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About the Romantic Circles Praxis Series

The *Romantic Circles Praxis Series* is devoted to using computer technologies for the contemporary critical investigation of the languages, cultures, histories, and theories of Romanticism. Tracking the circulation of Romanticism within these interrelated domains of knowledge, *RCPS* recognizes as its conceptual terrain a world where Romanticism has, on the one hand, dissolved as a period and an idea into a plurality of discourses and, on the other, retained a vigorous, recognizable hold on the intellectual and theoretical discussions of today. *RCPS* is committed to mapping out this terrain with the best and most exciting critical writing of contemporary Romanticist scholarship. *The Romantic Circles Praxis Series* was formerly known as *Romantic Praxis: Theory and Criticism*. The name was changed in November 1999.

About the Contributors

Arkady Plotnitsky is a Professor of English and a Director of Theory and Cultural Studies Program at Purdue University. His books include *In the Shadow of Hegel* (1993); *Complementarity: Anti-Epistemology After Bohr and Derrida* (1994), and *The Knowable and the Unknowable: Modern Science and Nonclassical Thought, Essays on Bohr, Heisenberg, Lacan, Derrida and the "Two Cultures"*, forthcoming in 2001 from the University of Michigan Press. He is currently at work on *Minute Particulars: Romanticism and Epistemology*.

Hugh Roberts is Assistant Professor of English at the University of California, Irvine. He is the author of *Shelley and the Chaos of History: A New Politics of Poetry* (Penn State, 1997).

Paul Yoder is an Associate Professor of English at the University of Arkansas at Little Rock. He has co-edited (with Wallace Jackson) *Approaches to Teaching the Poetry of Alexander Pope* (MLA 1993) and *Critical Essays on Alexander Pope* (G. K. Hall/Twayne 1993). He is also the author of essays on Milton, Thomas Gray, Samuel Richardson, and William Blake.

Romanticism and Complexity

Complexity and Order

Hugh Roberts, University of California, Irvine

1. Why science? This is a question that long-suffering scientists must ask themselves whenever they see another attempt in the Humanities to borrow from their disciplines in order to construct new interpretive frameworks in contexts for which they must appear strangely ill-adapted. Why seek out analogies between the epistemology of quantum physics, or chaos theory, and that of a poem by Blake, for example, as Arkady Plotnitsky and Paul Yoder have in the papers presented here?

2. It is not that there is anything startlingly new in recent critical attempts to fish the pond of our next neighbors across the campus—other, that is, than the specific content of the scientific models being borrowed. Indeed, scientific analogies and analyses have regularly found their way into literary criticism. Nowhere is this more true, of course, than in the criticism of the Romantics. From that "Newton among poets" Shelley, to the practicing scientist Goethe, to the anti-Newtonian "visionary physicist" Blake, Romantic writers have invited investigation into their own scientific thought, and speculative explorations of their work in the frameworks of more recent scientific developments.

3. This should not surprise us. If modern science can be seen as the most prominent inheritor of the aims and methods of the Enlightenment project, the Romantics' conflicted attitudes toward that project—at once rejecting and completing it—guarantee the continual renewal of an old dialogue. Friedrich Schlegel once claimed, trenchantly, that "the whole history of modern poetry is a running commentary on the following brief philosophical text: all art should become science and all science art; poetry and philosophy should be made one" ("Critical Fragments #115," 14). At almost the same time, however, he was asserting—with the same trenchancy—that "the concept of a scientific poem is quite as absurd as that of a poetical science" (#61, 8).

4. The question to ask, then, is perhaps not "why science," but "why this science?" Why are literary critics so drawn to sciences that—in one way or another—are controversial, or at least problematic, with respect to the Enlightenment notion of the scientific project? Quantum physics is now "old" science— the Copenhagen interpretation has held off challenges for over seventy years—but the fundamental limitations it imposes upon the coherence and consistency of any possible knowledge of the world remains a standing challenge to the materialist determinism which lies at the heart of the Enlightenment understanding of the world. Quantum physics' famous "absurdities"—Heisenberg's uncertainty principle, nonlocality, Schrödinger's cat—which prompted Einstein's equally famous *cri de coeur* that "God does not play dice with the universe" are, as Arkady Plotnitsky describes in some detail in his "Chaosmic Orders," fundamentally incompatible with the Enlightenment's central drive towards a complete *mathesis*, the Laplacean dream of a universe in which there is a time and a place for every atom, and every atom is in its place at the determined time. Chaos theory, similarly—even if it be reconciled with classical physics as Plotnitsky suggest—puts absolute limits to the "knowability" of the underlying deterministic origins of a world that can only be understood as a dynamically emergent system. Such developments within science are necessarily arresting for the student of Romanticism, because they are analogous to (but sometimes no more than analogous to) key Romantic criticisms of the materialist and determinist bent of the Enlightenment project: we think of Blake's rejection of "Single vision & Newtons sleep," or Wordsworth's claim that "we murder to dissect."

5. The central figure here, as with so much of Romantic thought, is Kant. It is conventional enough to

view Kant as at once the culmination of the Enlightenment and its first and most profound "post-Enlightenment" critic. Taking up the problem of reconciling freedom of the will with a necessetarian understanding of the physical world, Kant, in the first two critiques, can resolve this fundamental antinomy only by appealing to incompatible regimes of explanation. Within the framework of time and space, the world is deterministic and actions can only be understood as the necessary consequence of the events that have preceded them. Moral freedom, however, has reference to an unconditioned absolute, which need not, and indeed cannot, be understood within the deterministic framework of space and time. If this solves the dilemma by subjecting us to two utterly incompatible orders of explanation, the third Critique will point the way to a reconciliation. It is the beautiful object—that excessive eruption of significance, of a beauty that verges inexplicably on truth—which seems somehow to live in both realms at once, and to reconcile our moral and physical beings.

6. This, at least, is how the post-Kantian philosophers and the Romantic poets they influenced so heavily choose to see the role of the work of art. Beauty, says Schiller, proves "the *compatibility* of both natures . . . the practicability of the infinite in finiteness, and consequently the possibility of a sublime humanity" (*Letters*, 123). The infinite, the unconditioned, can be reconciled with the finite, the determined. Sometimes this can seem to suggest that in the work of art, the freedom of the will triumphs over the mechanistic constraints of mere physical reality—and certainly those who think of the Romantic legacy as simply a rejection of Enlightenment scientism have taken this view. When Friedrich Schlegel writes of "the romantic kind of poetry" that "it alone is infinite, just as it alone is free; . . . it recognizes as its first commandment that the will of the poet can tolerate no law above itself" ("Athenaeum Fragment #116", 32) he certainly seems to invite such an understanding. Here is the root of Schlegel's celebration of the "arabesque," of "chaos"—a bravura display of the artist's freedom, of that "versatility" which "consists not just in a comprehensive system but also in a feeling for the chaos outside that system" ("Ideas #55," 99).

7. "A feeling for the chaos outside that system": is it any wonder that Romanticists are drawn to "unruly" developments within "ordinary science"? Romantic literature is a literature of "complexity," of "chaos"—a literature of irony, fragmentation, and excess that calls into question the possibility of "system," at least, of system as understood by the eighteenth century's *esprit de système*.

8. But this is only part of the story. It is Schegel himself who warns against mistaking his purpose: "What appears to be unlimited free will, and consequently seems and should seem to be irrational or supra-rational, nonetheless must still at bottom be simply necessary and rational; otherwise the whim becomes willful, becomes intolerant, and self-restriction turns into self-destruction" ("Critical Fragments #37," 5). It should come as no surprise that Schlegel thought Spinoza the "ideal of the species [of philosophers]" ("Ideas #137," 107). Happiness lies in learning to bring about a harmony between the unlimited will and the limited world. All of Schlegel's celebration of "chaos" and fragmentation is underwritten by a faith that the apparent disorder of the unruly part is ultimately to be recuperated by the implicit order of the whole. This faith is most familiar to us, of course, as Romantic "organicism." The "fragmentary" appearance of the part is only a product of our necessarily limited perspective. The "part" indeed has a kind of moral freedom, but that freedom turns out to be the freedom to will the whole, thereby bringing about that unity between "will" and "world" that Schiller had located in the beautiful work of art. Or as William Wordsworth puts it in "Ode to Duty": "Yet not the less would I throughout / Still act according to the voice / Of my own wish; and feel past doubt / That my submissiveness was choice . . . ./ Denial and restraint I prize / No farther than they breed a second Will more wise" (41-44, 47-48).

9. All this is familiar, of course, as is the political organicism which is its corollary. Edmund Burke's is perhaps the most vivid statement of this anti-Enlightenment credo:

> [Society] is a partnership in all science; a partnership in all art; a partnership in every virtue and in all perfection. As the ends of such a partnership cannot be obtained in many generations, it becomes a partnership not only between those who are living, but between those who are living, those who are dead, and those who are to be born. Each contract of each particular state is but a clause in the great primeval contract of eternal society, linking the lower with the higher natures, connecting the visible and invisible world, according to a fixed compact sanctioned by the inviolable oath which holds all physical and moral natures, each in their appointed place. . . . (194-5)

Schlegel demonstrates the congruence between the Burkean and the Romantic understanding of the artist/citizen: "Artists make mankind an individual by connecting the past with the future in the present. Artists are the higher organ of the soul where the vital spirits of all external humanity join together, and where inner humanity has its primary sphere of action" ("Ideas #64," 100). The liberatory impulse that lead the Romantics to rebel against Enlightenment systematicity—against the obsessive rationality of a complete mathesis—finds its uncanny double in systematic totalitarianism, the demand that each fragmentary part can only be understood as an expression of the whole that contains and justifies it.

10. It is no surprise, then, that a Romanticist will be drawn to the contemporary sciences of complexity. Couldn't this passage from Plotnitsky's paper be a missing "fragment" from the *Athenaeum*?:

> In other words, a radical organization is an organization of individual entities, which are the constituents of the order or orders arising in multiplicities governed by radical organization, while each such constituent, considered in isolation, cannot itself be subject to this or any order, law, organization, comprehension, and so forth.

A passage such as this strikes at the heart not only of Romantic organicism, but of the Romantic theory of meaning—specifically poetic meaning—which emerges from it. A "radical" organization which forbids us to subsume the constituent "parts" of the organism under any "law, organization [or] comprehension"—a world, in other words, in which God *does* play dice with the universe—would also make impossible the "symbolic" reading of the world which is central to the Romantic poetic. In Coleridge's classic formulation,

> a Symbol . . . is characterized by a translucence of the Special in the Individual or of the General in the Especial or of the Universal in the General. Above all by the translucence of the Eternal through and in the Temporal. It always partakes of the Reality which it renders intelligible; and while it enunciates the whole, abides itself as a living part in that Unity, of which it is the representative. (30)

The part "partakes of the Reality which it renders intelligible" in a relationship which renders the world a manifold and temporally extended expression of a single eternal truth—the "one intellectual breeze" that sweeps through the "organic harps, diversely framed" of animated nature in Coleridge's ecstatic vision in "The Aeolian Harp."

11. The flipside to such ecstasy is the oppressive burden such a limitless potential for significance places on the poet. Coleridge, again, is our best witness to this. His "Dejection: An Ode" voices the despair of a poet who has collapsed under that burden. To "see, not feel" the beauty that surrounds him—to see it without "feeling" its symbolic relation to an "eternal" and "absolute" condition of all meaning—is an intolerable deprivation.

12. What Coleridge lacks is that "feeling . . . for insignificance [*Sinn . . . für das Unbedeutende*]" that Schlegel reproaches his young avatar Julius for lacking in *Lucinde* (83). Julius has fallen prey to a

paranoid pursuit of "subtle motives and deep plots" which he imagines (as did so many in the years immediately before and after the French Revolution) to lie behind "any given particular case" or event (83). Schlegel helps us to understand why the indeterminacy of Plotnitsky's "radical organization" presents such a compelling challenge to High Romantic hermeneutics. The "symbolic" understanding of the world—so confident that the "meanest flower that blows" can be freighted with a truth that "lies too deep for tears"—is a form of paranoia, it insists upon a world saturated with *Bedeutung*, or significance. High Romanticism, like classical science, cannot believe in "pure chance."

13. Significantly, Julius falls prey to a "passion for gambling" at the same time as he succumbs to his preoccupation with plot and intrigue. The connection is subtly suggestive. Does the gambler gamble in order to escape an overdetermined world saturated in "meaning"? Or does he gamble because he believes that "chance" is just *Bedeutung* misrecognized? The gambler, surely, does not really believe in a God that "plays dice." Gamblers live in a world in which chance does nothing at random—chance keeps score, teasing the player with "lucky streaks" and "losing streaks," constantly supplicated and propitiated with lucky charms, lucky socks, lucky days, lucky tables. The gambler feels, but rarely sees, how lucky they are. When Coleridge calls for the storm to break loose and "startle this dull pain, and make it move and live" in the opening verse paragraph of "Dejection," is he calling on an aleatory disruption that will at least break him free of the ever-frustrated quest for significance, or for a painful rebirth—a last, lucky, throw of the dice—in the godhead of the "intellectual breeze"?

14. It is the question of chance, then, or of what counts as chance and whether chance is *Bedeutende* or *Unbedeutende*, which make the scientific understanding of complexity and determinism compelling for Romantic scholars. Plotnitsky writes:

> Classically, chance or, more accurately, the appearance of chance is seen as arising from our insufficient (and perhaps, in practice, unavailable) knowledge of the total configuration of forces involved and, hence, of the lawful necessity that is always postulated behind a lawless chance event.

"Classically," then, chance is not chance—or at least, would not be chance to a sufficiently encyclopedic observer, a figure (like, say, Laplace's famous "demon") that reveals a curious continuity in the paranoid lack of *Sinn für das Unbedeutende* from the rationalist *Encyclopédistes* to the symbol-hunting Romantics. It is the post-classical sciences that offer us, one way or another, an escape from a hermeneutics of paranoia.

15. Or, at least, that is one way to understand their relevance to Romantic thought. What strikes me as particularly useful about the two papers we have in this edition of *Romantic Praxis* is that they show two distinct, even opposed, ways of applying the insights from sciences that trouble the classical resistance to "real" chance. Plotnitsky, I would guess, wants to recapture that *Sinn für das Unbedeutende* that the young Schlegel (sometimes) prized. He finds in the challenge that quantum physics poses to a strictly deterministic causality an analogy to Blake's insistence that the "minute particulars" of the poem/world cannot be summed—symbolically—into any consistent hermeneutic totality. Like Wallace Stevens's in "Connoisseurs of Chaos" he believes that "A violent order is disorder."

16. But Paul Yoder, also drawing on contemporary sciences which have posed a challenge to the classical mathesis, makes a very different argument. He, I suspect, would prefer Stevens's line "A great disorder is an order." He finds in the fractal, and its "hologram"-like self-similarity-across scales, a kind of "secret order" to the apparent complexity of the world—a confirmation of an overall design which we discover stamped on the most infinitesimal components of that design. What at first appears to be "chance" turns out to be "design."

17. When Yoder discusses the "fractal" arrangement of plate 96 of Blake's *Jerusalem*, with the text arranged in the shape of an L (for "Los") as it describes the encounter between Albion and the Savior "who appears 'in the likeness & similitude' of Los" he is struck by the fractal "self-similarity" more than by the potential *contradictions* across scales which Plotnitsky locates in Blake's "minute particulars." Here we have something like Schlegel's notion of "chaos." There is freedom—the interpretive freedom to move across scales without constraint—but that freedom exists always in a higher context of lawful constraint: freedom is the freedom to will the necessary, to discover a "narrative unity" that has (by a familiar symbolic logic) dispersed itself in a merely apparent fragmentation across the myriad levels of the work.

18. It is then, I hope, sufficiently clear why a Romanticist cannot but be drawn to these scientific models, that allow us to re-engage with perennial struggles over the essential nature of Romanticism in new and heuristically provocative ways. But I want to end by returning to the discomfort I recognized at the outset that the scientist has for the ways in which we humanists make use of scientific models. This discomfort stems, in part, from what we might call—in Popperian mood—"falsifiability." We all know that scientists like to think (at least) that they deal solely with theories, models, hypotheses that are "falsifiable," that can be tested and proven wrong. When we import scientific models and theories into the humanities, one of the nervous twitches scientists get is precisely the fear that the theory has moved into a realm in which it cannot be falsified. They are, of course, quite right—or near enough as to make no difference. Theories in the humanities are rarely "falsified" in this sense—it is truer to say that they go in and out of fashion than that they become burdened down with disproven hypotheses.

19. But if we don't like to invoke the term "falsifiablity," I think we can import a term from the philosophy of science which Isabelle Stengers has recently made the center of her theoretical writings: "resistance." The scientist, Stengers argues

> must try to give its object the power to make a difference. The whole point of the experimental setting is to create a situation in which you are not free to interpret a fact as you wish, where what you address is able to severely restrict this freedom. (15)

This "restriction" on the scientist's freedom of interpretation—a restriction based upon the "resistance" mounted by the object of study—is something that in a slightly different way I believe we honor—and should honor—in the humanities. We all recognize that one way in which a literary theory plays itself out is in exhausting the resistance of the objects of its application. When *all* texts—rightly viewed— turned out to contain the familiar New Critical desiderata of irony, ambiguity and so forth, then the New Criticism began to seem stale. The New Historicism begins to run into problems when it seems to be able to discover "subversive" intentions in even the most complacently conservative of texts. Deconstructive critics of a certain type never found a text that didn't celebrate the free play of the signifier and the indeterminacy of meaning. Again and again, literary approaches have been undermined by their *success* as much, or more, as by their failure.

20. This is not to say that disagreement is desirable in and for itself. It is, rather, to argue that one of the purposes of literary study must be to preserve the role of the text—as far as possible—as a vital participant in the process. If an interpretation cannot in fact be "falsified" by the text, we should nonetheless give the text every chance to be a source of meanings, rather than a pretext for them. If not, why would we read at all? This is as much an ethical as an epistemological matter, but this is in the end as true for the scientist as it is for the critic. In both instances we make a choice that it is better to be willing to be taught by the world, or by the text, than to reduce it to a mere prop for an argument whose real springs are elsewhere.

21. Shelley wrote in his "Defence of Poetry" that "a great Poem is a fountain for ever overflowing with the

waters of wisdom and delight; and after one person and one age has exhausted all its divine effluence which their peculiar relations enable them to share, another and yet another succeeds, and new relations are ever developed, the source of an unforeseen and an unconceived delight" (500). The difficult trick is to construct a "new relation" with the text, rather than subjugate it entirely to the "peculiarities" of a new age.

22. The question we must put to work of the kind represented by the present essays, and which I try to put to my own work in this vein, is the question of "resistance," which in Shelley's terms is the question of the possibility of "unforeseen and unconceived delight." Will the application of chaos theory and quantum physics in literary studies find a useful kind of resistance from its objects of study? Or will we find—at first with delighted amazement and eventually with jaded indifference—that one author after another turns out to have been a "secret chaotician" or "secret Heisenbergian" all along, betraying an entirely predictable dedication to "chance"?

23. We are particularly lucky in the present instance to have two readings of Blake, both drawing on different areas of contemporary science to construct closely related but significantly different arguments about the nature of Blakean "complexity." In the differences between the two papers—made clearer in the brief responses each author has generously supplied to the other—we have the most telling evidence that these approaches will continue to prove fruitful. In the long run, perhaps as important as the particular details of either argument is the fact of this evidence of "resistance." The appeal to models of explanation from outside the humanities is helping us to discover new insights into these texts, insights that offer us "new relations" to great poems.

24. Reading work of the quality of Arkady Plotnitsky's and Paul Yoder's gives me confidence that these critical approaches are still unearthing "unforeseen and unconceived delights."

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Romanticism and Complexity

Chaosmic Orders: Nonclassical Physics, Allegory, and the Epistemology of Blake's Minute Particulars

Arkady Plotnitsky, Purdue University

Chaos Umpire sits, And by decision more imbroils the fray By which he Reigns: next his high Arbiter *Chance* governs all. Into this wild Abyss, The Womb of Nature, and perhaps her Grave, Of neither Sea, nor Shore, not Air, nor Fire, But all of these in thir pregnant causes mixed Confus'dly, and which this must ever fight, Unless th' Almighty Maker them ordain His dark materials to create more Worlds

<div align="right">Milton, Paradise Lost, Book II, 907-16</div>

. . . in fury of Poetic Inspiration, To build the Universe stupendous, Mental forms Creating

<div align="right">Blake, Milton, Book the Second, 19-20</div>

And the dim Chaos brightened beneath, above, around! Eyed as the Peacock

<div align="right">Blake, Jerusalem, Chapter 4, Plate 97</div>

1. Nonclassical Physics and the Artists' Book

1. This essay proceeds along the following three lines of inquiry:

   1. an investigation of the epistemology of Blake's poetic vision and practice;
   2. an exploration of the connections between Blake's epistemology and key epistemological aspects of quantum physics and of chaos theory; and
   3. a discussion of Blake's illuminated manuscripts as the artists' books—the art form that combines the self-conscious investigation of the conceptual and material form of the book with the interplay of the literary and the visual within it, and indeed pursues the former through the latter.

2. What brings these subjects together? First of all, as I shall argue here, the scientific theories in question and Blake's vision and practice share certain key epistemological features. These epistemological considerations allow one to make a more rigorous conceptual argument, as opposed to looser connections between Blake's work and these theories that are more commonly found in literature on Blake.[1] The nature of this commonality is complex. Quantum mechanics and chaos theory have fundamental epistemological differences. These differences split the relationships between them and Blake's epistemology in relation to them, and reflect the ambivalence of Blake's epistemology itself. The connections themselves in question are not accidental. The epistemology of these theories and those found in Blake's work or Romanticism and related cultural phenomena, such as German Idealism, have a number of historical genealogies in common, which would require a separate discussion. But even if these connections between Blake and modern science were of a more contingent nature, both types of epistemological thematic could still, and here will, serve to illuminate each other.

3. Extending and ultimately (epistemologically) radicalizing Blake's vision of "minute particulars" and of

(indeed always *in*) their organization, I shall specifically relate the shared epistemological features to a certain concept of organization, which I shall here term "radical organization." According to this concept, certain collectivities or multiplicities may, in certain circumstances, be subject to organization, while individual elements comprising such multiplicities are, in general,unorganizable or lawless. In the limit cases of radical organization, this dis-organization or lawlessness is more radical than that envisioned by Blake for minute particulars and their organization (although this may depend on one's view of what is radical). Following Paul de Man's view of allegory, such limits cases will here be seen as allegorical. Accordingly, throughout this essay I shall use the term allegory primarily in de Man's sense. The latter entails a particular form of epistemology, correlative to the epistemology of quantum physics, specifically in Bohr's interpretation, known as "complementarity," which I would argue to be the most radical among a host of available interpretations and which I shall follow here. I shall explain de Man's view of allegory in detail later. Briefly, according to this view, allegorical representation *ultimately* (there may be more accessible intermediate represented strata) relates to that which cannot be represented or even accessed by means of this representation and, conceivably, by any means that are or will ever be available to us. The same epistemology defines Bohr's complementarity, thus making it (epistemologically) an allegorical theory.

4. It may be useful to introduce from the outset key pertinent elements of the scientific theories involved, especially as concerns their relationships to the ideas of chance and chaos, and the concepts of (physical) reality correlative to them, which are my main subject here (these theories have other aspects). I shall explain the application of the concept of "radical organization" to quantum mechanics later. I shall also postpone a discussion of fractals, which is a subfield of chaos theory (dealing with the repetition of the same pattern on different scales, indeed specifically on an ever-diminishing scale). I shall, first, outline the classical understanding of chance in physics and in general, which equally pertain to chaos theory (it differs from classical physics, including classical statistical physics, along other lines). Then, I shall explain the nonclassical concept of chance, such as that found in quantum physics. I here see a theory, such as classical physics, as, ontologically, causal when the state of the systems it considers (these systems may, again, be idealized) at any given point is assumed to determine its behavior at all other points. Classical physics is also, epistemologically, deterministic insofar as our knowledge of the state of a classical system at any point allows us to know, at least in principle and in ideal cases, its state at any other point. Not all causal theories are deterministic in this sense. Classical statistical physics or (differently) chaos theory (which is, in most of its forms, classical and is sometimes a direct extension of Newtonian mechanics) are causal or at least may be interpreted as such. They are, however, not deterministic even in ideal cases, in view of the great structural complexity of the systems they consider. This complexity blocks our ability to predict the behavior of such systems, either exactly or at all, even though we can write equations that describe them and assume their behavior to be causal.Quantum mechanics is irreducibly noncausal rather than only indeterministic.

5. Classically, chance or, more accurately, the appearance of chance is seen as arising from our insufficient (and perhaps, in practice, unavailable) knowledge of the total configuration of forces involved and, hence, of the lawful necessity that is always postulated behind a lawless chance event. If this configuration becomes available, or if it could be made available in principle (it may, again, not ever be available in practice), the chance character of the event would disappear. Chance would reveal itself to be a product of the play of forces that is, in principle, calculable by man, or at least by God. Most classical mathematical or scientific theories and the classical philosophical view of probability are based on this idea: in practice, we have only partially available, incomplete information about chance events, which are nonetheless determined by, in principle, a complete architecture of necessity behind them. This architecture itself may or may not be seen as ever accessible in full or even partial measure. The *presupposition* of its existence is, however, essential for and defines the classical view as causal and, by the definition given earlier, realist. On this point classical reality and classical causality

come together; or rather this point (the assumption of the ultimate underlying causal architecture of reality) brings them together[2] For example, if we cannot fully (rather than only in terms of probabilities) predict how the dice will fall, or fully explain why a particular outcome has occurred, it is because the sum total of all the factors responsible is in practice unavailable to us. These factors may extend from a particular movement of a human (or perhaps divine) hand to minute irregularities in the material make up of the dice themselves. In principle, however, a throw of dice obeys the laws of classical, Newtonian physics (or else chaos theory, which would not change the essence of the point in question). If we knew all such factors, we could predict and explain the outcome exactly by using these laws, which would describe both individual and collective behavior, and (law-fully) correlate them, in accordance with classical physical (or philosophical) laws.[3]

6. Subtle and complex as they may be, all scientific theories of chance and probability prior to quantum theory, and many beyond it, such as chaos theory, and most philosophical theories of chance, from the earliest to the latest, are of the type just described. They are classical. Most of them are also, and, as was just pointed out, often interactively, realist. In particular, due to the complexity in the behavior of the systems involved, chaos theory prevents us from making deterministic predictions of this behavior, in other words, it is not a deterministic theory, as standard, Newtonian, (rather than statistical) classical physics is. That does not mean, however, that there is no underlying causal dynamics defining the behavior, quite the contrary, it depends on the latter. In other words, the latter type of theory is causal, according to the terminology adopted here. Causality and order underlie randomness and chaos. (As will be seen, in quantum physics these relationships are reversed and enriched: randomness and chaos underlie and constitute the efficacy of both manifest order and manifest chance.) Certain (complex) patterns of order, which we can sometimes partially access, as in the case of such fractal entities, such as the Mandelbrot set, are manifestations of this underlying causality and order. One can see these patterns in, by now famous, pictures and computer simulations. Indeed a better name for it would be the order theory, the theory of certain complex and unpredictable forms of order. In Roger Penrose's summary:

> Chaotic systems are dynamically evolving physical systems, or mathematical simulations of such physical systems, or just mathematical models …, in which the future behavior of the system depends extremely critically upon the precise initial state of the system. Although ordinary chaotic systems are completely deterministic [causal, in present terminology] …, they can, in practice, behave as though they are not deterministic at all. This is because the accuracy according to which the initial state needs to be known, for a deterministic prediction of its future behavior, can be totally beyond anything that is conceivably measurable. (Penrose 21-22)

7. An example that is often quoted in this connection is the detailed long-range prediction of the weather. The laws governing the motion of air molecules, and also the other physical quantities that might be relevant to computing weather, are all perfectly well known. However, the weather patterns that may actually emerge, only after a few days, depend so subtly on the precise initial conditions that there is no possibility of measuring these conditions accurately enough for reliable predictions. Of course the number of parameters that would enter into such a computation would be enormous, so it is perhaps not surprising that prediction, in this case, might prove to be virtually impossible in practice.

8. Thus, in the case of the theories assembled under the rubric of chaos theory, indeterminism arises due to the sensitive dependence on the initial conditions. That is, a small change in such conditions can lead to a big change in the behavior of the system (sometimes also known as the butterfly effect). The equations themselves, however, are assumed to exactly map the behavior of these systems.[4] As Penrose observes, "chaotic behavior can occur also with very simple systems" (22), as Henri Poincaré,

sometimes seen as the creator of chaos theory, discovered in his analysis of the behavior (proven by him to be chaotic) of three or more bodies in a gravitational field, say, the Sun, the Earth, and the Moon. Newtonian physics is both causal and deterministic, while classical statistical physics and chaos theory are causal but not deterministic.

9. The latter two theories differ in other respects, specifically insofar as classical statistical physics enables good statistical predictions, which are impossible in chaos theory. In contrast to chaos theory, in *classical* statistical physics the origins of the statistical nature of our predictions is specifically the multiplicity of objects involved, such as molecules of a gas, each behaving according to the nonchaotic or not necessarily chaotic equations of Newtonian mechanics. Accordingly, the formulas of statistical physics, enabling our statistical predictions, do not describe the (causal) behavior of these objects as such, even as they generally presuppose such behavior, again, in contrast to standard Newtonian mechanics, even in idealized situations. Thus, in contrast to chaos theory, in this case we have in principle two sets of descriptions: one maps the actual behavior of the objects involved, the other does not, while it depends on this behavior in establishing the counting procedures that enable statistical predictions of the theory. The equations of chaos theory "predict" the unpredictability of the physical behavior of the systems in question (in spite of the underlying causality), while the formulas of classical statistical physics allow one to make good statistical predictions. Both of these theories, or the standard Newtonian mechanics, are also realist. Realist theories in physics (or elsewhere) may be described most generally by the presupposition that their objects in principle possess independently existing attributes (such as those conceived by analogy with classical physics) whether we can, in practice or in principle, ever describe or approximate them or not.

10. Now, the *nonclassical* understanding of chance and reality (or the lack thereof), which defines quantum theory in particular, is fundamentally different. Nonclassically, chance is irreducible not only in practice (which, as I have explained, may be the case classically as well) but also, and most fundamentally, in principle. There is no knowledge, in practice or in principle, that is or will ever be, or could in principle be, available to us and that would allow us to eliminate chance and replace it with the picture of necessity behind it. Nor, however, can one postulate such a (causal/lawful) economy as unknowable (to any being, individual or collective, human or even divine), but existing, in and by itself, outside our engagement with it. This qualification (which entails, and in quantum mechanics results from, the suspension of realism at the ultimate level of description) is crucial. For, as I explained above, some forms of the classical understanding of chance allow for and are indeed defined by this type of (realist) assumption. By contrast, nonclassical chance, such as that which we encounter in quantum physics, is not only unexplainable in practice and in principle but is also irreducible in practice and in principle. It is irreducible to any necessity, knowable or unknowable. It is, in David Bohm's words, *irreducibly* lawless (73).Anything, well almost anything, can happen in a given individual event, in which respect quantum mechanics is indeed very much like life. In other words, quantum physics and analogous theories elsewhere are neither causal, nor deterministic, nor, indeed correlatively, realist, in any of the senses described above.

11. Quantum theory requires, and depends on, the concept of the individual physical event. The individuality of such events is essential, in the strict sense of being irreducible. It is in part this concept that defines quantum mechanics as quantum, even though it has, Bohr argues, to be given a complex (and in particular nonrealist) architecture. At the same time and by the same token, quantum mechanics and its mathematical formalism offer us no laws which would enable us to predict with certainty the outcome of such individual events, or when some of them might occur. Nor, in dealing with quantum statistical multiplicities, can particles be seen as individually distinguishable, as they can and must be in the case of classical statistical physics. The laws of quantum mechanics rigorously allow for the irreducible individuality, the irreducible "un-lawfulness" or "lawlessness" of individual quantum events. By contrast the behavior of quantum collectivities is ordered. The nature of this order, it

follows, is more complex and enigmatic, and indeed the law of quantum mechanics makes it irreducibly inaccessible. Because of this order analogously to classical statistical physics and in contrast to chaos theory, excellent statistical predictions are possible. Quantum theory is, thus, a theory of (irreducibly) statistical predictions, correlations between macroscopically observed experimental events, and so forth, rather than a theory describing individual objects and their behavior in the way classical physics does. Accordingly, as Bohr says, "the recourse to probability laws under such circumstances is essentially different in aim from the familiar application of statistical considerations as practical means of accounting for the properties of mechanical systems of great structural complexity" (2: 34). Thus, chance and, correlatively, the suspension of realism appears to be in practice irreducible from any account of the physical world.

12. The preceding discussion deals with considerations of a more general nature and is applicable to other Romantic figures or elsewhere, and in recent years these considerations have been applied, with a varying degree of success throughout the humanities, especially in the fashionable case of chaos theory. By contrast, Blake's making his illuminated manuscripts into artists' books may be seen as a uniquely Blakean contribution, most significantly for this essay insofar as they serve as both the practice and an allegorical model of the epistemology in question. This contribution is also crucial to a different, more aesthetic or cultural (rather than epistemological) tradition, that of the artists' book.

13. Blake is often seen as one of the inventors, if not the inventor, of the genre. [5] While this view is amply justified, Blake himself would not see it quite in this way. First of all, while he would see his own or any artistic work (book or not) as, by definition, an invention, any such invention, or the event of such an invention, would be seen by him as absolutely unique, singular, and thus unrepeatable. It could be, and for each of his illuminated manuscripts was, an invention of genre, but the genre, too, would be unique each time and hence in turn unrepeatable. This would have to be said already of each copy (each different) of his illuminated manuscripts, say, of the eight copies of *The Book of Urizen*— eight different (artists') books, eight different genres of the (artists') book.[6] This view is correlative to the concept of radical organization (in a Blakean version), which here applies at the level of more comprehensive entities, such as books.

14. Secondly, Blake knew well that he was not the creator of the genre of the artists' book (or what we now so call), any more than of the genre of the book itself. Of course—and this is important—in Blake's view, anything that could, in truth, be a book or a genre of the book, could only be an artists' book, a de facto illuminated manuscript, or something that is allegorizable as one. This is the case not merely because Blake was well aware of his predecessors in the genre of illuminated manuscripts (which are seen as major precursors of the present-day artists' books). Rather, if there were a single inventor of the genre of the book, it would have to be God, the creator of the Book of Nature or (Blake, we recall, is suspicious of the very idea of Nature, as anything outside the shaping workings of Spirit) of the World. This Book would be for Blake a book in his sense, an illuminated manuscript. Indeed, to some degree reversing the preceding proposition (a customary move for Blake), this Book is created by God, each time the work of the Poetic Genius in man is activated, analogous to the way the Last Judgment occurs in Blake's vision. In a way this is the structure of Blake's phenomenology, which I shall explain in more detail below.

15. It would not be possible to trace here the genealogy of the topos of the Book of Nature.[7] It is worth recalling, however, that for Galileo the book of nature is written in the language of mathematics, here specifically geometry: its characters are circles, triangles, and other geometrical figures. So conceived even the Book of Nature is, in a way, an artists' book, although the epistemology of physical theories here mentioned would radically transform the topos, in (varied) proximity to Blake's epistemology of the Book. The relationships between Galileo's and to the Medieval allegories of the book of nature, and

to Medieval books themselves, in particular illuminated books, are all pertinent here. Even more significant are the twentieth-century versions and dislocations of the topos, such as Mallarmé's "Book"; Blanchot's concept of the "absence of the book"; Derrida's economy of différance, writing, dissemination, and so forth, which led him to proclaim "the end of the book and the beginning of writing"; and de Man's framework of allegory and rhetoric. All of these are also positioned in relation to the joint critique of writing, poetry, and painting within Plato's scheme in the *Republic*, while (this is sometimes forgotten) they also refigure "the book" within a richer and more complex dynamics of textuality, rather than only dislocating or suspending the topos. I can only acknowledge these connections without being able to discuss them. I shall, however, further comment on Plato. My point is that Blake's vision and practice still offer some among the richest and most radical forms of de-figuring and refiguring of the topos of the book and of the artists' book, as the illuminated manuscript. At the refigured limit, both the book and the artists' book are indissociable for Blake. As such it also forms an allegorical model, perhaps *the* allegorical model, of all liberated, reformed (aesthetically, politically, or erotically) human perception and cognition. In this sense, my (more radical than usual) claim here is that rather than being only an inventor or, at least, a co-inventor, of the genre of the artists' book, Blake conceives of "the artists' book" (as illuminated manuscript) as the primary model of all human perception and knowledge. The moment—even as short as the blink of the eye—we see, or truly see (in Blake's sense), the artists' book emerges. This also means, however, that our extended or, in Blake's terms, "infinite" perception (to the degree the latter term may still apply to this, in the deep sense, constructivist machinery) of the book must be seen as defined by Blake's epistemology.[8]

16. Thus, the two traditions in question—epistemological and cultural-aesthetic—become linked in turn. It would not be possible to consider their other intersections without extending this essay too far beyond its intended scope. I would argue, however, that they come together, and, again, illuminate each other in Blake not only for the first time but perhaps still most powerfully. Blake's concept of the artists' book may be still the most radical yet available or at least as radical as any yet available. As such this concept and Blake's work itself establish a radical epistemological and conceptual agenda for the genre which is far from yet fulfilled.

2. The Letter and the Book

17. Although one can begin with Blake's earlier works, my point of departure in considering this agenda is a specific textual juncture of *The Marriage of Heaven and Hell*, that links two, as Blake calls them, "memorable fancies."[2] The first (Plate 13) describes Blake's "dining" with the Prophets Isaiah and Ezekiel, the authors of arguably the two greatest prophetic books of the Bible. The plate also (re)introduces Blake's concept of "Poetic Genius"—the primary principle of human perception, found in every human being, but often dormant or inactive, or rather (since no perception would be possible without it) not properly put to work, as an *active* principle. It is especially disabled in contemporary man, who is enchained by organized religion and its extensions or equivalents, such as contemporary legal and political institutions, or post-Newtonian mathematics and science (as Blake sees them).

18. The second "memorable fancy" (Plate 15), "A Printing House in Hell," offers an allegory of the liberated or awakened, activated (in the direct sense of the term), workings of Poetic Genius. It anticipates much vaster allegories of this process found in, among other works, *Milton* and *Jerusalem*, most directly the closing line of the latter (Plate 98), on which I shall comment presently. Indeed, each of the latter works as a whole should be seen as this type of allegory, as should in fact be *The Marriage of Heaven and Hell*. It is an allegory (even if not, for Blake, quite in de Man's sense) of human perception, creation and transmission of knowledge—as the production, printing and dissemination of books, specifically (as) engraved, illuminated manuscripts or/as artists' books, such as Blake's. Making (also in the original sense of *poesis* and *tekhné*) or reading such a book is, interactively, both an actual

form of liberated perception and knowledge, and an allegorical model for the workings of Poetic Genius.

19. The two plates are bridged by Plate 14, which, preparing the Printing House plate, ends with a call for "cleansing the doors of perception." The process would make "every thing … appear to man as it is, *infinite*" (emphasis added). Blake's "infinite" is a complex concept (but then no simple concept of infinity appears to be rigorously possible) and I shall delineate its structure or architecture, specifically, as the organization of minute particulars, below. For the moment, the expanded vision in question is contrasted to the un-reformed, closed or finite, vision "of all things thro' narrow chinks of his cavern." The latter phrase is an allusion to Plato's cave in *Book* VII of the *Republic*, via Locke's passage on the darkened chamber of the mind, itself already alluding to Plato.

20. It is this epistemologically charged allusion to Plato's *Republic* at this particular juncture—which is also a juncture of the prophetic book and Blake's illuminated manuscript (as the artists' book)—that especially interests me. I am, however, primarily concerned with what the *Republic* has to say about poets and painters, with the cave allegory itself, although it remains important and must be kept in mind. For example, not unlike some of Duchamp's works, Blake's designs can be seen as shadow-like projections of higher-dimensional spaces (that is, spaces of dimension four and higher, ultimately perhaps infinite-dimensional spaces) of extended vision onto the two or three-dimensional spaces of his designs. Of even greater significance is a particular shape or structure of the spaces that his designs are aimed to convey. Although these (speaking broadly) non-Euclidean geometries are found throughout Blake's illuminated manuscripts and are often suggested or even entailed by his texts, the texts and the spaces of the designs of *Europe* and, especially, of *The Book of Urizen* and *Milton* offer arguably the most spectacular examples. They become a kind of "finite" figuration of the Blakean "infinite." This figuration, as will be seen, occupies a complex space between allegory and symbol in de Man's sense, and its epistemology is defined accordingly. The more general connections between mathematics and specifically geometry (their epistemology, phenomenality, and materiality) and technology, *tekhné*, specifically the technology of writing (also in Derrida's sense), is an immense subject, which cannot be addressed here.

21. Now, the poets are famously exiled. In a rough outline (which cannot do justice to either Plato or his critics), this exile takes place via their metaphorical or allegorical identification with painters, defined (again, exaggerating) as shameless and useless imitators, in contrast to the divine creator, or even to carpenters. Plato famously illustrates the situation by the order of the three beds—the first created by God (and there can only be one, since God only creates, never imitates), the second is built by a carpenter, and the third is imitated (from the carpenter's bed) by a painter. (Throughout Plato, though, speech and writing are placed in a parallel and indeed related order, which, it may be shown, also makes the order of the three beds into the order of three books.) Carpenters are at least useful, if not as creative as God or (by implication), at the human limit, philosophers.[10] As will be seen, at a certain level, the fundamentally creative significance of philosophical thought (albeit now pursued by means of art) is retained by Blake's view, which is, on this point, analogous to Shelley's argument in *A Defence of Poetry*. This argument is applied by Shelley to Plato himself and making him a poet, along with (and prototypically or even archetypally) other philosophical creators, the creators of new philosophical concepts (in the above sense) or even, as Deleuze and Guattari would have, "the concepts that are forever new" (12). Nietzsche would call them "philosophers of the future," a concept analogous to Shelley's idea of poets as creators of new forms of thought and/as life in any domain—literary, philosophical, religious, legal, political, or other, including mathematical and scientific. For the moment it is the negative conjunction of poetry and painting in Plato that is especially significant. From, as it were, the prophetic wilderness of poetic exile, it is their conjunction, now made into a positive force, activating or activated by Poetic Genius, that defines Blake's vision and work, or his books. His books would be seen by him as the work of all three or all four—God or at least the divine

portion of man, the carpenter (the engraver), the artist and, and as, the poet. The coming together of all four is what, according to Blake, enables Poetic Genius in man and the poetic "perception" of the infinite. Blake's prophetic call from the wilderness is: change your perception so to make its workings akin to Blake's production of illuminated manuscripts, artists' books, and all that they imply or allegorize, materially, phenomenally, or epistemologically, by their texts and designs in all of their aspects.

22. The book is, thus, conceptualized and materialized by Blake as a model or an allegory of all expanded human perception. From this perspective, reversing Derrida's famous argument, we may speak of the end of writing and the beginning of the book.[11] This reversal, however, has the character of a double negative that does not return to the original positive, especially to the idea of the book that is "short of" writing in Derrida's sense. In particular, each "minute particular" of writing (ultimately in the sense Derrida gives the term), say, a "letter," or in Blake's own words in *Jerusalem*, "every Word & Every Character," is structured as a book and as an artists' book—an illuminated manuscript. By the same token, each is a "Visionary form Dramatic," and indeed each is also "Human," and a human form, body and soul, "according to the Expansion and Contraction," and also the city, a kind of "Jerusalem" of its own (*Jerusalem*, Plate 98: 35, 27). I shall further comment on the conjunction or superimposition of the body, the book, and the city in Blake, at the micro (minute particulars) and the macro levels below.

23. The (visually) allegorical conjunction of writing and drawing, and indeed their passing into each other, is pervasive in Blake, but this is a relatively minor point here. Specific elements involved may, of course, be crucial, for example, when one needs to read written characters as human bodies ("human forms"), cities, or books themselves, and vice versa. Or, again, each element of writing, say a letter, would have to acquire the *character* of the book (Blake could hardly be unaware of the pun, as the above quotation would indicate), often superimposing each such micro-book, almost a microchip-book, on the body and the city. We make take advantage of Lacan's famous pun and use it literally—each letter of Blake's writing is not only expandable into but is a letter——a long, perhaps infinite, epistle to his readers. (Blake could hardly be assumed not to have thought of this pun either.) This is of course not to say that such minute particulars become merely isolated macro-structures. This is true only insofar as they become divested, Blake would say "liberated," from conventional reading, before, or rather as, they are radically reorganized into a new order as expanded minute particulars, as they form a radical organization. The "alphabetization" (with the Hebrew alphabet) of Blake's illustrations for *The Book of Job* could serve as the most immediate allegory of this process, an allegory of Blake's writing and of reading Blake, along with, and even as, the Bible, *the* book, itself. The work allegorizes the letters (characters, epistles, literature, writing, and so forth) no less than the Hebrew alphabet itself does the Bible in Blake's design. Indeed, both allegorizations must be seen as reciprocal as, at every level, from letters to the books, a "convers[ation] together in Visionary forms dramatic," each element being itself already such a form—a gigantic, "infinite," living fabric (*textum*) of organized minute particulars (*Jerusalem*, Plate 98:28).

24. From this perspective, each individual "element," each minute particular, of Blake's *design* (using this term in referring to the graphics of his texts as well) may in part also be conceived on the model of Leibniz's monads. One may also view from this perspective Blake's persistent quasi-fractal (I shall explain the term presently) use of the shape(s) of the human body from ever more minute (minute-particular) to ever increasing scale. This vision would culminate in the infinite body of Albion in Jerusalem, the city of Blake's vision and the poem (*Jerusalem*, Plates 98-99), or, ultimately, the body of Christ, defining the cosmology or chaosmology of Blake's Universe.

25. This deployment of the human body may be seen as an ironic reversal of Leibniz, since, according to Leibniz, monads are souls, or proto-souls. On the other hand, Leibniz's monads do possess bodies, materiality, and a complex material, as well as spiritual, architecture (and textuality), while Blake's

bodies-monads are also souls, spiritual forms. "Architecture" can be here used in either sense, as the body and the city, and indeed the book, come together in Leibniz's Baroque (especially via Deleuze's reading) via and in Blake's Romanticism, again, most immediately and powerfully in *Jerusalem*.[12] Blake's "Man has no Body distinct from his Soul for that calld Body is a portion of Soul discerned by the five senses, the chief inlets of Soul in this age" (*The Marriage of Heaven and Hell*, Plate 4) brings Blake closer to Leibniz (specifically monadology) than it may appear even to Blake himself, however radical the differences between them in other respects may be.

26. The title page of *The Marriage of Heaven and Hell* is a spectacular early example of this body-monadology, with a characteristically Blakean erotic and enriching twist: the embracing couples populating the plate nearly dissolve into the foliage of trees (of knowledge?, of life?, of love?, of liberty?) and the foliage into the letters of the word "marriage" of the title. I would argue that, if there is a single ultimate "shape" (*quasi*-fractally) defining Blake's world, from minute particulars to its ultimate scale, it would, rather than a single body, be an "embrace" of two bodies, also interfusing the body and the soul within each. This process can then be unmonotonously extended into infinity, in both directions, thus reinscribing or reembodying, or re-embracing, bodies from within and from without into complex multiplicities, from within which embraced bodies or, sometimes, single bodies (or what we see as such) emerge. This process is, I would argue, parallel to Leibniz's monadological vision, again, especially in Deleuze's reading. It adds the "embrace" structure to the latter (and thus also eroticizes and enriches it), but retains its fundamentally chaos-theory-like epistemology—realist and causal (but not deterministic)—rather than an epistemology that would be quantum-theory-like, allegorical (which ultimately suspend the possibility of vision). For, each monad constitutes a world of its own, each is the Book of Nature or of the Spirit, even as all monads jointly contribute to the material and spiritual constitution of the World, as the soul, the body, the city, and the book—the artists' book.[13] Thus understood, "embrace" may be seen as the general structure of the Blakean superimposition, such as that of the body, the book, and the city, with Milton's embrace of Angels in the cosmic dance in *Paradise Lost* as, arguably, the main literary prototype or archetype. *Milton* and *Jerusalem* appear to confirm this view and this archetype as well, both textually, specifically in the closing elaborations just mentioned, and structurally and conceptually as a whole. In general, later prophetic books take the overall (embrace) monadology just described to its limits at every scale—textually, conceptually, and pictorially. This is the order (in either sense) of Blake's minute particulars and (and forming) the Blakean infinite. This order makes the world and our vision, and/in their interactions simultaneously both contract from one perspective and expand from another, more visionary, perspective, "expelling" chaos and replacing it with the order of minute particulars.

27. Blake's designs, or the world, may of course be contracted into classical arrangements of primitive elements or impoverished or empty (rather than rich, minute-particular) singularities, such as the point particles of Newtonian physics, by unregenerated perception or knowledge, which (re)assemble the world on the basis of this reductive (in either sense) vision. This process is allegorized in the "minute-particular" plates of *Jerusalem* (such as Plate 45 of Chapter 2 and Plate 55 of Chapter 3, Plate 45). Each "Minute Particular" of Albion is "hardened" by a Newtonian vision into a "grain of sand," from a superimposition-fusion—embrace—of the book, the body, and the city (each of these is clearly intimated in the plate) of the infinite vision.

28. The infinite vision would, conversely, expand a grain of sand into this type of infinity. A Blakean vision (of Blake himself or of his true readers) is attended by, and requires, a very different form of individuality and singularity of certain elements or "events"—minute particulars—of Blake's texts. In order to reach this vision it is necessary, first, to divest the text (verbal or visual) of or, again, liberate it from a reductive reading and, then, to reassemble, reorganize, it into a different text. It is in this process that each textual element becomes enveloped in, and indeed becomes, a kind of enriched monad, or

conglomerate of monads (with qualifications offered above). Blake's infinite vision, or the vision of the infinite, is defined by this type of process of reorganization of minute particulars, divested of Newtonian vision (in the broad sense) that contracts them into dead point-like elements, subject to strict mathematical law, "Single vision & Newtons sleep."[14]

3. Radical Organization

29. The same general type of the (re)assembling of an ordered organization of the world from unique elements that are themselves not subject to a classical, or at the limit any conceivable, order or law, or, as I call it here, "radical organization," is found elsewhere in Romanticism and beyond. One can specifically think of Hölderlin, Kleist, Wordsworth, Shelley, and Keats or, more recently, in Bataille, Blanchot, Levinas, Deleuze, Lacan, Derrida, and de Man, or in Niels Bohr's epistemology of quantum mechanics. Such figures as Leibniz, Kant, Hegel, Nietzsche, and Heidegger, whose ideas link those of these figures, may be considered from this perspective as well. The situation, however, takes on a different conceptual character and epistemology in different cases. This difference is especially determined by the plenitude or, conversely, scarcity (and ultimately the irreducible loss) in representation and meaning, which I shall now sketch in a preliminary fashion, before proceeding to a more rigorous discussion.

30. When, as in many cases just mentioned, the balance of these relationships is shifted away from plenitude, the *ultimate* constituents of a given vision may appear to participate in the plenitude of meaning, but in fact they do not. They are irreducibly meaningless, and the overall configuration is properly allegorical in de Man's sense and, as such, is also correlative to the epistemology of the irreducibly unrepresentable. The formulation from "Pascal's Allegory of Persuasion" is especially fitting here: "the difficulty of allegory is rather that this emphatic clarity of representation does not stand in the service of something that can be represented."[15] Indeed this clarity may be said to stand in the service of that which cannot be represented by any means, which epistemology also defines quantum mechanics and makes it allegorical. What appears or even is ordered is ultimately constituted by, is an effect of, what is irreducibly singular and disordered. Disorder ultimately underlies order, although "disorder," in this case, is closer to the Greek *arreton* or *alogon*, as that which is incomprehensible or is incommensurable with understanding, rather than (only) relating to a (say, spatial) chaotic configuration.

31. When the balance is, conversely, ultimately shifted towards plenitude as, I would argue, in Blake's work, or in that of Leibniz, Hegel, and Deleuze (although the last two cases are more ambivalent), what appears to be singular is always a part of a new, more radical form of organization. Order ultimately underlies disorder.

32. The difference, thus, is in the *structure* of the unknowable, defined by its relation to the loss and the plenitude of meaning or order (and to the degree of each in either vision). Or, indeed, the difference is between assigning (and perhaps envisioning) and the impossibility of assigning (and hence ultimately suspending the possibility of vision), a structure to the unknowable that is behind and is approachable (or unapproachable) by the knowable and the known. It is the difference between the unknowable in practice and the unknowable in principle, the unknowable that is ultimately unknowable even as the unknowable. This difference may be subtle and may emerge only at the limit of the oscillations between both types of knowledge and the unknowable, as is the case in Blake (or most other figures just mentioned). That, however, does not make it, or the difference in balance of both types of epistemology, insignificant.

33. On the other hand, in both cases we deal with the search for order and the means to cope with chaos, even if approaching the border of chaos is our goal. We may not be able to do more than to reach this border (rather than enter chaos itself), unless perhaps in madness, which may (or may not) itself be chaos, but of which we can only think (as madness) through order and reason, however perhaps mad (but in a different sense). The latter, paradoxically, appears to require the highest and most complex forms of order, just as the unknowable appears to demand, and emerges at the limit of, the best possible knowledge, as quantum mechanics taught us. It might just be mad enough to be true, as Bohr liked to point out.

34. Analogous epistemological situations are found in mathematical and physical theories that epistemologically intersect with and shape, or are shaped by, Romantic and, specifically, Blake's epistemology. While both visions just described may be juxtaposed to classical physics (including classical statistical physics, the classical understanding of chance), the first, allegorical, vision corresponds roughly to that of quantum physics, especially in Bohr's interpretation (there are more classical-like, realist and causal interpretation and versions of quantum mechanics); the second to that of chaos theory.[16] Blake's vision, I argue, occupies a complex position in between, although epistemologically it is ultimately closer to chaos theory. (Fractals is yet another question, which I shall discuss below). Quantum epistemology disallows one to speak of any properties of quantum objects and their behavior as such, but only of the effects of their interaction with measuring instruments (described in terms of classical physics). Accordingly, any physical description of quantum objects or their behavior based on conventional physical attributes can only be "allegorical" in the sense just defined. Classical physics can offer us only incomplete and partial—and specifically complementary—allegories of the quantum world, both in general conceptual terms and as specifically applied to the measuring instruments involved in a particular (and in fact always unique) situation of quantum measurement. While the relevant behavior of these instruments is described fully classically, the sum total of the effects of their interaction with quantum objects is rigorously unaccountable by means of classical physics. Only, at most, half of such effects is accountable in any given case, say, only their positions or only their momenta, but never both together, as we could do in classical physics. (This fact is correlative to and is a rigorous physical interpretation of Heisenberg's uncertainty relations, as well as, under different circumstances, the wave-like or the particle-like observable effects.) Nothing appears to be able to offer us more than, in this sense, partial or, in Bohr's terms, complementary allegories of the quantum world, which cannot even be assumed to add up to a classical whole, even if an unrepresentable one.

35. The concept of "radical organization" is designed with this epistemology in mind, and I shall now introduce it in more rigorous terms, and position Blake's epistemology more carefully in relation to it. Paradoxically, or so it may appear, radical organization, and its orders or laws, are defined by the fact that they allow for and indeed entail that which is not subject to organization, order, or law. They entail that which is irreducibly unorganizable, irreducibly lawless, and is indeed ultimately inaccessible or inconceivable otherwise, including as (absolutely) inaccessible or inconceivable, both of which are of course merely conceptions, as Hegel realized. At the same time, however, it is not something that is excluded from the domain or system governed by organization, is not an *absolute* other of the organization, but is instead irreducibly linked to it.[17] Hence, Joyce's coinage chaosmos—chasm/cosmos or chasm/chaos/cosmos—found in my title, may be more suitable here.

36. The particular version of radical organization that I shall now introduce appears to be epistemologically the most radical yet available. But then it may also be the only available (or even the only possible) model of the configuration of the organizable and unformalizable just defined. Accordingly, from this point on, by "radical organization" (an alternative locution, to be explained presently, will be "nonclassical organization"), I refer to this version. The complexities and implications of the concept

are many and far-reaching. The configuration itself defining it, or constituting the point of departure for it, is, however, simple to formulate: the representation of the multiple or collective may, in certain circumstances, be subject to organization, formalization, law, and so forth; that of the "individual" is irreducibly nonorganizable, nonformalizable, lawless. In other words, a radical organization is an organization of individual entities, which are the constituents of the order or orders arising in multiplicities governed by radical organization, while each such constituent, considered in isolation, cannot itself be subject to this or any order, law, organization, comprehension, and so forth. Thus, under these conditions, order and law apply only to (I am not saying fully describe) collectivities, but, in general, not to individuals, which are the ultimate constituents of such collectivities. It follows (in accordance with the general definition of radical organization given above) that such elements cannot be excluded from or placed outside the domain governed by radical organization. But it also follows that the constitutive elements of such organizational structures can no longer be seen as part of a whole, (with)in which both are comprehended by the same law or a correlated set of laws. The latter identity or correlation of two laws (for the whole and its parts) defines classical systems and classical organization, including those of chaos theory, and I here use the term "classical" in accordance with this feature. We may also call such systems Newtonian systems, which would include those in physics itself and those (a very large class of classical systems) that are modeled on them elsewhere, or on which Newtonian physical systems are modeled.

37. Such systems would be in conflict with Blake's vision as well. In full measure, however, the above formulations only apply to allegorical epistemology. Thus, as I have indicated, in quantum physics, individual quantum events are, in general, not comprehended by law; for example, individual particles cannot be assigned mathematically describable individual trajectories in the way they can in classical physics. Yet, such events are the constituents of all knowable orders, for example and in particular (indeed there is no other order in quantum theory), specific statistical correlations between quantum events. These correlations, and only they, are described by the mathematical formalism of quantum theory, while remaining outside the reach of any classical explanation. Analogous situations are found in the case of certain Romantic allegories, again, in de Man's sense, for example, those of Shelley and Kleist. By contrast, in Blake's epistemology, at the limit of Blake's infinity, such individual elements, minute particulars, are seen as elements of a new non-classical, and specifically non-Newtonian (in the broader sense defined above), order. In other words, (properly) allegorical epistemology is a necessary but intermediate stage in Blake's scheme (the stage ultimately transcendent by the infinite vision), while it is irreducible in the epistemological regime of (de-Manian) allegory, to which quantum mechanics belongs as well, in contrast to chaos theory.

38. Otherwise the concept of organization in which the un-organized and un-organizable (lawless) would be defined as constitutive of organization rather than placed outside of it may appear paradoxical (in the end, it is not), rather than only entailing an epistemology that is complex and difficult, and indeed for many impossible to accept. Einstein, who encountered it in quantum physics, was among them. In particular, how lawless individual elements "conspire" to sum up into law-ful collectivities is indeed enigmatic and may in turn be inconceivable. It may be impossible to conceive how this "conspiracy" is ultimately possible at any and all levels. This is why such an organization and laws may only be said to apply to collectivities but not fully describe (the ultimate structure of) those collectivities. This is also why the overall configuration is so radical epistemologically, or, as the case may be, anti-epistemologically, as well as anti-ontologically, since it may ultimately disallow ontology, or disallow any ultimate ontology, along with any ultimate epistemology—any possibility of knowing or conceiving how that which is stake here is ultimately possible. It is, however, technically free of contradiction (in part by virtue of the latter impossibility). Einstein acknowledged this in the case of quantum mechanics, without, however, changing his overall critical attitude, since he still found quantum epistemology "so very contrary to [his] scientific instinct," which could perhaps be called more properly an epistemological instinct, quite common indeed. He hoped that an epistemologically

different, classical-like, theory of quantum data would eventually be found. His desiderata were similar to Blake's, a vision of an underlying order, except that the underlying order he searched for was mathematical, at least as a good approximation—an anathema (in either sense), a Newtonian anathema, for Blake. All true Blakean orders, true visions of the infinite, are irreducibly nonmathematical, or otherwise formalizable. At its ultimate limit, an infinite vision, according to Blake, would tolerate neither chaos, nor emptiness (Blake's "Ulro"), nor formalization, but would instead be a vision of order, cosmos, whose richness can never be contained by any formalizations, mathematical or other. This (ordered) nonformalizability distances him, indeed in a significant way, from chaos theory and brings him closer to quantum theory, which contains an apparently irreducible nonformalizable and, hence, on mathematical component.That is, unless one assumes, as some do, especially in the wake of Gödel's incompleteness theorems and related findings, that the richness of mathematics cannot be contained by any formalization.This would be a kind of Blakean view of mathematics. In contrast to Blake's epistemology, however, the nonformalizable of quantum mechanics, including as the efficacity of order found in the theory, cannot be assigned order.Indeed, it may be shown that the possibility of so doing would lead to a conflict with the available experimental data of quantum physics.[18] Were it possible in practice, the (infinite) *mathematical* vision of the Blakean type would enable us to see the order (for example, a fractal-like order) and causality ultimately underlying manifest disorder and chance of chaos-theoretical objects. In quantum mechanics (at least in Bohr's interpretation, which I follow here) such an underlying order and, ultimately, any conceivable "bottom" configuration cannot be assumed in principle, which impossibility, however, enables the consistently configured possibility of radical organization at the manifest level. Admittedly, these considerations further contribute to a rather labyrinthine picture of the relationships between Blake's vision and modern (including classical) mathematics and science (or between different aspects of the latter, to begin with) here presented. I would argue, however, that this type of picture does more justice to the complexity of these relationships than any determinate identification or parallel, say, between Blake and chaos theory, or between Blake and quantum mechanics (itself subject to a variety of interpretations, intensely debated). Indeed such determinate relationships do not appear to be rigorously possible. The qualification just considered concerning Blake's proximity to chaos theory in view of his critical attitude to mathematization of thought is particularly crucial.

39. An important qualification or emphasis is in order, before I proceed further. I do not mean that under the conditions of radical organization, order, organization, and law do not apply only in certain (by classical standards) exceptional, extraordinary individual situations, although such situations are abundant in and are central to Blake's work or elsewhere in Romanticism. Such a view would, again, place the unique and the singular outside a given order, rather than allow us see them as giving rise to this order. Instead, more radically, *every individual situation* (cases, event, and so forth) within an ordered or law-governed overall configuration is not subject to the order and law defining this configuration, or order and law in general. It is irreducibly *dis*-ordered (which not the same as disordered or chaotic) and, in David Bohm's terms, "irreducibly lawless." Or, more accurately, every situation, no matter how ordered or (we may take advantage of their common etymology) ordinary, is "decomposable" into and is an effect of the organization of individual entities, each of which is singular or unique and, as such, is outside any conceivable order or law. This also explains why extraordinary situations are so ordinary, so common, in Blake, or (allowing for the differences indicated above) other Romantic literature; they are in fact the minute particulars constituting what we reductively see as ordinary situations. Ultimately, everything is extraordinary, or one might say, extra-extraordinary, insofar as (classically) extraordinary entities are neither excluded from chaosmic orders nor are composites of anything less extraordinary. Something more extraordinary is possible; hence my perhaps extravagant terminology. Or, still more accurately, underneath or alongside the perceived order of the ordinary, which we may call classical, there subsists a different organization, which I here call radical or nonclassical.

40. In Blake's world each such entity, each minute particular at a given moment of vision, is infinitely expandable or, as it were, re-expandable so that the same process may and must be infinitely reenacted, in each case possibly giving rise to a different (sub)universe of its own where an *analogous* organizational dynamics would apply. I say "analogous" because new minute particulars themselves may be quite different, thus making this dynamics fundamentally nonfractal—that is, the pattern may change with the change of scale—although more fractal-like sequences are found as well in this process, or elsewhere in Blake's poetry and design. The process itself, however, is, according to Blake, interminable or infinite, just as the iteration of fractals is. Blake would appear to find the latter conceptually and aesthetically interesting and productive up to a point, but boring in infinity, however intricate fractality may be, such as that of the famous Mandelbrot set. Accordingly, Blake's equally famous description of the ultimate poetic vision in "Auguries of Innocence,"

> To *see* a World in a Grain of Sand And a heaven in a Wild Flower Hold Infinity in the palm of your hand And Eternity in an hour   ("Auguries of Innocence," 1-4; emphasis added)

would entail an ultimately nonfractal expansion rather than fractal iteration (although it may involve fractal strains), an ultimately non-fractal iteration, rather than to fractals, and specifically to the Mandelbrot set, to which it has been often compared in recent years. The "Newtonian" order, which contracts and "harden[s]" minute particulars, "the jewels of Albion," "into the [same] grains of sand" and in which minute particulars and their assemblages are governed by the same law, or properly correlated set of laws (I shall explain this in more detail below), subject to (mathematical) "Demonstration," would never apply (*Jerusalem*, Chapter 2, Plate 45:17, 20, 44).

41. Thus, rather than ultimately suspending order, the Blakean universe is conceived so as to have more order than any Newtonian universe can possibly have. (With due qualifications, especially insofar as this richer order borders on the irreducible chaos and the invisible, the unknowable, and so forth, this proposition applies to quantum physics.) It is just that this order is, by definition, assembled out of elements—minute particulars—that cannot obey any Newtonian-like law, and hence the overall order is not Newtonian either, in any reasonable sense of the term "Newtonian." It should also be qualified that, at each stage, once all or some minute particulars are expanded into richer structures, the dynamic of radical organization would apply to the whole new assembly of new minute particulars arising from each previous minute particular. The Blakean universe is the infinite limit of this process, which "limit," however, remains unlimited—interminably expandable. This, I would argue, also makes Blake's vision of the infinite the deliberate opposite of differential calculus, which would be for Blake, the calculus (in either sense) of the finite limit of the infinite, which is both, as Blake perhaps realized, its power and (ultimately Satanic) limitation.[19]

42. What is the actual character or structure of the minute particulars that emerges once this vision becomes open on to infinity remains, short of possessing such a vision, mysterious. One might argue that the ultimate shape of Blake's minute particulars is a human (and even specifically male) body, thus reinstating a fractal or quasi-fractal character to Blake's vision. There are significant reasons for this argument, and more generally one cannot disregard fractal aspects of Blake's vision and work. They may, however, and I would argue, must be differently taken into account. First of all, however (suspending for the moment the question of the constitution and unconstitution of the human body, in Blake and elsewhere), it would hardly be possible to think of the human body in Blake in terms of a single or fractally iterable shape. Rather, on the (visual) model of Michelangelo's "Last Judgement," on the one hand, and, on the other, the dance of the angels in *Paradise Lost*, one should think in terms of the infinite dynamic transformation of the "shape" (there is no longer a single one) of the body. Secondly, as was suggested earlier (and with the same qualifications), Blake's ultimate shape is an embrace of two bodies, male and female, with the same dynamism of transformations and multiplicities

extending within and without (in the sense discussed above) applied. Finally, the body is, again, always superimposed with the book and the city in Blake, which superposition would further enrich or be enriched by the "embrace" structure. Thus conceived, "embrace" may be seen as the structure of Blakean superimposition, although here, again, the relationships between all components are continuously reshuffled in the process. The economy just outlined would define both Blake's local and global structures, such as those designated by various figures (in either sense) and their permutations or, again, embrace-superimpositions—from various minute particulars to Albion and Jerusalem, and ultimately the body of Christ. One may say, that unlike the radical fragmentation and dismemberment of the body found, according to de Man, in a properly allegorical vision, Blake's body is never fragmented, but instead is always multiply superimposed and hence irreducibly multishaped and multistructured wholeness. This "wholeness" (rather than fragments) would define his minute particulars as well. It is worth qualifying that the Blakean "super*im*position" just described is not here intended to invoke and be related to the so-called (linear) "superposition" of quantum mechanics. Roughly, the latter concepts allows one to think of a quantum system as, if left to itself, being simultaneously in a (linear) combination of different states, "collapsed" into a single outcome by a measurement. This concept and its metaphorical implications would require a separate analysis.One can, in principle, consider linking it to Blake's vision, especially if one follows more realistic interpretations of quantum mechanics. In the Bohrian interpretation, followed here, this concept does not correspond to any physical reality, to any process occurring in space and time. One can also attempt (and some have) to link Blake's vision to David Bohm's "hidden variables" version of quantum mechanics, which is mathematically different from the standard version here discussed. Bohm's theory is both realist and causal, and, hence, epistemologically similar to chaos theory, to which, I would argue, Blake's vision is ultimately closer in any event. Accordingly, I shall bypass these connections here.

43. There are fractal aspects to Blake's work and the recent appeal in Blake studies (as fashionable there as elsewhere) to fractals (sometimes as part of chaos theory) is not unjustified. The key differences are crucial, however. First of all, Blake's vision is non-fractal insofar as "fractals" refer to the interminable repetition of the pattern of the whole in the parts. This is, arguably, the most common use of the idea of fractals in Blake and elsewhere, albeit a somewhat thin basis for an appeal to the *mathematics* of chaos and fractals. The interminable nature of the process is often forgotten and the appeal itself to fractals, by and large, becomes that to the mirroring of the structure of the whole in the structure of its parts.[20] The latter is indeed found in Blake, both in the organization of his text and in his designs. Thus one finds it in certain plates of *Jerusalem* (Plate 23), where one finds a fractal-like descending scale repetition of human figures and their curvatures, perceptively pointed out by Paul Yoder in his "Self-Similarity and Blake's *Jerusalem*," which also makes a compelling general case for fractal aspects of Blake's work but which is, I would argue, by and large consistent with the present argument. The lines strictly demarcating (and hence, in contrast to fractals, terminating) the process or non-fractal changes in the shapes of the bodies themselves may give one pause, but, I admit, this is a matter of interpretation, since such figures may be read as indicating potential fractality of the type one finds in the Mandelbrot set. The design may indicate an infinite fractal extension, *symbolizing* the expansion— zooming up—of the order of human vision and/as the order, organization, of the Blakean infinite.[21] Accordingly, to the degree it is fractal-like and up to a point, Blake's world would be akin to the zoom representation of such fractal entities as the Mandelbrot set, rather than to more monotonous fractal objects, such as, say, the Koch curve. Ultimately, however, in Blake's vision, the constitutive parts of any pattern are uniquely singular in their patterns, as they organize into the order, or possibly multiple orders, of the whole. It is analogous to a fractal picture in that there is no punctual termination of the process. But, in contrast to fractals, there is no (interminable) repetition of pattern, nor, again, diminishing scales.

44. The ultimately infinite (unlimited and unending) interplay of such minute particulars, would, thus, entail immense (dynamic) order and organization, that Blake claims to be open to the expanded (infinite) human perception, which, at this limit, inevitably becomes a vision and/as creation, rather than merely perception. In order to illustrate Blake's conception, it is worth considering Milton's conception of chaos in *Paradise Lost*, which is my epigraph. The passage, I would argue, has a momentous significance for Blake, perhaps especially in *Milton*, but, I would also argue, throughout his work, including in relation to the epistemological problematics here in question.

> Before thir [Satan's, Sin's and Death's] eyes in sudden view appear The secrets of the hoary deep, a dark Illimitable Ocean without bound, Without dimension, where lengths, breadth, and highth, And time and place are lost; where eldest *Night* And *Chaos*, ancestors of Nature, hold Eternal Anarchy, amidst the noise Of endless worth, and by confusion stand. For hot, cold, moist, and dry, for Champions fierce Strive here for Maistry, and to Battle bring The embryon Atoms; they around the flag Of each his Faction, in thir several Clans, Light-arm's or heavy, sharp, smooth, swift or slow, Swarm populous, unnumber'd as the Sands Of *Barca* and *Cerene's* torrid soil, Levied to side with warring Winds, and poise Thir lighter wings. To whom these most adhere, He rules the moment; *Chaos* Umpire sits, And by decision more imbroils the fray By which he Reigns: next his high Arbiter *Chance* governs all. Into this wild Abyss, The Womb of Nature, and perhaps her Grave, Of neither Sea, nor Shore, not Air, nor Fire, But all of these in thir pregnant causes mixed Confus'dly, and which this must ever fight, Unless th's Almighty Maker them ordain His dark materials to create more Worlds, Into this wild Abyss the wary fiend Stood on the brink of Hell and look'd a while Pondering his Voyage: for no narrow frith He had to cross (890-920)

45. This passage would require an interminable analysis, in particular in the context of Blake or Romanticism. One would be hard pressed to find a major Romantic poem that would not engage it in one way or another. My main point here is that Blake's vision just described may be seen and was seen by him as equivalent to the total organization of all materials, all of its "minute particulars" (I shall explain the quotation marks presently) of Chaos, as here described, into new Worlds, thereby eliminating or expelling Chaos altogether. It is this process that gives meaning to Blake's famous maxim, "The Eye altering alters all" (*The Mental Traveller*, 62). In chaos theory, it is worth noting, the order of its object is assumed given at the underlying level, there is no need to create it. In quantum mechanics "chaos" (again, in the sense of *arreton*, the incomprehensible) is ineliminable, even in principle: there is no "god" which could, at least in principle, create, reform it (in either sense) into cosmos.

46. Blake was, of course, far from endorsing the concept of creation from Chaos; quite the contrary, as can be shown by ample textual evidence. His vision is quite different from Milton's, which is closer to that of quantum theory (except for its theological or, in Heidegger's and Derrida's terms, ontotheological aspects). But, in a way, this is the point, and as *Milton* might suggest, Blake may well have read Milton, "a true Poet and of the Devils party without knowing it" (*The Marriage of Heaven and Hell*, Plate 5), here in his own way as well. (Some caution is due in reading this statement, though.) Chaos, or indeed Nature itself (materiality), would be merely an aspect of unregenerated vision.[22] The process of creation here suggested by Milton would be read by Blake as an allegory of the transformation into the vision of the Poetic Genius, akin to that of the Printing House in Hell in *The Marriage of Heaven and Hell*. (I leave for the moment aside de Man's sense of allegory, which would have thrown this reading into a new ocean or yet another abyss.) Accordingly, the designation "minute particulars" can only apply to this world and vision of organization. Ironically, almost perversely, Blake reconceives the whole Voyage of Satan, albeit, necessarily, superimposed with Christ's descent into Hell, as in fact an allegory of this creation of new worlds and total transformation of vision into

organization. This organization gives light, *illuminates*, but thus also *eliminates* chaos—"in a trail of light as of a comet/That travels into Chaos: So Milton went guarded within" (*Milton*, Book the First, Plate 15, 19-20)—and replaces it instead with the organized infinity (Plate 15, 21-35). *Jerusalem* renders this process, too: "And the dim Chaos brightened beneath, above, around! Eyed as the Peacock" (*Jerusalem*, Chapter 4, Plate 97).

47. It would not be possible to consider the immense allegory of the link between Milton, Milton's Satan, and Blake in *Milton*. It may be worth mentioning, briefly, that the image of a comet in the above passages must also be an allusion to Newton's mathematical predictions concerning Halley's Comet and the controversy surrounding it. Nor can I discuss specific concepts and stages of chaos and organization pertinent here (in particular the way "Chaos" functions in the first book of *Milton*), especially organized innocence, or Beulah, the quasi-pastoral "place where Contrarieties are equally True" (*Milton*, "Book the Second," 1).[23] The latter is a crucial, but intermediate stage of Blakean order, in contrast, say, to the architectural order of Jerusalem. It may be observed that mirroring and merging (superimposing) with Milton's journey in the poem, Beulah emerges in the first line of the second book, after, as it were, Blake/Milton's traversal of poetic chaosmos of the first book. But, it is not the end of the organizing, building, process. The City is, thus, preparing the way (in either sense) to *Jerusalem*. This (radical) organization is what "justifies the ways of God to Man" for Blake or, according to Blake, for Milton, as his epigraph to the poem indeed says. These conceptions both complicate and elucidate my point here, but their analysis would require a nearly interminable traversal of Blake's works, let alone the secondary sources. This cannot be done here. My main point is the order, organization, of minute particulars ultimately suspending or indeed organizing—ordering— chaos into an immense order, "in fury of Poetic Inspiration/ … build[ing] the Universe stupendous: Mental forms Creating" (*Milton*, "Book the Second," 19-20). Or perhaps one should speak of removing (through this work of organization) the veil, the illusion of chaos and even Nature, since the latter— that is, the Newtonian vision of the world as Nature or as divided into Nature and Spirit, the Soul and the Body, and so forth—is complicit with Chaos. This complicity is clearly found in Milton, including in the passage cited here, but read very differently by Blake.

48. The interplay of minute particulars is what Blake calls the vision of the infinite, which, accordingly, presupposes a particular concept of infinity rather than refers to any common meaning of it (if such a common meaning exists to begin with). Insofar as the object of this vision is not formalizable, this concept is different from all mathematical concepts of the infinite, especially those involved in Newtonian physics or what Blake sees as the Newtonian vision of the world. From this perspective alone, one would apply chaos-theoretical considerations to Blake's vision with the greatest caution, even though both share the concept of underlying order. On the other hand, as I have indicated, it may not be as unmathematical as it may appear, and perhaps had appeared to Blake. For the ultimate structure of infinite mathematical objects, such as those of chaos theory, but also many (perhaps all) others as well, may not be mathematically formalizable either. It may ultimately not be mathematical in any given sense, that is assuming that it is ordered or could be available to a vision, to begin with, which would make the situation epistemologically analogous to that of quantum mechanics and hence properly allegorical. In Blake, this organization would become available to the infinite vision, activated by the working of the Poetic Genius, which is, again, the central difference between the Blakean and allegorical epistemology.

49. In the latter case, as in quantum mechanics or certain Romantic allegories other than Blake's, defined by "radical organization," the vision (in either sense or indeed in any sense conceivable) is always terminated. In quantum theory (in Bohr's interpretation), this termination takes place at the level of the ultimate constituents of matter, usually identified with elementary "particles." To the latter no properties (including those which would define them as particles) can be assigned and this must, thus, be seen as ultimately unknowable, ultimately unknowable even as unknowable. No expansion of vision

can remedy this situation, and hence, no Blakean "vision" is possible. At this level knowledge, any knowledge, even that of the impossibility of knowledge, would be rigorously impossible, but—this is crucial—only at this level. Otherwise this unknowable is not only compatible with knowledge but is the efficacy of knowledge, perhaps of all possible knowledge, assuming the world is like this (as opposed to the Blakean world). In this sense this vision is, on the one hand, irreducibly finite as concerns the limit of the "visible" (knowable), and, on the other, neither infinite nor finite (or anything), as concerns that which is beyond its limit (assuming, again, that such terms can still apply at this limit). As Bohr stressed on many occasions we are here far, indeed irreducibly, beyond the limit of pictorial visualization. We are beyond any visualization and vision, conception, possibility of representation and so forth, whether of order or of chaos, except insofar as the latter is used to designate the irreducibly inaccessible and thus, as I said, is in accordance with the Greek *alogon* (outside logos) and *arreton* (incomprehensible). (Milton's Chaos may be read so as to include certain aspects of this conception as well, rather than merely or only designating a vision of disorder and chance, even though one may assume that it may in principle be controlled or ordered without limit by God.) The scale of termination may be differently conceived and may be more variable in other nonclassical or allegorical epistemologies, but would, by definition, be irreducibly ruptured at a certain point or set of points without, in any event, allowing for an infinite extension. Under the conditions of (de Manian) allegory, in quantum mechanics or elsewhere, there may be (if one wants to retain Blake's terms, perhaps no longer quite applicable under these no-longer quite Blakean conditions) minute particulars. But there is no infinity, except insofar as it is deployed allegorically, as infinite mathematical objects, in particular, mathematical spaces of infinite dimensions (the so-called Hilbert spaces) may be deployed by the mathematical formalism of quantum mechanics.We may call this limit of the irreducible termination of vision—this radical discontinuity of allegory—materiality, a term analogously deployed by de Man throughout (whether one speak of the body,language, or history) and shunned by Blake.

50. In Blake, human poetic vision, which the Poetic Genius takes over, does not encounter such limits. It remains (epistemologically) radical, however, insofar as Blake's world is not governed by a single law or set of laws, even though the constitutive minute particulars of this world interact and are connected. Any meaningful reading of Blake (or, again, of other Romantics) must take this organization of minute particulars—words or smaller linguistics units or signifiers, images, concepts, and so forth—into account. Indeed, more radically, it must be a reading of this organization, and hence a reading of the multiplicity of orders of Blake's poetic universe. Each such image is a Leibniz-like monad, itself structured as a world (rather than merely a mirror of the World, as in Leibniz), as all monads together are organized into the non-fractal and non-whole World, which is the Blakean infinite.[24] Our reading, itself monadological in this sense, enters, with Blake, into the infinite opening of the finite: "it finitely represents infinity," as Leibniz once said. It also gives the world itself the possibility of beginning over and again in each monad (again, keeping in mind the non-fractal character of the Blakean world). Complex, and it seems nearly interminably or infinitely "zoom-able" (i.e. always amplifiable into a complex picture), elements of Blake's design, which continuously restructure the whole, allegorize this process. This zooming and de-zooming process extends in the other direction as well, insofar as each book relates to and is a different "whole" universe. Whether this difference is only perspectival or whether we deal with an interactive many-worlds "world" even at the global level may remain undecidable, too. In any event, as each monad forms a book and/as the artists' book, their (radical) organization continuously undermines the possibility of the classical wholeness and, thus, we may say with de Man, all aesthetic ideology as well. Blake's illuminated books are, thus, also allegories of aesthetic de-ideologizing and, hence, de-aestheticizing. In a certain way, they have nothing to do with art, at the very least insofar as art serves any aesthetic or otherwise uncritical ideology. Indeed, this, ultimately, may be the most crucial contribution of the genre of the illuminated manuscript or the artists' book to modern aesthetics and politics alike.

51. Let me, in closing, return from the perspective here sketched to the order of the three beds, which, as I said, may have been the order of three books, in Plato. Plato's classical account is not out of order here, since for all or most practical purposes, an ordinary bed or its image, either at the level of its prototype or archetype, or at the level of its constitutive elements would obey some form of Plato's scheme or another, even if considered in this somewhat simplified way. Ultimately, a greater pay-off might come from rereading Plato (or, as was suggested above, Leibniz) in terms Blake, as here considered, which is of course not say that one should disregards the differences between them. An extraordinary bed, say, one painted by Van Gogh, would be outside, or partly outside and partly within this order. Now, in the Blakean universe, every bed would be more like Van Gogh's. Once Poetic Genius becomes truly active, one simply cannot create or (and this are the same) perceive any other, which is in fact rigorously true, as Plato knew well. In Blake, however, it would be an organization and, in relation to the classical order, a reorganization—and emergence—of singular, unique "minute particulars" as here described, rather than, as (or so it would appear) in Plato, "derivable" (however complex the mediation of this derivation) from an underlying quasi-mathematical divine order (however remote). (Naturally, the latter scheme has richness and significance of its own, including in mathematics and science. We deal with the simultaneous workings of both schemes in most cases, even though the balance of their relationships may be different.) Indeed the very concept (it would in turn not be one) of "bed" acquires the same structure. That is, Van Gogh's bed or, hence, any other bed, would not be comprehended by a general concept, as in Plato's scheme, but would give rise each time to a new concept of bed. One of the effects of this organization of minute particulars and/as this reorganization of Plato's scheme would be the interfusion of God's, the carpenter's, and the painter's bed making, or book making. This interfusion is allegorized by Blake's process of production and dissemination, "from generation to generation," of his illuminated manuscripts, itself allegorized throughout his books, as in *A Printing House in Hell*. This allegory is clearly, albeit not uniquely, an allegory of continuous decomposition and reorganization of textual and visual minute particulars, and of the resulting interplay of the classical aesthetic order or ideology and radical, nonclassical organization in the present sense. In truth, however, any plate of Blake's illuminated works is designed (in either sense) in accordance with the same principle. It is the "principle" (Blake's word) of Poetic Genius.

5. Conclusion: Flyers

52. It would appear that the difference and even opposition between art and philosophy would be established thereby. This is not the case, however. Or, at least it depends upon how one sees the vision and practice of philosophy itself, including, Shelley and Deleuze would argue, Plato (whose thought would be thus juxtaposed to the Platonism of the scheme of the three beds). Indeed the concept of concept underlying the preceding discussion corresponds to that of Deleuze and Guattari in *What Is Philosophy?* Rather than in any common sense of it, such as that of an entity established by a generalization from particulars, or indeed "any general or abstract idea," as Deleuze and Guattari argue, a true philosophical concept is an irreducibly complex, multi-layered structure—a multi-component conglomerate of concepts (in their conventional sense), figures, metaphors, particular (ungeneralized) elements, and so forth (*What is Philosophy?*, 11-12, 24). The practice of philosophy is defined, accordingly, as the creation, fabrication, architectural construction (out of minute particulars, or minute generals). Blake's art would be conceptual art precisely in this sense, and as such, would be, along with and as the art of the artists' book, a precursor of the modernist and then postmodernist conceptual art from Duchamp on, including that of the artists' book. It is precisely at this level that the radically creative character of philosophy, defining Plato's scheme, is (re)established. According to Deleuze and Guattari, a *philosophical* concept (always a singular concept) of, say (this is the example they use), the "bird" would not be defined merely by generalization from particulars (although this may play a role), but rather by an organization of the general or generalizable and of the particular or singular: a bird in

flight, its posture, the composition of its colors, its trajectory, its relation to space around it, and so forth (*What Is Philosophy?*, 20-21). As such this concept is much closer to Shelley's Skylark or Keats's Nightingale, or any number of birds—indeed all the birds—one finds in Blake, in particular the one in *The Marriage of Heaven and Hell*, which could have been Deleuze and Guattari's model.

> How do you know but ev'ry Bird that cuts the airy way Is an immense world of delight, clos'd by your senses five? (Plate 5)

Indeed, the whole work is itself a bird-like manifesto of that type, literally a flyer. (It can hardly be doubted that Blake had the concept, if not the word, in mind, too.) Of course, a radical restructuring of all our perception, "our senses five," is necessary. It needs to be re-tuned or re-attuned so as to see the organization at the level of things and concepts alike as the organization of minute particulars. Its new model or at least allegory is the artists' book as conceptual art. This is what Blake's "Printing House in Hell" allegorizes. The key aspects of this allegorization are suggested, or indeed *inscribed*, in the inscription, itself already allegorizing the materiality of inscription and the material carpentry of inscription of the couplet just cited in Plate 6. Blake, first, describes himself as "walking among the fires of hell. Delighted with enjoyment of [Poetic] Genius" and collecting "proverbs of Hell," minute particulars of wisdom, and hence of philosophy in Deleuze and Guttari's sense. (The "radical organization" now takes place at the level of concepts themselves, treated as "minute particulars," rather than generalizations; and given this sense of concepts it could not be otherwise.) Then, Blake says: "When I came home, on the abyss of five senses, where a flat sided steep frowns over the present world, I saw a mighty Devil folded in black clouds, hovering on the sides of the rock, with *corroding fires* he wrote the following sentence [that is the couplet under discussion] now perceived by the minds of man, & read by them on earth" (*The Marriage of Heaven and Hell*, Plate 5). It would take another essay to follow the minute particulars of this passage and their organization. My simple point at the moment is the allegory of Blake's process of etching, in which corrosive acid is used to burn away the surface of a metal plate. The allegory itself, ultimately that of (and itself defined as) radical organization here considered, is of course hardly simple, whether you read along more Blakean or more strictly allegorical, quantum-mechanical, lines in the present sense. It is as complex an allegory of this process as any hitherto available, or perhaps as there can be. Nature, or, since quantum physics makes us pause here, at least mind, can no further go.

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Notes

[1] I shall, by and large, bypass here the literature of Blake and science, or indeed scholarly literature on Blake in general. This literature is immense, and I am indebted to a great many works on Blake and Romanticism (the list would be too long to cite here). On the other hand, the present approach appear to me rather different from the treatments I have encountered, even though a number of works deal with quantum theory, and specifically complementarity, and chaos theory. In my view, while it would by now require substantial updating, Donald Ault's earlier *Visionary Physics: Blake against Newton* (Chicago: U of Chicago P, 1974) remains the best full-length study of the subject. Ault's more recent work on the relationships between Blake's work and mathematics and science has been presented at several conferences, but remains unpublished. I am also indebted to R. Paul Yoder for helpful discussion. His article, "Unlocking Language: Self-Similarity in Blake's *Jerusalem*," on the present issue is among the more balanced and fair-minded treatments of fractal-like aspects of Blake's work. I have considered the quantum-mechanical epistemology in a number of previous works, and the present essay is a continuation of this, by now long, project, to which and to the literature cited there I permit myself to refer the reader for further details of the present argument. These works include *Complementarity: Anti-epistemology After Bohr and Derrida* (Durham, NC.: Duke UP, 1994), "Complementarity, Idealization, and the Limits of Classical Conceptions of Reality," *Mathematics, Science, and Postclassical Theory*, ed. Barbara H. Smith and Arkady Plotnitsky (Durham, NC.: Duke UP, 1997), and "Techno-Atoms: The Ultimate Constituents of Matter and the Technological Constitution of Phenomena in Quantum Physics," *Tekhnema: Journal of Philosophy and Technology* 5 (1999): 36-95, and, in the context of Romanticism, "All Shapes of Light: The Quantum Mechanical Shelley," in *Shelley: Poet and Legislator of the World*, eds. Stuart Curran and Betty Bennett (Baltimore: Johns Hopkins UP, 1995); "A Dancing Arch: Formalism and Singularity in Kleist, Shelley, and de Man," *International Romantic Review* (Winter 1998), and "Algebra and Allegory: Nonclassical Epistemology, Quantum Theory, and the Work of Paul de Man" in *Material Events*, ed. Thomas Cohen, J. Hillis Miller, and Andrzej Warminski (Minneapolis, Minn.: U of Minnesota P, 2000).

[2] The point was well realized by Schrödinger in his famous "cat paradox" paper, "The Present Situation in Quantum Mechanics," in *Quantum Theory and Measurement* (hereafter *QTM*), eds. John Archibald Wheeler and Wojciech Hubert Zurek (Princeton, NJ: Princeton UP, 1983). In particular, he observes "If a classical state does not exist at any moment, it can hardly change causally" (154). Discussions of the cat-paradox are found in many accounts of quantum physics. I have considered it in *Complementarity* (284-85, Note 20).

[3] The situation is more complex in classical statistical physics as well. The classical view even of classical statistical physics (i.e. physics disregarding quantum effects) has been challenged more recently, in particular in the wake of quantum mechanics. In general, it is no longer altogether clear how classical physics is or can be.

[4] Actual systems are often chaotic. The point of chaos theory is that deterministic predictions are not possible even in idealized situations.

[5] I shall be able here to give it only a restricted attention, concentrating, in accordance with my main subject, on the key concepts involved. The subject of artists' books is by now a filed of its own. For comprehensive thematic and historical introductions to it, see, for example, *Artists' Books: A Critical Anthology and Source Book*, ed. Joan Lyons (Rochester, NY.: Visual Studies Workshop P, 1985), Joanna Drucker, *The Century of Artists' Books* (New York: Granary Books, 1995), and for a more general context of the question of the book, Roger Chartier, *The Order of the Book*, trans. Lydia G. Cochrane (Stanford: Stanford UP, 1994).

[6] The subject has been approached from the perspective of the connections to both mathematics of complex variables (originating in Bernhard Riemann's work) and chaos theory in recent investigations (yet unpublished) by Donald Ault and coworkers.

[7] This topos has been a subject of well known investigations from Ernst R. Curtius, *European Literature and the Latin Middle Ages* (Princeton 1967), 319-326, to Jacques Derrida, *Of Grammatology*, 6-26, and beyond, although surprisingly not in the scholarship on the artists' books.

[8] The latter would be much closer to "writing" in Derrida's sense than to the classical conception of the book. Accordingly, the beginning of Blake's book may also be seen as the beginning of writing.

[9] All the reference to Blake are (by plate numbers) to *The CompletePoetry and Prose of William Blake*, ed. David V. Erdman (New York: Doubleday, 1982).

[10] Derrida's well-known investigation of the subject in his earlier works remain an unavoidable reference here.

[11] See especially Jacques Derrida, *Of Grammatology*, trans. Gayatri C. Spivak (Baltimore; Johns Hopkins UP, 1975), 6-26.

[12] The latter may in turn be shown as conceived by Leibniz in terms of the superimposition of the body, the book, and the (Baroque) city or, at least, architecture. On these questions see, Gilles Deleuze, *The Fold: Leibniz and the Baroque*, trans. Tom Conley (Minneapolis: U of Minnesota P, 1993).

[13] The topology and epistemology of Leibniz's monads has been a major subject of recent investigations, relevant here, by both Michel Serres and Gilles Deleuze, most especially in Gilles Deleuze, *The Fold: Leibniz and the Baroque*.

[14] "Letter to Thomas Butts, 22 November 1802" (*The Complete Poetry and Prose of William Blake*, 693).

[15] Paul de Man, *Aesthetic Ideology* (Minneapolis, Minn.: U of Minnesota P, 1996). This statement cannot be seen as strictly defining allegory, which, as de Man says on the same occasion, is difficult to do (*Aesthetic Ideology*, 51). If, however, there could be one (or any) such definition, the formulation just cited appears to come as close to it as possible. The feature itself indeed appears to characterize the practice of allegory, at least from Dante on. Galileo's project of the mathematical sciences of nature can be seen from this allegorical viewpoint, and connected to Dante, along these lines. I permit myself to refer to a forthcoming article by David Reed and the present author, "Discourse, Mathematics, Demonstration and Science in Galileo's *Discourses Concerning Two New Sciences*."

[16] Conceptual parallels with other ideas from twentieth-century mathematics may be invoked as well.

[17] The epistemology becomes classical once such exclusion takes place. This point is crucial to Derrida's

reading of Kant in "Economimesis" (*Diacritics* 11, no. 3 [1981]:3-25).

[18] This is a consequence of the so-called Bell's theorem, at least insofar as one maintains Bohr's interpretation of quantum mechanics. See David Mermin's essays on the subject of quantum mechanics in *Boojums All the Way Through* (Cambridge: Cambridge UP, 1990).

[19] The differences between Newton's and Leibniz's conceptions of differential calculus are of some interest here.

[20] In actuality the key feature that mathematically defines fractals qua fractals (and gives them their name) and that is often ignored by the humanists addressing the subject, is their fractional, rather than whole, dimensionality, most often, a fractional number between 1 and 2. It is also worth noting that not all (mathematically) chaotic systems are fractal.

[21] I here refer to the difference between symbol and allegory, as considered by de Man, in particular as concerns any possibility of deriving representations from an original or primordial unity, which define "symbol" and is prohibited by "allegory," or "irony." See, especially, his "Rhetoric of Temporality," *Blindness and Insight* (Minneapolis, Minn.: U of Minnesota P, 1981).

[22] At the level of practice, materiality remains crucial in Blake, whether one speaks of the materiality of the book, the materiality of the signifier, or the materiality of engraving, or, to return to Plato's allegory, the materiality of carpentry or of painting. One can also give the concept of materiality has a complex architecture, in part defined, and reciprocally defining, a concept of concept itself, which I shall consider below; and I can only briefly indicate a few key aspects of this architecture. According to this concept materiality and materialism are not seen as something only associated with matter, but refers to a certain field of concepts, theoretical and political strategies and interventions, events, and so forth. These may not in turn be subsumed by any single concept, strategy, event and rubric, or even by a single configuration of concepts, strategies, events, or rubrics. A much greater degree and a more radical form of heterogeneity are here at work. The rubric of materiality itself becomes ultimately provisional. In particular an analysis of "materiality" of this radical type entails a deployment of an equally radical form(s) of ideality, conceptuality, and phenomenality. (Still other rubrics and conceptualizations become necessary as well.) This radical critique redefines both concepts materiality and ideality, or phenomenality. Indeed it redefines all concepts that it considers and engages in this irreducibly multiple and multiply interactive field. However, the "elements" (which, it follows, cannot be seen as strictly or "absolutely" elementary either) that constitute this field work so as undermine all idealist ideologies, including those of metaphysical materialism philosophical, aesthetic, political or other and, to return to Althusser's phrase, ideological state apparatuses. The case in point is aesthetic ideology, according to de Man's analysis. In this sense, Blake's conceptuality is materiality, and his conceptual art a form of materialism as such, rather than only by virtue of its irreducible association with matter. From this perspective, Blake's suspicion concerning, and his ultimate suspension of, nature or matter, in particular if conceived according to a Newtonian view, is, contrary to appearances, ultimately a "materialist" strategy.

[23] The latter concept is often compared to Bohr's complementarity, but rarely, if ever, with due caution as concerns the specificity of both concept in Blake or, especially, Bohr. At the very least, the differences (specifically epistemological ones) are just as significance as similarities.

[24] See, however, Note 22 above.

[25] On these issues see, again, Deleuze's analysis of monads throughout *The Fold*.

Romanticism and Complexity

Unlocking Language: Self-Similarity in Blake's *Jerusalem*

R. Paul Yoder, University of Arkansas at Little Rock

1. In his annotations to *The Works of Sir Joshua Reynolds*, William Blake writes, "Locke's Opinions of Words & their Fallaciousness are Artful Opinions & Fallacious also" (*CPP* 659).[1] John Locke's artful and fallacious opinions about language are part of the reason that he repeatedly appears as one aspect of Albion's Spectre in Blake's last major poem, *Jerusalem the Emanation of the Giant Albion*, a poem so concerned with language that its concluding millennial vision explicitly includes a redeemed language which expands and contracts "according as the Organs of Perception vary," a language in which "every Word & Every Character / Was Human" (*J* 98:35-38). Robert Essick, in *Blake and the Language of Adam*, has examined how Blake's pursuit of a "motivated" language differs from Locke's "sensibilist" theory of an arbitrary language that "limits words to object-reference" (46). In response to Locke, Essick posits for Blake a theory of language "that celebrates the word capable of calling new thoughts, images—perhaps even worlds—into being" (46). In what follows I argue that a model based on fractal "self-similarity" can help us to understand how Blake's language opens to these new worlds, and that it can even help us to understand the vexed issue of narrative in *Jerusalem*.

2. In the *Essay concerning Human Understanding*, Locke works along an expanding scale of analogous structures, from simple ideas to complex ideas, from simple modes to mixed modes. He repeatedly shapes his analysis of the senses, of ideas, perception, retention, discerning, understanding, reason and language around a system that expands from "simple" minute particulars to broader and more complex abstractions. This recurring structure is what accounts for much of the apparent repetitiveness of the *Essay*. But despite its ultimate basis on minute simple responses to the senses, Locke's view of language does not finally accept a human standard. Instead, like Blake's Urizen, who learned to his dismay that "no flesh nor spirit could keep / His iron laws one moment" (*Urizen* 23:25-26), Locke would "improve" human discourse with a plan that he readily admits has little chance of human success.

3. It is in Book III of the *Essay*, that Locke considers language, an area he had not originally planned to examine. However, Locke says,

> when having passed over the Original and Composition of our *Ideas*, I began to examine the Extent and Certainty of our Knowledge, I found it had so near a connexion with Words, that unless their force and manner of Signification were first well observed, there could be very little said clearly and pertinently concerning Knowledge: which being conversant about Truth, had constantly to do with Propositions. And though it terminated in Things, yet it was for the most part so much by the intervention of Words, that they seem'd scarce separable from our general Knowledge. At least they interpose themselves so much between our Understandings, and the Truth, which it would contemplate and apprehend, that like the *Medium* through which visible Objects pass, their Obscurity and Disorder does not seldom cast a mist before our Eyes, and impose upon our Understandings. (III.ix.21, p. 488)

This "Obscurity and Disorder" of words, Locke elsewhere describes as "the *doubtfulness* and uncertainty of *their [words'] signification*, which *is the imperfection* we are here speaking of" (III.ix.4, p. 477). Much of his discussion of language is a consideration of this imperfection and how it might be

repaired; Locke's goal is the Royal Society's goal of a stable, perspicuous language, "subservient to Instruction and Knowledge" (III.i.6, p. 404).

4. Locke's understanding of language is finally not very different from Blake's, but what difference is there is crucial. In the opening of Book III, Locke says,

> God having designed Man for a sociable Creature, made him not only with an inclination, and under a necessity to have fellowship with those of his own kind; but furnished him also with Language, which was to be the great Instrument and common Tye of Society. *Man* therefore had by Nature his Organs so fashioned, as to be *fit to frame articulate Sounds*, which we call Words. But this was not enough to produce Language; for Parrots, and several other Birds, will be taught to make articulate Sounds distinct enough, which yet, by no means, are capable of Language.

> Besides articulate Sounds therefore, it was farther necessary, that he should be *able to use these Sounds, as Signs of internal Conceptions*; and to make them stand as marks for the *Ideas* within his own Mind, whereby they might be made known to others, and the Thoughts of Men's Minds be conveyed from one to another. (III.i.1-2, p. 402)

There seems to me little here to which Blake would object. Certainly he believed that language was a gift from God intended to promote human community. Blake would probably quarrel with the limitation of language to "articulate Sounds" fitted to natural organs, but he would agree that communication requires more than one party's simple mimicking of sounds.

5. Locke and Blake part company when Locke turns to consider the "improvement" of language through the use of "General Terms":

> It is not enough for the perfection of Language, that Sounds can be made signs of *Ideas*, unless those *signs* can be so made use of, as *to comprehend several particular Things*: For the multiplication of Words would have perplexed their Use, had every particular thing need of a distinct name to be signified by. To remedy this inconvenience, Language had yet a farther improvement in the use of general Terms, whereby one word was made to mark a multitude of particular existences. (III.i.3, p. 402)

Locke's implication that "every particular thing" does not require a "distinct name" must have galled Blake, who in *Jerusalem* repeatedly stresses the importance of "particulars." For example, Los says that "every / Particular is a Man" (91:29-30), and that "benevolence . . . protects minute particulars, every one in their own identity" (38:22-23), and we might note at this point that for Blake the standard for these particulars is the human form — "every / Particular is a Man." To avoid having to recognize every particular in its own identity, Locke says, we have general terms or words, and "Words become general by being made the signs of general *Ideas*: and *Ideas* become general, by separating from them the circumstances of Time, and Place, and any other *Ideas*, that may determine them to this or that particular Existence" (III.iii.6, p. 411). In other words, we create a general word by abstraction, by separating the particular, situated in time and space, from its individual — identifying — context.

6. Beyond this fundamental disagreement in their attitudes toward particulars, Blake and Locke also differ in their attitudes toward the instability they both recognize in language. Blake's love of puns and word play has been well-documented by Nelson Hilton and others, and requires no rehearsal here. Throughout Locke's discussion of language, however, discursive play is exactly the problem, as when Locke writes, "Though the Names *Glory* and *Gratitude* [for example] be the same in every Man's mouth . . . yet the complex collective *Idea* . . . is apparently very different in Men using the same

language" (III.iii.8, p. 479). This shifting relationship between the word and the idea, between the signifier and the signified is the reason for the "*doubtfulness* and uncertainty *of their [words']* *signification*" (III.ix.4, p. 479), and Locke is explicit as to what he thinks of those who exploit this shifting relationship: "'tis plain cheat and abuse, when I make them [words] stand sometimes for one thing and sometimes for another" (III.x.5, p. 492). Although Locke does distinguish between "civil" and "philosophical" uses of language, his position clearly leaves little room for the flexibility of daily human interaction, nor for what we traditionally think of as poetic language, metaphor, simile, or allegory. Though he does not explicitly discuss poetry, Locke does give his opinion on "*figurative* *speeches*, and allusion in language": "Such ornaments," he grants, "can scarce pass for Faults" in discourses "where we seek rather Pleasure and Delight, than Information and Improvement," but he adds,"if we speak of Things as they are, we must allow, that all the Art of Rhetorick, besides Order and Clearness, all the artificial and figurative application of Words Eloquence hath invented, are for nothing else but to insinuate wrong *Ideas*, move the Passions, and thereby mislead the Judgment; and so indeed are perfect cheat" (III.x.34, p. 508). Blake, the poet who identifies himself as a "true Orator" in the opening Preface of *Jerusalem*, must have objected strongly both to the opposition between "Pleasure" and "Improvement," and to such a depiction of his divinely dictated mode of improving humanity. Moreover, in Blake's cosmology, the whole purpose of Christ's becoming human, of Christ's acceptance of the human form, is to mitigate — what Locke calls "mislead" — Albion's judgment against himself and all of humanity. Blake agrees with Locke that there is a shifting relationship between the signifier and signified — indeed, *Jerusalem*'s transformation of "Eternal Death" (4:2) into a "little Death" (96:27) depends on just such a shifting relationship — but where Locke sees this as an imperfection or curse, Blake sees it as a blessing and means of redemption.

7. In Blake's cosmology Christ's acceptance of the human form implies the divine acceptance as well of the "imperfection" and figurativeness of human language. Locke likewise recognizes this implication, and his remarks reveal much about the difference between his ideas and Blake's. When Locke turns to consider the impact on scripture of his theory of linguistic imperfection, he says,

> Though every thing said in the Text be infallibly true, yet the Reader may be, nay cannot chuse but be very fallible in the understanding of it. Nor is it to be wondred, that the Will of GOD, when cloathed in Words, should be liable to that doubt and uncertainty, which unavoidably attends that sort of Conveyance, when even his Son, whilst cloathed in Flesh, was subject to all the Frailties and Inconveniencies of humane Nature, Sin excepted (III.ix.23, pp. 489-90).

For Locke and for Blake, part of Christ's humanity was his use of a human language, shifting and figurative in its very nature. For Locke Christ's use of human language does not in and of itself redeem that language; instead that is a problem which Reason must address. But for Blake, once Christ assumes the human form, everything about the human form becomes by definition Christ-like. This is what Blake means when he writes, years before *Jerusalem*, "God becomes as we are, that we may be as he is" (*Nat. Religion* [b]: prose). It is God's becoming as we are that creates the Human Form Divine, and that authorizes a human standard of language, with all its figurativeness and shifting meanings.

8. Locke does offer a plan by which the "imperfections" of language might be remedied, but he does not express much hope of success. He begins by saying that he is

> not so vain to think, that any one can pretend to attempt to perfect *Reforming* the *Languages* of the world, no not so much as that of his own Country, without rendering himself ridiculous. To require that Men should use their words constantly in the same sense, and for none but determined and uniform *Ideas*, would be to think, that all Men should have the same Notions, and should talk of nothing but what they had clear and

distinct *Ideas* of. Which is not to be expected by any one, who hath not vanity enough to imagine he can prevail with Men, to be very knowing, or very silent (III.xi.2, p. 509).

Locke's disdain for everyday human interaction is clear here, as well as when he grants that the "Market and Exchange must be left to their own ways of Talking, and Gossippings must not be robb'd of their ancient Privilege" (III.xi.3, p. 509). But, he adds, those "*who* pretend *seriously* to *search after*, or maintain *Truth*, should think themselves obliged to study, how they might deliver themselves without Obscurity, Doubtfulness, or Equivocation, to which Men's Words are naturally liable, if care be not taken" (III.xi.3, p. 509). Just as Locke's system leads to progressive abstractions from minute human particulars, so his plan for perfecting language is intended not for the daily instances of human interaction, but only for the elite group of those "who pretend seriously to search after, or maintain Truth." Yet even among this group, Locke recognizes that language is "naturally liable" to "Obscurity, Doubtfulness, or Equivocation."

9. Locke never questions the negative value he places on this natural tendency of language. From Blake's perspective, however, Locke simply does not understand the relationship between the obscurity of language and the search for truth. Like Dr. Trusler, who complained that Blake "want[ed] somebody to Elucidate [his] Ideas" (CPP 702), Locke believes that the obscurity of language might be overcome if, among other things, people would "declare their [words] Meaning" (III.xi.12, p. 515). Blake's response to Dr. Trusler makes his position on this issue clear:

> But you ought to know that What is Grand is necessarily obscure to Weak men. That which can be made explicit to the Idiot is not worth my care. The wisest of the Ancients considered what is not too Explicit as the fittest for Instruction because it rouses the faculties to act. I name Moses Solomon Esop Homer Plato (CPP 702).

Blake might sound here as elitist as Locke, except that later in this same letter he adds, "But I am happy to find a Great Majority of Fellow Mortals who can Elucidate my Visions & Particularly they have been Elucidated by Children" (CPP 703). The obscurity which Locke seeks to eradicate from language is, for Blake, redemptive for it rouses the human faculties, even of children, to act.

10. Locke's plan for perfecting language depends on limiting the play in language by confining language to a fixed set of definitions. His plan has five parts:

> 1. "A Man should take care *to use no word without a signification*, no Name without an *Idea* for which he makes it stand" (III.xi.8, p. 512);
>
> 2. "Those *Ideas* he annexes them to, if they be *simple* must be clear and distinct; if *complex* must be *determinate"* (III.xi.9, p. 512-3);
>
> 3. Speakers "*must* also take care to *apply their Words*, as near as may be, *to such* Ideas *as common use has annexed them to* (III.xi.11, p. 514);
>
> 4. In instances when a speaker must use new words or use old words in a new way, he or she should "*declare their Meaning*" (III.xi.12, pp. 514-15);
>
> 5. "If Men will not be at pains to declare the meaning of their Words, and Definitions of their Terms are not to be had; yet this is the least that can be expected, that in all Discourses, wherein one Man pretends to instruct or convince another, he should *use the same Word constantly in the same sense*". (III.xi.26, p. 523)

Locke's scheme for perfecting language clearly assumes a system that "limits words to object-

reference," as Essick puts it, but it also, except in the rare instances when new words are needed, limits words to the past. Locke's language scheme weds words to what Blake would call the "Daughters of Memory," divorcing them from the Daughters of Inspiration. It is finally an atomistic system, a system in which Locke says, "*Morality is capable of Demonstration*, as well as Mathematicks" (III.xi.16, p. 516). Locke's is the same system as that of the fallen Albion who seeks "A foundation and certainty and demonstrative truth" (*J* 28:11). In place of such a system, Essick says, Blake posits an open-ended language capable of "calling new thoughts, images — perhaps even worlds — into being" (46). How is such a view of language evident in Blake's poetry? In order to answer that question, let us begin somewhat indirectly by considering the problem of narrative in *Jerusalem*.

11. The problem of narrative in Blake's *Jerusalem* has vexed readers from the beginning, but within the past 30 years a rather remarkable critical consensus has been reached. The consensus, evident in the work of critics ranging from Minna Doskow and Joanne Witke to Vincent de Luca and Morton Paley, holds that *Jerusalem* has no narrative *per se* spanning its 100 plates, but rather exhibits what Morton Paley calls a "synchronic" structure.[2] That is, the events of the poem, hardly events at all in synchronic readings, do not share any sort of cause-effect relationship and do not cohere into any sort of continuous, temporal structure. Like Locke who celebrates general terms that strip away from the particulars all the "circumstances of Time, and Place, and any other *Ideas*, that may determine them to this or that particular Existence" (III.iii.6, p. 411), Synchronists strip away the narrative — those circumstances of time and place — in order to argue that these abstract, disconnected fragments of the poem all occur at the same time in a spatial relation to each other. Thus *Jerusalem* does not tell a story, but instead represents the single moment of the Fall of Albion, and it keeps re-presenting that single moment from different perspectives or with different emphases until the awakening of Albion in the poem's closing plates. This consensus has been questioned by such critics as Hazard Adams and Paul Youngquist, although few have followed up on their suggestions. I have argued elsewhere for the existence of a narrative in Blake's final epic [3], but we cannot simply dismiss the insights of the synchronic readings. Instead we can use the relationships between these two opposed ways of reading *Jerusalem* in order to understand better Blake's alternative to Locke's theory of language and signification.

12. We might begin to understand this relationship between synchronic and narrative readings by looking at the question of the "signifying unit" in *Jerusalem*. One problem with synchronic readings taken as a group is that the critics do not agree on what exactly defines one of the self-reflecting fragments of the poem. Some readers see the fragments as fairly large-scale, and argue that the separate chapters of *Jerusalem*, for example, replay the same occurrences, much as the synoptic gospels replay the events of Jesus's life. Some readers approach the poem plate-by-plate, viewing the separate plates as separate visionary moments. Some readers, like Vincent de Luca, seem to pay almost no attention to the words of the poem at all, reading some of the most important narrative moments as "walls of words" intended to create sublime blockage and make the poem as a poem virtually unreadable. Other readers, like Morton Paley, see the poem overall as a city, and argue that the fragments of the poem each show a different aspect of this city, the fallen Jerusalem. However they define these fragments, and whatever their explanation, all of these readers agree that the fragments of *Jerusalem* all reflect each other, that they all, no matter what their specifics, signify the same thing, and that same thing is usually called "The Fall." What is hardly ever discussed, however, is what exactly defines these signifying fragments. What exactly counts as a significant textual event in *Jerusalem*? The chapter, the episode, the plate, something smaller?

13. For Blake the unit of signification can be anything along a sliding analogical scale of the particulars of textual production: from the whole of a published, finished copy down to the smallest drops of ink and finest of etched marks, Blake's vision of signification is like a great chain of reading with every link

forged as it is perceived by the reader. David Erdman was the first to note that around 1791 Blake began using an italic "g" with a "serif or topknot on the left side instead of the right," but that after 1805 Blake changed the serif on the letter "g" to the right. And not only did Blake write all of his new material with the rightward serif, but he even changed the serif on re-issues of earlier etched works ("Suppressed and Altered Passages" 52). We cannot be sure why Blake changed his letter "g," but we can see that for Blake the signifying unit was not simply the word, not even the letter, but even smaller and smaller marks. The minute end of the scale of signification is limited only by the limits of his perception, the minutest of graphic particulars that his graver could carve or his pen could write. The grand end of the scale is limited only by the poet's and reader's imagination. The serif signifies in and of itself, but it is also part of a letter, part of a word, phrase, line, plate, chapter, volume, oeuvre, tradition, history of traditions, all of which signify in their own right.

14. The analogical continuity across a scale of signification, reaching from the serifs to the entirety of the book and beyond, is the same continuity as that between the grain of sand and the world it both contains and is contained by; hence those new worlds suggested by Essick. Chaos theory has given us a word for this sort of structure, "fractal," the characteristic trait of which is "self-similarity." As far as I can tell James Gleick, in his 1987 book *Chaos*, was the first to connect fractals to Blake, comparing fractal structure to Blake's famous line from the *Auguries of Innocence*, "To see a World in a Grain of Sand" (115). Gleick describes fractal structures as displaying "symmetry across scale," implying "recursion, pattern inside of pattern." A fractal is an "infinite line in a finite space" (139), and Gleick says that the fractal patterns occurring along this infinite line are "dynamical processes jelled into physical forms" (Gleick 117); they are "forms in nature — not visible forms, but shapes embedded in the fabric of motion" (Gleick 118). In a fractal structure, a given pattern is evident regardless of the expansion or contraction of perspective. This scale in which parts signify as well as the whole might simply be an extreme form of synecdoche, but Blake makes it something different. In his remarks "On Homer," Blake writes, "But when a Work has Unity it is as much in a Part as in the Whole. the Torso is as much a Unity as the Laocoon" (CPP, 269). It is not that the part signifies the whole, but that the part is itself a separate whole: the torso, or serif, is as much a unity as the Laocoon or *Jerusalem*.

15. Each of these levels, each of these self-unified fragments, is in fractal terms called an "iteration." An iteration, according to Michael McGuire, is the repetition of "an operation, generally using the last result of that operation as the input" (McGuire 14). Iterations are governed by the "replacement rule," which holds that "In going from one stage of construction of a fractal to the next, one graphical object is replaced with another, which is usually more complex, but which fits into the place of the original" (McGuire 14). As signification moves out from the part to the whole, from the torso to the Laocoon, from the serif on the letter "g" to the fully-colored 100 plates of copy E of *Jerusalem*, the same operation of ink marks signifying to readers recurs with increasing complexity. As the reader combines letters into words, words into lines and sentences and verse paragraphs and narrative or dramatic episodes, and then into chapters and finally into a complete illuminated poem, as the reader constructs the text, each level of construction uses the previous construction as its input. One might well argue that all reading operates this way, but Blake's comments in "On Homer" and the changing serif on his letter "g" also reveal how acutely aware Blake was of how the system of signification operates by building on and repeating itself.

16. So it is that in *Jerusalem*, the "great City of Golgonooza," the city of art built by Los, is structurally fractal:

> And every part of the City is fourfold; & every inhabitant, fourfold. And every pot & vessel & garment & utensil of the houses, And every house, fourfold; but the third Gate in every one Is closd as with a threefold curtain. (13:20-23)

In this city, identified in both *Milton* and *Jerusalem* as the "spiritual fourfold London" (*M*6:1; *J*53:18-19), even the flaws are fractal, the third gates being closed in by threefold curtains.

17. Long before chaos theory gave us the word "fractal," there was clear precedent for Blake's use of such a sliding scale. A fractal structure of symmetry across scale is the basis for the irony of the Lilliputians and the Brobdingnaggians of the first two books of *Gulliver's Travels*, and the same notion informs Swift's lines:

> So, Nat'ralists observe, a Flea Hath smaller Fleas that on him prey, And these have smaller Fleas to bite 'em, And so proceed ad infinitum.   ("On Poetry: A Rapsody" 353-6)

    Blake ominously echoes Swift's image on the frontispiece of *Jerusalem*, where in one early pressing may be read in reverse writing on the left side of the archway of the "Door of Death," "Every Thing has its Vermin O Spectre of the Sleeping Dead!" (plate 1). This imagery of symmetrical scale is related to the classical rhetorical strategy of comparing great things to small, a strategy repeatedly invoked by Milton in *Paradise Lost*, and used ironically in works like *The Rape of the Lock* and *Joseph Andrews* to deflate epic seriousness. In eighteenth-century natural philosophy, this sort of sliding analogy provides the basis for the belief that the life of the individual recapitulates the life of the nation, the culture, the species; in the "savage" could be read the infancy of the human race[4], and in the developing infant the development of the entire system of language and socialization. The original man becomes conflated with the representative man; Adam becomes Everyman as everyone, afflicted with the sin of Adam, leaves pastoral innocence for the life of worldly experience. Albion is Blake's Everyman; his life recapitulates the life of everyone who ever lived, even while possessing its own individuality. Like his Saviour, Blake's Albion is, as Robert Essick puts it, the "extravagantly polyvalent signifier of all human experience" (202-203).

18. In *Milton* Blake depicts movement across this scale as "pulsations." On plate 28 of that poem, we read an account of the building of time by some of the Sons of Los; they build "Moments & Minutes & Hours / And days & Months & Years & Ages & Periods" (28:44-45). Each moment we are told "equals a pulsation" and whatever structures may be apparent at a given level, "Each has its Guard. each Moment Minute Hour Day Month & Year. / All are the work of Fairy Hands" (28:59-60). Clearly Blake sees time as expanding fractally through iterations ranging from the moment all the way out to the "Flaming Fire" that encircles every Seven Ages. Moreover, like the center of the circle which opens into an expanse, the moment itself opens into vistas of time, for "Every time less than the pulsation of the artery / Is equal in its period & value to Six Thousand years" (28:62-63), and it is in this expansive pulsating moment that "the Poets Work is Done: and all the Great / Events of Time start forth & are concieved in such a Period / Within a Moment: a Pulsation of the Artery" (29:1-3).

19. If pulsations of the artery define the iterations of time, the "globule of blood" defines the iterations of space. Immediately after the building of time by the Sons of Los we find that other Sons of Los build space and this space also expands outward and inward:

> For every Space larger than the red Globule of Mans blood Is visionary . . . And every Space smaller than a Globule of Mans blood opens Into Eternity. (29:19-22)

    Important here is not simply the fractal re-iteration of temporal and spatial structures, but also the human standard of those iterations. Space is measured by the globules of human blood, while time and the Poet's work itself are measured by the human pulse.

20. Blake also understood these pulsations, these expansions and contractions across scale as a function of

perspective, and of the relative proximity of the viewer to the object, and again the standard of these iterations is the human form. In the *Vision of the Last Judgement*, for example, Blake says, "These various states I have seen in my Imagination when distant they appear as One Man but as you approach they appear Multitudes of Nations" (556-7). Later in the *Vision* he adapts this proximity of space to proximity of time: "The figures of Seth & his wife Comprehends [sic] the Fathers before the flood & their Generations when seen remote they appear as One Man" (560). In *Jerusalem* the Savior himself tells Albion:

> Mutual in one anothers love and wrath all renewing We live as One Man; for contracting our infinite senses We behold multitude; or expanding: we behold as one, As One Man all the Universal Family; and that One Man We call Jesus the Christ: and he in us and we in him (34:16-20). Later the Immortals say that they Contract or Expand Space at will; or if we raise ourselves Upon the chariots of the morning. Contracting or Expanding Time! Every one knows, we are One Family! One Man blessed for ever. (55:44-6)

In this dynamic of perspective, closeness equals a contracting of vision in which we perceive multitudes, while distance equals an expanding of vision in which we perceive the multitude as "One Man."

21. Blake's system differs from Locke's in significant ways. First, it accepts, indeed insists upon a human standard, the standard of the human form rendered divine by the incarnation. Blake does not seek to remedy the obscurity to which language is "naturally liable" as Locke puts it. Instead, he sees this obscurity as having been appropriated by the Savior for the work of redemption when he took on the human form. Second, Blake's system is not based on an atomistic object-reference language in which one must always use the same word for the same idea. Sometimes that grain of sand is a whole world; sometimes that one man is a multitude. As is so often the case for Blake, it all depends on perspective, the expansion or contraction of the organs of perception. And third, Blake's system respects the integrity of the minute particulars; it does not celebrate the general terms that Locke says are so essential to human thought. Indeed, in *Jerusalem* Blake repeatedly castigates the "Swelld & bloated General Forms" as "repugnant to the Divine- / Humanity, who is the only General and Universal Form" (38:19-20). The giant Sons of Albion "Generalize Art & Science till Art & Science is lost" (38:54). The Living Creatures assert that "He who would do good to another, must do it in Minute Particulars / . . . For Art & Science cannot exist but in minutely organized Particulars / And not in generalizing Demonstrations of the Rational Power" (55:60-63). And in Los's thunderous speech late in the poem, he says that "he who wishes to see a Vision; a perfect Whole / Must see it in its Minute Particulars" for "every / Particular is a Man; a Divine Member of the Divine Jesus" (91:20-21, 29-30).

22. In celebrating and defending the minute particulars, Blake returns to them the identifying "circumstances of Time and Place" that Locke would remove in order to create "General Terms" (III.iii.6, p. 411). Recognizing this, we are now in a position to understand the relationship between the synchronic readings of *Jerusalem* and the narrative they deny, for these synchronic readings similarly remove from the fragments of *Jerusalem* the "circumstances of Time and Place" that would identify their place in the narrative. In fractal terms each of these synchronic readings, from the most fragmented plate-by-plate readings to the relatively larger chapter-by-chapter readings, each of these synchronic readings presents a single "iteration" of the pattern of signification, and part of the problem with synchronic readings is that they do not go far enough in either direction of the scale. Each synchronic reading recognizes a single "iteration" of Blakean signification, but then it takes that iteration to be the whole. In looking at the "jelled" forms, sychronic readings disregard the "dynamical processes"; they see the "shapes embedded in the fabric of motion" without considering the implications of that "fabric of motion" in which they are embedded. And here is where narrative comes in. Narrative is the literary form of dynamical process; it is the fabric of motion within which scenes

and episodes jell. If the most minute visible iteration in *Jerusalem* is the serif on the letter "g," then the largest visible iteration is the poem itself, pulsating with human life. The poem is not the static moment of "the Fall and the fallen world . . . depicted in different ways" as Edward Larrissy puts it (152), but it is the narrative of that fall, of Los's efforts to keep the divine vision in time of trouble, and of Albion's awakening to new life.

23. Indeed, the climax of *Jerusalem*'s narrative depends on this issue of expanding and contracting across a fractal scale, and I want to look briefly at three iterations of that climax. The first to occur chronologically in the poem involves the plot, the existence of which has been the object of so much skepticism. Much of the action of the poem involves Los's efforts to control his raging Spectre, and whatever the nature of those struggles, it is hard to say that Los experiences any outright victory in *Jerusalem*. His victory lies more in the fact that he endures Albion's nightmare than that he defeats an enemy. Nevertheless, such victory over his Spectre as Los does have is depicted in terms of fractal scale. On plate 91, just prior to Albion's awakening, as Los consolidates his perception of Albion's error, he has one final confrontation with his own Spectre. We find that

> The Spectre builded his stupendous Works, taking the Starry Heavens Like to a curtain
> & folding them according to his will . . . among the arches of Albions Tomb sublime
> Rolling the Sea in rocky paths: forming Leviathan And Behemoth: the War by Sea
> enormous & the War By Land astounding: erecting pillars in the deepest Hell, To reach the
> heavenly arches (91:32-41).

Undaunted by these giant forms, Los smites the Spectre, "In unpitying ruin driving down the pyramids of Pride / Smiting the Spectre on his Anvil" (91:42-43), so that "all his pyramids were grains / Of sand & his pillars: dust on the flys wing; & his starry / Heavens; a moth of gold & silver mocking his anxious grasp" (91:47-49). Victory in *Jerusalem* depends on the ability to expand and contract perspective across scale, and Los's smiting of the Spectre constitutes a change in the fractal iteration of the images associated with him. When viewed from a distance in an expansion of vision, the Spectre seems to fold the starry heavens, but when we draw closer, contracting vision, what had seemed pyramids become grains of sand, pillars become specks of dust, and the starry heavens an elusive insect chased by a anxious child. As the narrator puts it, "Thus Los altered his Spectre & every Ratio of his reason" (91:50).

24. The two other climactic fractal manifestations more directly concern language and the issue of signification. The text of plate 96 describes the wonderful encounter between Albion and the Saviour who appears to Albion "in the likeness & similitude" of Los, the friend who best loved Albion. As a scene between Albion and one who appears to be Los, this encounter recalls the confrontation between Albion and Los from plate 42 during which Albion accuses Los of conspiring against him and orders the Sons of Albion to bind him. In this later scene, however, the Saviour, disguised as Los, teaches Albion the true meaning of love and self-sacrifice, after which Albion throws himself into the furnaces of affliction which immediately transform into fountains of living water. It is a crucial scene in Albion's apocalyptic awakening, but the most noticeable point about it is the Saviour's appearance in the "likeness & similitude of Los," a phrase repeated twice on the plate. This plate is also unique because of the relationship between text and design, for the text is arranged into a large letter "L," the initial character of Los, whose appearance is so important to the scene. Blake's designs elsewhere in *Jerusalem* (plate 23, for example), suggest fractal patterns, but the clearest instance is this large letter "L," which suggests how signification pulsates across scales of fractal iterations — here the text describing a climactic scene involving the appearance of Los actually appears as the first letter of his name.

25. My final example is, of course, the famous concluding vision of *Jerusalem*, in which we find that

> every Word & Every Character Was
> Human according to the Expansion or Contraction, the Translucence or Opakeness of
> Nervous fibres such was the variation of Time & Space Which vary according as the
> Organs of Perception vary (98:35-38)

Here redeemed language itself, the medium of divine conversation, exhibits the pulsations of expansion and contraction across scale, the variations of time and space that "vary as the organs of Perception vary." For Blake signification itself is a pulsating three-dimensional event. And the standard for interpreting these pulsations, these iterations of signifying structure is the human form — "every word & every character / Was Human" — the human form rendered divine by the incarnation of the Saviour.

26. This infinitely expanding and contracting vision of redeemed language is markedly different from Locke's five-point plan for remedying the imperfections of language. The obscurity of language, I think most readers of *Jerusalem* will agree, Blake not only embraces, but augments, in his efforts to rouse the reader's faculties, to open the reader's eyes into eternal worlds. Rather than trying to close off language into a system in which one should "*use the same Word constantly in the same sense*" (Locke, III.xi.26, p. 523), Blake envisions a language in which "every Man [standing] Fourfold"

> conversed together in Visionary forms dramatic which bright Redounded from their
> Tongues in thunderous majesty, in Visions In new Expanses, creating exemplars of
> Memory and of Intellect Creating Space, Creating Time according to the wonders Divine
> Of Human Imagination (*J* 98:12, 28-32).

It is finally the regard for the Human Imagination that distinguishes Blake's system from Locke's. In *Fearful Symmetry*, outlining the "Case against Locke," Northrop Frye wrote that "In Blake the criterion or standard of reality is the genius; in Locke it is the mediocrity" (21-22). It is not so much that Blake embraces a human standard and Locke does not; rather it is that they have different understandings of what "human" means. For Blake the faults to which human language is "naturally liable" are not problems to be remedied, but possibilities to be embraced.

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Notes

[1] All references to Blake's work are to David Erdman's *The Complete Poetry and Prose of William Blake*, Newly Revised Edition, 1982. For poetry, an abbreviated title (where appropriate) and plate and line numbers are given in parenthesis; for letters, annotations and other writings, page numbers are given in parenthesis

after the abbreviation "CB" (for *Complete Blake*), used to distinguish this text from other works by Erdman.

[2] For a useful summary of these positions, see Paley, *The Continuing City*, pp. 279-294, and Fred Dortort, *The Dialectic of Vision*, pp. 421-448. Other critics whose approaches deny the poem's narrative continuity include W. J. T. Mitchell, *Blake's Composite Art*, and Stuart Curran, "The Structures of *Jerusalem*." To a degree, any reading that approaches the poem on a plate-by-plate basis, isolating the individual plates from each other and from the surrounding context, tends toward a synchronic position.

[3] I made the case for narrative in *Jerusalem* at length in my unpublished dissertation, *Significant Events: Language and Narrative in Blake's* Jerusalem, directed by Robert F. Gleckner, Duke University, 1992. The argument for narrative is implicit in my article "Not from Troy, But Jerusalem: Blake's Canon Revision" (*Blake/An Illustrated Quarterly* 31:1 [Summer] 1997), based on a 1994 NASSR conference paper, and in two other conference papers: "Gouging *Jerusalem*: Reading Blake's Revisions." (NASSR, 1998) and "Epigrams and Epics: Two Models for Reading Blake's *Jerusalem*." (NEMLA, 1996).

[4] For a use of this analogy contemporary with Blake, one need look no farther than Percy Shelley's "Defense of Poetry": "for the savage is to the ages what the child is to years" (481).

Romanticism and Complexity

From the (Ever) Complex to the (Never) Simple: A Response to R. Paul Yoder's "Unlocking Language: Self-Similarity in Blake's *Jerusalem*"

Arkady Plotnitsky, Purdue University

1. It is fitting, especially in the context of this issue of *Romantic Praxis*, that Paul Yoder opens his article with John Locke's philosophy of language on his way to showing how Blake's un*locks* (to use the elegant pun of Yoder's title) language, along with, one might add, the mind and the world, and the relationships among them. Indeed at stake in Blake's *Jerusalem* is nothing less than a radical, and radically unlocking, reinterpretation or, better, re-envisioning of everything. Newton may be, and has been, a more customary and perhaps more immediately pertinent figure against whom Blake offers his own "*visionary* physics," as Donald Ault called it in his pioneering study.[1] I emphasize "visionary" in order to indicate a radical transformation of *physis* (materiality) in Blake's re-envisioning of the world. It is not out of place to speak of "physics" insofar as the term itself is related to an envisioning — imaging—of *physis* through the human mind and specifically imagination, or in Blake's terms, through the poetic genius, which Blake wanted to bring into action in each man and woman. As both (if very differently and with a different evaluation) Locke and Blake realized, Newton has in fact done just that in an extraordinary genius-like way, even while, according to Blake, perverting the power of imagination and poetic genius. Now, Locke was a Newton among philosophers, to paraphrase Karl Grabo's description of Shelley as "a Newton among poets"—and hence a Blakean (and Blake-like) visionary Newton.[2] It would be difficult to properly address the momentous and well-known (although far from yet exhausted or even understood) implications of this link, of both of these links. It may be argued, however, that we can trace the genealogy of the confrontation, famously introduced by C. P. Snow, of the two cultures, scientific and humanistic, to Locke. In this case, it was conceived and perceived (by, it appears, Newton and Locke alike) as a meeting of the two cultures or indeed, at the time, as a meeting of two visions belonging to the same culture. It is another question whether Locke in fact managed (it would, I think, be difficult to argue that he did) to avoid making this meeting into the first confrontation. In other words, we here encounter a genealogy, which extends to Romanticism and beyond and then to our own modernity and postmodernity, of the broader subject of this issue of *Romantic Praxis*. I would argue that, even though more specifically concerned with Romanticism and chaos, the articles here assembled present (and represent) an irreducibly nonsimple and yet irreducibly non-synthesizable—heterogeneous interactive and interactively heterogeneous—juncture of these relationships between the two cultures, or perhaps more than two and less than one. Perhaps Romanticism was first to sense this type of complexity and to practice it within the culture of scientific modernity, that is, the modernity in which science plays an irreducible and constitutive—and, as Bruno Latour argues, constitutional—role, and there may be no other modernity.[3]

2. It is this complexity, manifest in Yoder's essay, that I would like to address here, extending the argument of (I hope) Yoder's and my own essay in this issue. I shall leave aside the differences, such as they may be, between our views, which are hardly commensurable with what is at stake in this complexity. I have next to nothing to criticize and much to welcome in Yoder's analysis and his reading of Blake. I would specifically like to mention that it manages to avoid the kind of problems that are often found in the work in the humanities, including those dealing with Romanticism and specifically Blake, which deploys mathematical and scientific ideas, especially quantum mechanics and chaos theory. Given my limit here, I shall restrict myself to two key points. The first is conceptual-philosophical and deals with the relationships between the simple and the complex, specifically with

the idea, found in Blake, among a few (but not many) others, that the complex always precedes the simple rather than arises from it, as, among many others, Locke wanted to believe. The second addresses the relationships between the humanities and modern mathematics and science from this perspective.

3. As Yoder's essay shows, the most fundamental difference between Locke and Blake is in their understanding of minute particulars (the simple) and how they combine into conglomerates (the complex). Now, the Lockean, analytical or philosophical, organization proceeds from the simple to the complex. This approach, or this dream, of reducing the complex to simple elements and analytically (re)tracing the organization of whatever system one considers has governed much philosophy (there are exceptions, from Heraclitus to Nietzsche, Deleuze, and Derrida), as well as mathematics and science (there are exceptions here as well). Ultimately, this program has failed and, as will be seen presently, may not ever be able to succeed, given the world we live in and the minds we think with. By contrast, in the Blakean poetic or visionary organization, the complex always precedes the simple (meaning this precedence in the pre-logical rather than ontological sense), and hence the complexity is irreducible. Every conceivable element (a term no longer applicable) or atom (this term is applicable insofar as it connotes indivisibility but not simplicity) of existence becomes irreducibly nonsimple. Minute particulars are (re)defined accordingly. Now this view may appear, and indeed is, paradoxical or impossible from the classical, such as Lockean, perspective. For Blake, however, that only means that we must change our perspective, redirect and reform our vision. Once we do so, this understanding becomes not only rigorous but, whenever necessary (for example, in mathematics or physics), also logical. Naturally, the specificity of this structure (of the complex preceding the simple) would be different in each case—Romantic or other philosophical epistemology, quantum physics, post-Gödelian mathematical logic, and so forth. Accordingly, different models (mathematical, scientific, or other) of this situation are possible, and their application, say, to Blake's work becomes subject to interpretive decisions, for example, between chaos theory and quantum mechanics.

4. As Yoder (correctly) argues, Locke senses these "contaminating" complexities. But, beyond the fact that, unlike Blake, he sees them negatively, he still appears to think—to dream—that we may explain the world, or the language (or the mind) through which we understand the world, in terms of reduction from the complex to the simple. Blake thought that a bad, Newtonian, dream, a nightmare, warping and perverting human vision, and as ultimately an impossible task in any event. On that latter point he proved to be right, at least, the way things (of the world and of the mind) appear to us now, as quantum physics, chaos theory, post-Gödelian mathematical logic, and several other theories teach us. These theories teach us the same lesson, which, as Imre Lakatos observes in the context of mathematics, "must strike any student of the seventeenth century as *déjà vu*," for example, a student of Locke (Blake, it follows, was a very good one) (14). The lesson is this: any attempt to trivialize or, as it were, "elementarize" language, even that of logic or mathematics, or the world, even that of physics, by reducing them to simple constitutive elements leads to a sophistication equal and sometimes exceeding that of the original situation. The (never) simple constituents reveal themselves as (ever more?) complex entities; the "simplest" elements look like the most complex global configurations imaginable; and so forth.

5. It cannot be surprising that such mathematical and scientific theories would apply in approaching Romantic text and praxis. This is inevitable and cannot be prevented or stopped, even if one wanted to do so, as some among recent critics of the uses of mathematics and science in the contemporary humanities would argue. As Niels Bohr argues, "The importance of physical sciences for the development of general philosophical thinking rests not only on its contribution to our steadily increasing knowledge of that nature of which we ourselves are part, but also on the opportunities which time and again it has offered for examination and refinement of our conceptual tools"(2:1). Which among such theories apply to a given figure, such as Blake, and how they apply is subject to complex

decisions—interpretive, conceptual, cultural, or political (including institutional)—and, accordingly, of intellectual and scholarly responsibility. It is worth keeping in mind, however, that, sometimes, a loose application of mathematical and scientific ideas (and even getting some of them wrong in the process) can be and has been effective in the humanities or even in mathematics and science themselves. Of course, it would be naïve to think that such models are conceptually and culturally independent of other fields of human inquiry or endeavor—philosophy, literature and the arts, or even politics—however differently this dependence manifests itself (sometimes as a relative independence). The following general point may be made, following Jean-François Lyotard's argument in *The Postmodern Condition*[4]). If one wants to understand human culture on the model of nature or mathematics, as has been customary throughout modernity, in the wake of Newtonian physics (the primary model of that type), one might also want to be more attentive to what nature (or science) and mathematics tell us. And they (specifically, quantum physics, chaos theory, modern analysis, algebra, and topology, and post-Gödelian mathematical logic) appear to convey to us a message very different from that of the Newtonian universe.

6. Nor is it surprising that such mathematical and scientific models would apply and, I would argue, work better than classical models in our attempts to understand the relationships—heterogeneously interactive and interactively heterogeneous—between the humanities (or social sciences) and mathematics and science. One could, for example, envision a "quantum-mechanical" matrix of these relationships, as suggested by my own essay in this volume. But they have other, for example, chaos-theoretical or quasi-Gödelian (undecidability) aspects to or perspectives on them as well, just as all these theories can and, ultimately, have been understood with the help of nonscientific models or considerations (even if their practice in mathematics and science need not depend on the latter). It does not appear likely that we will ever be able to disentangle these relationships, again, even if we wanted to. That is to say, we are unlikely to fully or ultimately disentangle them, since some disentanglement is not only desirable but necessary and even unavoidable. (Indeed our entangling capacities are not unlimited either.) This complexity is irreducible. It precedes any simplicity, and sometimes may inhibit our practice. But it is also productive, and indeed it follows that at bottom (and there is no ultimate bottom) nothing is possible otherwise, neither an interaction between different fields nor indeed the functioning of any single field, if any field, or indeed anything ever can be single or simple. Blake's and most of Romantic practice was predicated and took advantage of this impossibility, of the fact that nothing is possible otherwise. But it also converted it into immense possibilities, which, as Paul Yoder reminds us in closing his article, is how Blake sees the world. For the world is defined for him by the vision of genius, rather than that of mediocrity, except perhaps that we have, with the help of this vision, to rethink the very notion of mediocrity itself. Perhaps this is what Locke especially failed to do. It is not easy "To build the Universe stupendous, Mental forms Creating," as Blake urged us (*Milton*, Book the Second, 19-20). Nothing less than Milton's or Blake's vision and labor would do. But then, Blake tells us, this is almost the least, at least the most mediocre, we should all aspire to.

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Notes

[1] Donald Ault, *Visionary Physics: Blake's Response to Newton* (Chicago: University of Chicago Press, 1974).

[2] Karl H. Grabo, *A Newton among Poets: Shelley's Use of Science in Prometheus Unbound* (Chapel Hill, NC.: University of North Carolina Press, 1930).

[3] Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, Mass.: Harvard University Press, 1993).

[4] Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoffrey Bennington and Brian Massumi (Minneapolis, Minn.: Minnesota University Press, 1984).

Romanticism and Complexity

Theory and Practice: A Response to Arkady Plotnitsky

R. Paul Yoder, University of Arkansas at Little Rock

1. Arkady Plotnitsky's "Chaosmic Orders" and my own "Unlocking Language" demonstrate rather dramatically different approaches to problems in the work of William Blake. Plotnitsky's essay, as I read it, is essentially a study of the relationship between quantum theory, chaos theory, and literary theory, and Blake's work operates as the field on which these two theories most amicably meet. I think it makes for fascinating and breathless reading, as Plotnitsky draws into his view thinkers from Plato to Nietzsche.

2. My own argument is obviously less theoretical in orientation. It began as an attempt to answer some specific questions about Blake's *Jerusalem*: How might we account for the emphasis on expansion and contraction in the poem? How does that emphasis relate to the issue of scale, as in the opposition between the minute particulars and general forms? How were these issues related to the problems of language posed in the poem? And how might these questions relate to the critical denial of narrative in the poem, and to the different versions of "synchronic structure critics have posited? I began to look for a model that might help me to think about these questions.

3. The model I stumbled upon, fractals, is borrowed from chaos theory, and I am as surprised as anyone at how well it fits. Indeed, the model of self-similar patterns repeating themselves across an expanding and contracting scale turned out to be authorized not only by Blake's poem, but also by literary traditions with which the poet may be assumed to have been familiar. I do not pretend to be a mathematician or a physicist, and frankly, for me chaos theory is simply an interesting diversion. I am not so interested in the relationship between chaos theory and literary theory as I am in plundering chaos theory for an image with which to think about the problem of signification in *Jerusalem*. I have, in fact, deliberately avoided invoking Blake's use of the term "chaos" because I do not believe that his "chaos" is the same as the "chaos" of modern theory. Nevertheless, I do believe that the fractal model fits wonderfully.

4. Given the extreme ends from which we begin, Plotnitsky and I have reached remarkably similar conclusions. We both posit a system of expanding and contracting signification in Blake's work, what I call fractals, and what Plotnitsky, drawing from the language of photography, or calls "zoom". Indeed, the similarity between us is perhaps most clear in the similar language of two of our sources: I cite James Gleick's definition of a fractal as an "infinite line in a finite space"(Gleick 139), while Plotnitsky cites Leibniz as saying of the monad, "it finitely represents infinity." Plotnitsky is much better equipped than I to define the difference between a fractal and a monad, but as I see it, his conclusion regarding Blake differs from mine in that he finds a discontinuity between the levels of signification, between the levels of "zoom." Therefore, in his reading, Blake's system is not fractal. I agree that obviously the "meaning" of the serif on the letter "g" is not the same as the meaning of the word "give," for example, but I would still argue that the *structure* of signification is the same across the various expanding and contracting levels of the text, and so the structure of signification itself is fractal.

5. I do want to address two other points of difference between our arguments. First, at several points Plotnitsky suggests that infinite fractal reiterations would be monotonous, and I agree that this would be the case in many instances. However, given Blake's emphasis on the human form as the standard of iteration, such monotony is unlikely inasmuch as Blake's notion of the human form includes all human

experience. Blakean fractals, based on a human standard, would be no more monotonous than human life itself.

6. The second point I want to address is related to this issue of monotony. Instead of a single monotonous form as the standard for expansion and contraction, Plotnitsky suggests an embrace of the lawful and the lawless, like the one depicted on the title page of *The Marriage of Heaven and Hell*. This suggestion is complicated because as he describes it, the "lawless" is *not* an other in any absolute sense. Nevertheless, the image of an embrace would seem to depend on the continued existence of a binary system, a system of sexes, even after the awakening of Albion. We might wish for this to be so. Certainly it would allow us to avoid the perhaps uncomfortable (and to me evident) conclusion that Blake's originary man is in fact a "man," a male rather than a female. But Blake's characters explicitly confront this issue. The positing of such an embrace, the desire for the continued existence of such a binary system is the basis for Enitharmon's fear of annihilation at the awakening of Albion toward the end of *Jerusalem*. But Los responds that "Sexes must vanish & cease / To be" (92: 13-14), and after Enitharmon appeals to her sons for aid, Los tells them, "We shall not die! we shall be united in Jesus" (93: 19).

7. These differences in our conclusions may well be irreconcilable: self-similar fractals and radical organization forever locked in the embrace between the lawful and lawless that Plotnitsky describes. Heaven and Hell might wed, but they may never merge. Nor is it clear whether we should expect them to. The image on the final text plate (99) of jerusalem shows Albion embracing his returned emanation. Moreover, Blake's vision of Eternity at the end of the poem, where "we shall be united in Jesus," is characterized primarily by human conversation, the exchange of ideas that itself implies the tense embrace of mental fight. Everywhere in Blake's work is the tension between diversity and unity, from he early emphasis on the union of contraries to the Savior's assertion in Jerusalem that "Lo! we are one," and Albion's denial of that assertion, "We are not One: we are Many" (*Jerusalem* 4:20, 23). What Plotnitsky and I share is a recognition that at whatever level of "zoom" or fractal iteration we might choose, organization does occur. How does this organization occur? Where does it come from? Is it continuous or discontinuous with other levels of organization? These remain open questions.