, must, of necessity, produce significant impairment in the way the victim of such conditioning thinks. Most notably, once again, it is the higher, cognitive functions of the mind, which tend to suffer the relatively greatest damage.

The principles which must be recognized in any competent discussion of this topic, are specifically scientific in nature, and not to be found in the competence of the usual literature and related departments of contemporary universities. By “scientific,” I mean those adducible principles, upon whose discovery and continuation mankind depends, for our maintaining and improving our species’ power to exist within the universe at large. I mean by “science,” the adducible universal principles which determine measurable kinds of willful improvements in mankind’s power in and over the universe. It is only principles which achieve that quality of measurable performance, which may be truthfully described as *universal*.

Since I am introducing an important branch of physical scientific inquiry to persons who are usually novices in the relevant branch of physical science, I proceed here as I must, step by step.

1. The Geometry of Position

To understand my point, begin by thinking of written text, as of the notes of musical scores, as mere dots left behind, like footprints recorded, where speech or singing has walked across the paper, chalk-board, or computer’s screen. Our attention is returned thus to the allegory of Plato’s Cave.

The kind of damage to the mind which I describe in this report, is most often exhibited at the point the person reading aloud writings which reflect a serious idea-content, murmurs what is written, often as if by reflex. Relevant damage is shown, among those speakers whose intended attempts to present that written text more or less literally, utter such words, or musical notes, as if these represented self-evidently existing elements of a deductive syllogism. Such latter, “connect the dots” practices in shaping the manner of delivery, typify the practices promoted by that epidemic of Romantic irrationalism which is perversely misnamed the British and French Eighteenth-Century “Enlightenment.” This reference signifies the view typical among the followers of Galileo, Hobbes, Descartes, Newton, and so on. That same, empiricist form of irrationalism, is typified for music by the pathetic cases of the Romantic Rameau and the Fux of *Gradus ad Parnassum*.

To identify what is very sick in the habits of the present *Times*, think of written communication not as text, but as *written speech*, as the footprints of spoken, or sung speech.

For example, consider the following pair of functionally coupled utterances:

“Please: feed the cat.”

“To whom?”

That example introduces the simplest aspect of the problem. The meaning of either of the two statements so juxtaposed, is located in the mental act of Bach-like inversion, which connects them under the title of a single functional expression. This is the universal principle expressed by all Classical forms of metaphor.

“Please, feed the cat” and “To whom?” are each acceptable statements in the domain of syllogistic, reductionist’s prose. Yet, just as in the musical-revolutionary use of Bach’s principle of inversion, as, for example, by Wolfgang Mozart’s K. 475 keyboard *Fantasy*, a juxtaposition in the form of an inversion, introduces a paradox which *negates* the entire system to which both of the juxtaposed elements ostensibly belong. This principle of *negation*, is otherwise to be recognized as the *universal principle of change* which Plato identifies as the solution for the general “One-Many” paradox, in his *Parmenides* dialogue.

Since “feeding the cat to someone” corresponds to a real-universe possibility, the effect of juxtaposing the second statement in response to the first, contradicts the ostensible intention of the first in a way, as a surprise, which excludes completeness from the customary attribution of but one choice of intent to the first statement of that couple. That paradoxical *incompleteness*, so generated and demonstrated, therefore *negates* the previously conventional system in which the first statement appeared to dwell.

Kurt Gödel’s devastating *negation* of the entire system of Bertrand Russell’s *Principia Mathematica*, and also of Russell acolyte John von Neumann’s system, too, is another example of the paradoxical nature of those claims to completeness, which is to say, the falseness of claims to reason advanced on behalf of any Aristotelian or neo-Aristotelian system.⁴

This type of paradox tends to explain why Russell had such rage-fits over the very notion of a theory of types. Contrary to Russell and von Neumann, and Russell acolyte Norbert Wiener, too, and contrary to Galileo’s pupil Thomas Hobbes before them, such *ontological paradoxes*, sometimes called *metaphors*, are the premise upon which all progress in physical science, and all forms of competent artistic composition, depend absolutely.⁵

⁴ Kurt Gödel, “On Formally Undecidable Propositions of Principia Mathematica and Related Systems,” and *Discussion on Providing a Foundation for Mathematics*, *Collected Works*, Vol. I (New York: Oxford University Press, 1986).

⁵ This argument was made explicitly by the founder of modern astrophysics, Johannes Kepler, against the unscientific character of the “connect-the-dots” method of Claudius Ptolemy, Copernicus, and Tycho Brahe. This argument is a central theme of Kepler’s *New Astronomy*. The work of Galileo and all of the other leading empiricists, has been premised on exactly that “ivory tower” method of statistical “connect-the-dots” against which Kepler warned. Notably, Kepler recognized that in the attempt to state the empirical evidence showing that the Mars orbit was elliptical, that statement introduced a paradox to the “connect-the-dots” astronomy of Ptolemy, Copernicus, and Brahe. Anticipating the later generalization of this point by Bernhard Riemann, Kepler recognized that the existence of that ontological paradox demonstrated the existence of some universal principle of astrophysics, which he must discover, a principle which would eliminate the fundamental blunder

For our purposes here, the just referenced function of inversions in the method of composition developed by J.S. Bach, is among the best illustrations of the role of metaphor in Classical composition of any kind. The meaning of any statement which introduces an actual idea, lies in the gap, the gap defined by the deductively unbridgeable discontinuity which simultaneously joins and separates the elements of a well-crafted choice of inversion. This is comparable to the generation of a transcendental quality of musical dissonance, or quasi-dissonance in Bach's method of contrapuntal inversion.⁶

It is impossible to represent the real such connection between the two statements, in a deductive, syllogistic way, except in the case no actual idea is being generated by the expression. All important statements in spoken language, have precisely that apparently paradoxical, "one and the many" form, which is required for the statement of actual ideas as such.

In physical science, such a conjunction falls under the category alternately labelled "*Analysis Situs*," or "geometry of position." All notions genuinely qualified to be regarded as *ideas*, are expressed by types of organization of speech which fall, analytically, within the inherently paradoxical domain of geometry of position. The kind of damage to the mind which faith in the authority of our *Times* might bring about, is the victim's induced inability to communicate through the medium of statements of ideas, which, in every case, are ideas which can be expressed in speech only in a mode which is congruent conceptually with the notion of a geometry of position.

True, there are deductive statements which can be expressed in forms of speech, and which are competent statements, but which do not invoke the category of geometry of position in a significant degree, at least not in that immediate context. Admittedly, the conventional notion of a simple declarative sentence, or of a deductive mathematical formulation, illustrates forms of speech which do not appear to imply a problem of the functional type associated with geometry of position. However, in that case, what is spoken can not communicate an actual *idea*, although the speaker might be attempting to point toward one, pointing in the same sense a chimpanzee, or an empiricist might grunt, or scream while pointing toward a banana. Simply literal, or other deductive statements of asserted fact, share the same quality of exclamations, not of identifying the location of an actual idea.

of Copernicus, *et al.* As Albert Einstein stated his point to that effect, all successful progress in the fundamentals of durably validated physical science since Kepler's *New Astronomy*, has been modeled on that decision by Kepler.

⁶ Again, this principle which the Mozart of his K. 475 *Fantasy* derived from study of Bach's *A Musical Offering*, the so-called "Lydian principle" which is universal to the method of Classical "thorough-composition," is the example most often quoted in the work of all Classical composers after Mozart's discovery.

Therefore, there exist grammatical cases in which the application of the *Times'* style does not do damage to the intended content of the utterance. However, such a style is tolerable only as long as what is intended to be understood, does not correspond to any actual idea, as Plato defines *ideas*. Thus, on that account, adhering to statements which make sense, and which also fit that newspaper's present editorial standards, means, in effect, a crippling sort of "dumbing down" of both writer and reader.

All actual ideas, whether in science or art, represent forms of statements whose characteristic feature is a problem posed in terms of apparent paradoxes expressed in terms of geometry of position. The revolutionary method in perspective for painting, as introduced by Leonardo da Vinci, reflects this principle in exactly the same sense as Bach's method in counterpoint, or Classical forms of poetry and drama. On this account, ideas in physical science or Classical methods of artistic composition, are reflections of a common underlying principle of composition of statements in the form of geometry of position.⁷

All experimentally validated discoveries of universal physical principles, such as the discovery of the basis for modern astrophysics, as reported in Kepler's *New Astronomy*, or Fermat's discovery of a principle of *least time*, have been generated in response to ontological paradoxes posed in the form of geometry of position. The validity of such a paradox, while purely negative in itself, points to the existence of a corresponding idea of a practicable solution as existing somewhere. The act of discovery of an hypothetical universal physical principle, presents an idea which might appear to be the solution to that problem of negation. The experimental validation of that hypothetical discovery, as Bernhard Riemann, for example, requires such validation, as not only truthful, but universal in its relevance, establishes the hypothesized solution as a true solution, a validated universal physical principle, a validated *idea*.

Here lies the significance of Bernhard Riemann's revolution in both physics and geometry. In his habilitation dissertation, Riemann began by announcing the outlawing of all *a priori* axioms, such as the axioms of Euclidean geometry, or the physical axioms of Galileo, Descartes, Newton, Euler, Lagrange, *et al.*, from the geometry employed for physics. In place of the "aprioristic" *dimensions* of reductionist mathematical physics, Riemann allowed only experimentally validated discoveries of universal physical principles.

Admittedly, I have gone further, following the line of argument presented by Pasteur and Vernadsky, as also by Leibniz, in adding the categories of physical principles of living and cognitive processes, as each distinct from the category of principles appropriate to merely

⁷ The modern mathematical definition of geometry of position was introduced by Bernhard Riemann's celebrated 1854 habilitation dissertation, as this is also reflected in other writings by him. Riemann's definition of physics, as opposed to a purely formal mathematics, in that dissertation, points directly toward the same general form of a notion of Leibnizian *Analysis Situs* which I employ here.

non-living processes; however, my view as applied here, is otherwise essentially in the form implicit in Riemann's work.

Wherever, as in the case of Fermat's discovery of a principle of least time, or, as in Kepler's *New Astronomy* earlier, coupled statements otherwise agreeable to pre-existing systemic axiomatic assumptions, generate an ontological paradox; a gap, a negation, is introduced to the system in which those statements are situated. That gap occurs in the form of a paradoxical geometry of position. The valid, discovered universal principle, such as Fermat's "least time," which "fills that gap," which defines that discontinuity, is a dimension of the universe in exactly the sense that Riemann defines his revolutionary geometry of the physical universe. That topological significance of such discontinuities, is the key to expressing what Plato defines as *ideas*, expressed in the terms of modern physical science and its appropriate forms of mathematics.

In Classical art, the same method of hypothesis applies universally. In this case, the subject is not universal physical principles as such, but, rather, principles governing functionally efficient relations among the perfectly sovereign cognitive processes of individual human minds. The issue addressed in this case, is the bearing of those relations upon the ability of society to cooperate cognitively in such ways as enable the increase of mankind's power in and over the universe, that through the discovery and cooperation in use of both universal physical principles and the technologies derived from them.⁸

For example, the discovery of the institution of the modern sovereign nation-state, which sets modern European civilization absolutely apart from, and qualitatively above preceding organizations of society,⁹ had the measurable effect of unleashing an unprecedented rate of not only the net growth of population, but also a qualitative improvement in the capacity of society to improve the demographic characteristics of those populations. This evidence illustrates, and proves experimentally, the principled way in which physically measurable results, are applicable to the validation of the universal principles of Classical artistic composition.

⁸ Just as a universal physical principle can not be observed directly by means of the senses, so the cognitive processes of thought which generate the discovery of such principles, are not subjects of sense-certainty. Hence, the process of cognition is opaque to the powers of sense-perception of the external observer. Nonetheless, experimental proof of universal physical principles, shows that such cognitive processes represent the generation and application of physically efficient principles. Hence, for multiply related reasons, the individual person's cognitive processes are perfectly sovereign. Hence, on this account, the human individual differs from all lower forms of life on the specific point of the nature of cognitive sovereignty. Hence, humanity is a species of sovereign individualities, and that is the characteristic of the human species which sets it apart from all others.

⁹ Nicholas of Cusa, *Concordantia Catholica* and *De Docta Ignorantia*, are exemplary of the principled features of the discovery of the modern sovereign nation-state, and of a community of principle among republics so defined. For a comparative view on my argument here, see Friedrich (Freiherr) von der Heydte's *Die Geburtsstunde des souveränen Staates* (Regensburg, Germany: Druck und Verlag Josef Habbel, 1952).

Such universal qualities of physical and Classical artistic principles, define the ground-stock of ideas which can be communicated only through the use of the art-form called language. The attempt of charlatans, such as Russell's acolytes Wiener and von Neumann, to substitute "information" for ideas, is therefore to be classed as a form of attempted "Pavlovian brainwashing" of entire populations, as an attempted practice, functionally, of virtual Pavlovian decortication, to the effect of crushing the naturally inborn, potential intellectual powers of the individual member of our species.

That brings us to the matter of the relations between spoken statements, and the paradoxes posed by the attempt to represent spoken statements by written ones.

2. 'He Who Murmurs While He Reads'

Children learning to read written speech, will tend to mouth it, and will have initial difficulty in reading the words without first attempting to speak each word by aid of movements of their lips, each phrase either spoken aloud, or murmured *sotto voce*. In efforts to learn to read the musical score of an instrumental composition, a student, or as the famous Pablo Casals would, will, similarly, sing the passage, either aloud or "under his breath."

Phenomena of this type reflect the importance of a singing, prosodic form of vocalization of poetry, in enabling the faithful transmission of ideas through oral traditions, over many succeeding generations. In some known cases, the transmission of ideas, with remarkable precision, has extended over successive generations of chanters, as for the Vedic-Sanskrit hymns, for thousands of years.¹⁰ Poetry, especially sung poetry, is the most memorable, and therefore the most efficient and reliable mode of communication, that for reasons related to the latter illustration.

Hence, except among functional illiterates, the form of construction of statements, including the form of punctuation explicitly or implicitly used, will follow the dictates of properly sung Classical prosody. I stress here, that in poetry, as in the forms of song derived from singing Classical poetry, ideas are located in those expressions of the principle of geometry of position which fall under the general classification of *irony*. The illustration, on the subject of feeding the cat, which I introduced above, is an example of such use of irony. The most important form of irony is what is strictly recognized as Classical *metaphor*, a form of

¹⁰ Bal Gangadhar Tilak addressed European studies of the calendars embedded in Vedic-Sanskrit hymns, which contained valid astronomical specifications datable to observations made in Central Asia during some part of the interval 6000–4000 B.C. This writer's 1983 discussions with relevant leading philologists at Pune, elicited their reports on studies of the ability of illiterate chanters to transmit such hymns with minimal corruption over successive generations.

negation which corresponds to the provocation of the discovery of a universal physical principle in science.

This does not support what is often identified with “phonetics,” in educational practices today. The relevant distinction will become clear as we proceed. What I am addressing here, is not tricks, but, rather, deep principles of the individual human mind.

As I shall qualify that point below, even the ability to render a mathematical formula, or diagram, intelligible to an audience, such as a classroom, depends upon the same characteristics of the spoken and sung word and phrase, which a child’s mind calls into play, in learning to murmur the simplest form of poetry and prose. A purely written language of any form, such as a so-called “Cartesian one,” does not, and could not exist among sane persons.

The most characteristic features of speech, upon which a comprehensible form of written utterance depends, are *vocalization* and *action*.

By *vocalization*, we mean a natural musicality of both spoken and sung utterance, which is pivotted on the prosodic function of the vowels. The Florentine *bel canto* mode of voice-training and singing, as its derived values are specified by Leonardo da Vinci for Italian, typifies the natural musicality of speech, the mode of speaking which is the clearest and most efficient employment of the inborn potential qualities of the human singing and speaking voice. The same principles of vocalization also govern prosody in general, as in spoken poetry and prose.

In speech, we mean by *action*, essentially, the function of the verb. The elementary form of the verb is the statement pivotted on, not “to be,” but “to become.” Every statement consistent with the principle of reason, is governed by an underlying form of action through which the universe is transformed. This transformation occurs in ways which exclude reliance upon the copula of the common syllogism, and which condemn, as scientific and general illiteracy, the doctrine which that copulating Bertrand Russell and his followers, such as Wiener and von Neumann, adduce from Russell’s *Principia Mathematica*.

On this account, Plato clarified the implications of Heraclitus’ “nothing is constant but change,” as in Plato’s *Parmenides* dialogue, for example. All human *ideas*, as Plato defines ideas according to the principled *method of hypothesis*, are expressible only in terms of reference to empirically defined changes in the state of the universe around us. All of these changes are referenced to changes effected through man’s action, or failure to act effectively on the universe, actions by which changes are either induced, or are not induced. The changes, or non-changes, which meet that qualification, are, as I have indicated, Riemannian in form.

Notably, this elementary definition of the functions assigned to prosodically speakable language, is to be found not only in the work of Plato, but also the Sanskrit philologist Panini.

Since I am a Classical humanist in method, and have long abhorred the common textbook and related learning methods of today's classroom, follow me once more, as I invite you to re-experience for yourself, the highlights of the manner in which I made certain relevant discoveries.¹¹

My own views on this subject were developed out of a study begun during my adolescence, out of which my original discoveries of universal principle from the late 1940s and earliest 1950s were later derived. A summary of that case should be helpful, and is perhaps indispensable for reader comprehension of the argument, as to principle, on which this report is premised.

That study emerged out of a comparison of the best known seminal writings of the putatively leading English, French, and German philosophers of the Seventeenth and Eighteenth centuries, including Bacon, Hobbes, Descartes, Locke, Leibniz, Berkeley, Hume, Adam Smith, and Immanuel Kant. I soon rejected the English empiricists, which I considered to be, transparently, "ivory tower" rubbish. I thus came to focus my attention on a defense of the leading conceptions of Leibniz, such as those of his posthumously published *Monadology*, against the Critiques of Immanuel Kant. This study defined what became my adolescent rejection of all "ivory tower," so-called "self-evident" notions of axiomatics, as intrinsically false, such as those of generally accepted classroom Euclidean geometry.

About a half-dozen years later, during the immediate post-war period, I revived my earlier work in defense of Leibniz against Kant, and went on to develop a certain type of refutation of the pathetic, central fallacy of method of Norbert Wiener's *Cybernetics* (and also John v. Neumann's "systems analysis"). This became, thereafter, the central feature of my life's work. The choice of Wiener as my target, was prompted by my recognizing that the systemic fallacy

¹¹ An excellent example of that method for teaching mathematical physics is provided by Abraham Kästner, *Geschichte der Mathematik* (1796) (New York: Georg Olms Verlag, 1970). This book, which covers the history of mathematics from the measurement of the pyramid and Thales, to the close of the Eighteenth Century, typifies the method of education as taught by one of the greatest scientists of modern times, a leading follower of Gottfried Leibniz, a teacher of Carl F. Gauss, and, together with Gotthold Lessing and Moses Mendelssohn. Kästner was a keystone figure of the Greek Classical revival in Germany, and thus, in addition to his role as a figure of physical science, a forerunner of the work of both Goethe and Friedrich Schiller in poetry, history, and drama. He is also notable as the leading Göttingen Professor who hosted Benjamin Franklin's celebrated visit at that university, and an important figure in the European support for the cause of U.S. independence. The teaching of science and art must emphasize enabling the student to relive, as accurately as possible, both the act of original discoveries from the past, and also a sense of the circumstances, and specific historical location in which those discoveries were made.

of his “information theory” hoax, was identical with the absurdity of that attack upon Leibniz, which is central to all of Kant’s Critiques.

My choice of tactic for refuting Wiener’s radically positivist and reductionist, “ivory tower,” and lunatic view of mathematics and the universe, was to emphasize the relationship between the experimentally validatable, *cognitive* discoveries of universal physical principles, and the increase of the systemic *potential relative population-density* of society.

It was those and related discoveries, of 1948–1952, so prompted, which led me to a reconsideration of my earlier passing acquaintance with Riemann’s work, and my adoption of his standpoint as the frame of reference within which to situate my own then-recent discoveries in the science of physical economy.

The notable distinction of my emphasis on those latter points, was my insistence that the universal principles of Classical artistic composition, had the same quality of truthfulness, and employed the same faculties of mind, as validated discoveries of universal physical principle. That is to say, that while the discovery of any validatable universal physical principle, is the sovereign act of an individual mind, the ability to express such discoveries efficiently for improvement of the general practice of society, as through technological progress, depended upon the discovery and application of the kinds of universal principles expressed by Classical forms of composition of plastic and non-plastic arts. I emphasized poetry, drama, and music, and their functional interrelationship expressed in song, as a distinct cognitive domain, distinct from physical science, but “multiply-connected,” in Bernhard Riemann’s sense of that term, and that in an indispensable way.

It was the post-war phase of such studies, conducted chiefly during 1946–1952, which led me to recognize the importance of Riemann’s 1854 habilitation dissertation as the needed conceptual framework within which to situate my own earlier work. It was looking at the result of that, which enabled me to develop the view of *Analysis Situs*, or geometry of position, to which I have held, since then, to the present moment of writing, here.

For that reason, I was able to develop a continuously improved insight into the ontological implications of a geometry of position, by aid of which I have been able to attack efficiently otherwise perplexing conceptual problems, such as those being addressed here, today.

A Unit of Spoken Thought

The convenient form of expression of functional notions concerning ideas, is what is expressed in such literary forms as the poetic strophe, and the prose paragraph composed of sentences, in written forms of oral expression. All of the important idea-content of such utterances, appears in the form of paradoxes expressed in terms of geometry of position.

The function of irony, so defined, in general, and metaphor more emphatically, defines the way language provokes the replication of an idea from the mind of the speaker within the mind of the hearer. That idea, the meaning of the utterance, is not located within the literal form of that utterance itself. There is no syllogistic principle governing the verbal transmission of actual *ideas* from speaker to hearer, or reader. Rather, in cases of successful such communication, the use of the principle of negation in crafting the utterance, provokes the replication of the intended idea within the cognitive processes of the hearer.

Compare what I have just said with the comparable phenomena occurring within the domain of Classical musical composition.

The crucial paradox of Classical musical composition, is that the music never lies within the score itself, yet the qualified performer never departs from the requirements of the score. The music lies, as the famous conductor Wilhelm Furtwängler sometimes expressed this, “between the notes.”

One of the most significant examples of the nature of the challenge posed by this principle, is to be found in considering Beethoven’s Opus 132 string quartet as an entirety. There, the “Lydian principle,” which is the pivotal expression of all successful Classical thorough-composition, is exposed in ways which allow no credible attempt at performance, except by recognizing in practice those expressions of geometry of position, which Furtwängler signified by performances he led, in which it was clear that these performances exhibited what he referenced in such terms as performing “between the notes.”

In such cases, the apparent dissonance generated by the way the score is crafted, has the function of a paradox of the type associated with geometry of position. The entire composition is a paradox of such paradoxes on this account. The sensitive performing artist, must perform the composition as a whole, not a succession of sections. It must be performed in a way which evokes a unified solution to that nest of paradoxes, within the mind of both the performers and, hopefully, also the audience. The term “definitive performance” should be outlawed from any other use, but that of indicating the successful realization of those requirements.

Therein lies the fundamental difference between the Classical (Mozart, Haydn, Beethoven, Schubert, Schumann, Brahms, Verdi) and the overlapping Romantic (Berlioz, Liszt, Wagner, *et al.*) repertoire in late Eighteenth- and Nineteenth-Century musical composition and performance.

For example, the pianist who performs a section of a Schumann keyboard composition as a Liszt-type bit of “passage work,” may be performing Schumann in a “Romantic style,” but the result is not Schumann’s composition. The Romantic composer and performer are

attempting to evoke a sensual effect as such, not an actual idea. The paradox of dissonance is misused by the Romantic composer and performer, to the purpose of eliciting sensual effects, as Wagner exemplifies this in the celebrated *Liebestod* duet from *Tristan*. The use of the method of “fractals” as a proposed substitute for non-linearity, in mathematics, is an example of the same type of hoax perpetrated in the guise of music by Liszt, Berlioz, and Wagner.

Thus, the fact that dissonance is crucial in Classical thorough-composition, does not signify that the use of dissonance by the student of what Beethoven described as “that criminal Czerny,” Franz Liszt, is consistent with the intent of Classical composition. Only a fool, or a hoaxster, could propose that there was a “Romantic period” in art, which, like the purely mythical *Zeitgeist*, grew out of the “Classical period.” Only in works which conform to the Classical principle of composition, are actual ideas clearly defined by implication. Only forms of composition which express a meaningful proposition in geometry of position, correspond to the communication of *cognitive ideas*.

Thus, in any Classical form of artistic composition, the beginning of what becomes the finished work, is an initial statement of a paradox. The resolution of that paradox, defines a nodal point in the process, at which the unit-composition is completed. The unfolding of subsequently subsumed, cohering paradoxes, supplies the structure, on which the unfolding development of the connection between beginning and conclusion hangs. The condition is, that no diversion from that unfolding process of reaching the completion, should be introduced between the initial paradox and the final resolution.

What I have just said for Classical musical composition and its performance, applies to the spoken utterance of the written word. Here, the attempt to interpret the written word, as merely written word, falls into a fatal intellectual trap: can one dare to ignore that passion, expressed as *action* and *vocalization*, which is essential to the meaning of the utterance, and thus attempt to adduce the intent of the utterance merely from a ritual examination of the mere dead bones which are the written text?

The appropriate answer to that question is best approached by the habit of constantly reminding oneself of Heraclitus' famous aphorism: *Nothing is constant but change*. All statements, units of composition, or functional elements of such a composition, must be expressed in the implicit form of the verb “to become.” “To become,” so situated, and, as I have made this point above, is to be recognized as the elementary form of action in all intelligent communication. The idea of the statement must lie with the verb conceived as an expression of the general form of the verb “to become.” The substantive expression of “to become,” always has as its explicit or implied action of reference, the generation of the type of an *idea* stated as a proposition in geometry of position.

For example, in the mind, the statement "I am," is better said as "I am becoming." There is some action which is transforming "me," from what I was, to what I shall, or will be. That action is me as the existing subject of the statement. Significant actions are those in which the transformation is pivotted on an idea, as I have defined *idea* here.

This subject's existence, as something becoming, has two interdependent aspects: the *action* of transformation (*becoming itself; continuing to become*), and the *will* which prompts that action. The central action of the unit statement should be of the quality of an idea.

In the case of the communication of *ideas as ideas*, the source of the will underlying that *action*, is to be found, as Furtwängler warned, "between the notes." It is located in the functions of speech, and Classical musical thorough-composition, expressed as paradoxes of geometry of position. The speaking or singing of a unit of intelligent (i.e., cognitive) communication, is to be identified in terms of the way in which the structure of the included statements may be re-enforced, in the written version of speech, by appropriate uses of standards of punctuation which are anathema to the devotees of their *Times*. We have now reached the point in this report, at which those matters of crafting of speech come into view.

How To Compose Intelligent Thoughts

The essential quality of intelligent communication, is the speakers' reliance upon the impact of the unexpected upon the mind of the audience. So, we may readily distinguish intelligent communication from the typical barroom practice, of swapping tired old idioms, that with the addition of trite gestures as color. The same sort of foolishness may appear in other disguises, either in the form of an indignant editorial statement, delivered in present-day guises for what older generations called "the yellow press," or as the sententious rant of some bigot, spewing his ignorance-soaked bile, as an irate caller to what is called a "talk show." In short, in contrast to what literate speakers better name *bathetic*, rather than *pathetic* cases, irony, especially the form of irony known as metaphor, is the precondition upon which all intelligent communication depends.

Therefore, the essential unit, the germ, of intelligent communication, is not a single statement, but an ironical juxtaposition of two contrasting statements. That juxtaposition is best accomplished, by applying to oral and written speech, the principle of inversion as illustrated by J.S. Bach's *The Art of the Fugue*. The matter of "feeding the cat," was supplied above as an illustration of that point, and of some of its practical implications.

Now, consider the text-book sort of case, in which a combination of two or more ironically juxtaposed elements, must be combined into the form of either a single sentence, or a group of successive sentences, all to the same net effect. In form of either oral or written expression, that assembly of ironically juxtaposed elements, constitutes the unit statement to be

considered in this example. In general, in times prior to today's *Times*, all literate writers and speakers of the Classical persuasion, clearly practiced the principles I have just identified.

Choose the opening couplet of the famous Third Act soliloquy of Shakespeare's *Hamlet*, as a point of reference. Present this couplet in the following written-out form of a guidance to the apprentice actor: "[To be], or, [not to be]": statement and "inversion." Imagine you are a singer trained in *bel canto* methods; how would you score that couplet as statement and inversion prosodically (musically)? I shall not give you suggested answers; it will be more satisfying, and productive, for you, to work it out for yourself. You might wish to take the following comment on the character of that soliloquy into account, in deciding how to solve that problem of stating the opening couplet. Why not? Otherwise, with making the beginning coherent with the end, how would the prosodic statement of the opening couplet unfold as the developed paradox of the soliloquy as a whole?

Remember, as I have addressed this same matter in my "Politics As Art," there are three leading points to consider, in preparing the performance of that soliloquy.

First, that the tragedy of *Hamlet*, like all competent compositions in Classical tragedy, focusses on a leading figure of a society, a society which is examined in a circumstance, in which it is virtually self-doomed to a terrible fate, like the U.S.A. today, if it continues to follow the habits of decision-making and related behavior embedded within its existing culture. The figure of Hamlet will determine whether or not that doom, embedded in the society's culture, will occur. In other words, through the role assigned, by circumstances, to that key figure, the society as a whole will make a decision about its fate as a whole.

Since this is a Classical tragedy, Hamlet will fail to meet the implicit requirement, thus showing the audience, that a solution did exist, but the leading figure failed to meet the challenge of acting against the presently built-in moral defect of that society as a whole. However, seeing that the doom of both Hamlet and his Kingdom of Denmark, was caused by Hamlet's willful rejection of the pathway to safety, the audience is prompted to reach the optimistic conclusion, that a happier solution existed, and could have been chosen.

Thus, as Friedrich Schiller stated the principle of Classical drama, the audience must leave the theater better people than they had entered it. The doom of Hamlet and the Kingdom on stage, is an ennobling event, since it, using the same principle of negation which has been discussed here, has shown real-life people the hope of overcoming, in real life, the doom which is persuasively exposed on stage. All great Classical drama, exhibits this essential quality. All competent study of history, is accomplished in the same form, and according to the same principles as such drama. In fact, all the great Classical drama, deals either with the study of real-life history, or a comparable mythology, as the point of factual reference from which the relevant Classical drama is composed.

Second, in the Third Act soliloquy, the character Hamlet, counterposes the one alternative course of action ["To be"] to the other ["not to be"]. He admits the folly of his accustomed, swashbuckling ways, but refuses to abandon that folly, out of fear of the uncertainty of that place from which "no traveller has returned." "Thus," he proclaims, "conscience doth make cowards of us all!"

Third, in the closing scene, featuring the contrasted viewpoints of the characters Horatio and Fortinbras, the issue of the Third Act soliloquy is recapitulated in a slightly modified form. Horatio takes our attention back to both the "play within the play," and Hamlet's soliloquy following the exit of the players. In this latter manner, Shakespeare brings to a perfected close, the paradox which grips the drama from its onset. The Third Act soliloquy's opening couplet echoes in the minds of the audience, as the corpse of Hamlet is removed from the stage.

So far, I have relied chiefly upon examples in which simple couplets have been used, to illustrate the way in which the germ of an idea is introduced to the process of an unfolding Classical composition, or to provoke the discovery of a validatable universal physical principle. Fermat's discovery of a principle of "least time," is typical of the examples we have considered.

Usually, unit statements are more complex than simple couplets. Strings of apposed elements, rather than simple couplets, are required to define an elementary statement of a paradox or idea. I have already pointed to the existence of a certain type of musical problem, in determining the prosody appropriate for the actor's delivery of the couplet "To be, or, not to be." In unit statements which have a more complex structure than the simple couplet-form, how should we set the component sub-elements apart from one another, without spoiling the unity of effect of the statement which includes them all?

For one thing, we can separate each part of that statement from the proximate parts, by such means as a "breath," as might be indicated by the insertion of a comma, or appropriate choice of other mark of punctuation. There are also other means available to us, means implicit in the way in which Bach approaches polyphony. These other means are typified by the musical principles of singing-voice register-shifts, variations in tempo, and various expressions of what is termed "voice coloration." The famous Franz Schubert setting of Goethe's poem *Erlkönig*, contains the required use of all of those types of resources.

List the voice-parts, each as all sung by the same baritone voice. We have the narrator, the father, the child, and the evil old Erlkönig himself. The Erlkönig makes references to his mother and his daughters, which require sensitive regard for the problems of coloration incurred by the singer. All of the resorts to which I have referred, are drawn upon by Schubert in composing that short piece. Notably, at the close, the narrator's part sings: "in

his [the father's] arms, the child was dead." "Dead" itself requires distinctive coloration. Schubert's later setting of the Heine poem, *Der Doppelgänger*, has features which are more challenging, which are usefully compared for relevance to the point I have just made concerning *Erlkönig*.

All of these features of musicality, have a corresponding role in the function of prosody in spoken prose. In literate speech and writing, these prosodic principles are used with the same kind of function and intent, as in Classical poetry and song. Conversely, literate forms of speech and writing, are those which address the problem of the relationship among the component ironies of a unit statement, in the same approach used by the composer and performer for a Classical poem or song-composition.

If a long sentence, for example, including elements which should be distinguished as in ironical (e.g., paradoxical) relationship to one another, were simply written or spoken as if without punctuation, any actual idea contained in that statement would be relatively incomprehensible. Worse, to rephrase such a statement, but without correcting the lack of punctuation, would result in the virtual elimination of an idea essential to the unrevised version. On that account, the speaker, or writer, must separate the apposed elements of the statement from one another. The speaker might succeed in this, by taking a breath (a comma, for example), or by a change in quality of intonation, as by use of registration, tempo, and color, to set one element apart from those others to which it is apposed within the statement as a unified whole.

Thus, the speaker of a well-composed part, such as the Third Act soliloquy of *Hamlet*, is not reading a line, a strophe, and so on. He is putting an exciting drama on stage, within each strophe and the soliloquy as a whole, including the stunningly ironical concluding reference to Ophelia. The ironies of the juxtaposed elements, sing like polyphonic voices from within the mind of the character Hamlet, to impart to the audience the fierce conflict occurring within that character's mind. The soliloquy, thus performed, not only brings the character alive on the stage of the imagination of the individual mind of the member of the audience, but, it is the reflective imagination of the character, as projected by the actor, which the audience member perceives as the real character on the stage.

By such ruses, the crippling fallacy of the shadows on the wall of Plato's Cave, is overcome. The audience's attention is shifted from the sensory apprehension of the movement of the shadows, to a certainty of the reality which lurks unseen, behind the image of those shadows.

All communication of important subject-matters must be accomplished by means which yield a comparable effect.

Whence the Passion?

Against the background of the points considered, where is the passion which imparts motion to ideas?

As every competent performer of Classical musical composition should know from reflection on relevant kinds of successful experience, what brings a mere musical score to life, is the performer's sense of the manner in which the composition's characteristic development must move the imagination of the audience. In such compositions, the development is expressed, chiefly, as the motion represented by the paradoxes of inversion which are generated according to the Lydian principle of Bach, Mozart, *et al.* One does not state an apparent such dissonance, as the Romantics tend to do; one pivots upon it. It is not an interruption; it is the gap wherein is located that which moves the development of that composition across the gap, and is thus the active connection of that which precedes, to that which follows.

This, for the case of music, typifies that which gives life to the nominal transitive quality of the verb in speech; it is this which transforms a mere verb, by infusing it with a quality of cognitive action. It is not the gaps themselves which supply cognitive energy to the verb, but, rather, the cognitive energy associated with generating the solution for the paradox the gap defines. It is the energy so provoked into action within the mind of the hearer, which enables the mind of the hearer to re-create the cognitive intent of the speaker. It is that action within the mind of the hearer, which supplies the quality of action, to what is otherwise merely a verb.

Look at what I have just said from the standpoint of physical science.

In the science of physical economy, the primary source of all increases in the productive powers of labor, per capita and per square kilometer of area, is, ultimately, the validated discovery of a universal physical principle. Immediately, this effect of a universal principle is usually prompted by the application of some technology, which has been developed as a by-product of designing experiments which validate the discovery of a universal physical principle, and as a by-product of repeating that experimental activity for different media, and for different combinations of technologies. The stated qualifications taken into account, and thus put to one side, the essential fact remains: it is the action of discovering a validated universal physical principle, which is the source of those changes in practice, by means of which the potential relative population-density of the human species is increased.

On that account, all notions of human action must be defined from the standpoint of the kind of cognitive action which, thus, transforms mankind's relationship to the universe.

In Riemann's work, for example, the effect of such action is shown empirically by a measurable change in the physical-space-time curvature. This change, which must be

measured in terms of experimental physics, not classroom mathematics, is associated with the addition of some newly validated universal physical principle. Hence, the importance of the science of physical-economy, my field of work, for addressing certain fundamental issues of science, issues which could not be addressed successfully, in any other way.

Hence, it is only validated discoveries of universal principles, both scientific and Classical-artistic, which correspond to mankind's efficient and successful relationship to the universe at large. Since these discoveries occur only through the topics of geometry of position which I have addressed here, the elementary form of action for purpose of human communication, can be nothing other than those cognitive processes through which validatable discoveries, and applications of universal principle are generated, and transmitted from one person to another. Archimedes' celebrated shout of "Eureka!" typifies the image of the passion of discovery of such principles.

This means, that it is the movements of the mind set into orbit by ontological paradoxes, and the act of generating solutions to those paradoxes within the mind of both the speaker and hearer, which express that impassioned quality of action on which our attention is focussed here.

This means, that the principles of Classical musical composition, to which I have referred repeatedly here, are modern developed expressions of those inborn qualities of the individual human mind, on which the generation and transmission of true ideas depends. It is the cognitive action situated in the context of those musical/prosodic principles, which is the elementary form of impassioned action, upon which the transmission and reconstruction of valid ideas depends. That is why music, especially that developed as the modern Classical form of Bach through Brahms, is of such indispensable importance, not only to civilization as a whole, but for the training of the individual mind to compose, transmit, and receive those statements through which mankind's affairs are best managed.

The crime of English-language misuse, in such *Times* as we have considered here, is to be defined and recognized accordingly.