Zero Reason, Infinite Need: a Note on the Calculus of *Lear*

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> *Energy is the only life and is from the Body; and*
> *Reason is the bound and outward circumference of Energy.*
> William Blake

The proposition set forth by Blake's diabolical genius in *The Marriage of Heaven and Hell* figures as inspired moral irony, uttered in a spirit of revolutionary prophecy. Essentially the same proposition, its second axiom in particular, is dramatized with uncanny precision in *King Lear*, conceived some 180 years earlier. In *Lear* one finds sharply pictured the notion of reason as both shaper and container, reason as the limiting agent of pure chaotic force. While the mood of Shakespeare's play is apocalyptic, it too is concerned with prediction and prophecy; it too develops an ironic cosmic vision, though it entails a darker, bitterer, more sardonic joke than the Romantic's reversal of angelic and devilish orders.

Act II, scene four, is the point at which Regan and Goneril "disquantity" Lear of his retinue. The audience does not actually see the dismissal of the knights but is present at the verbal rape of Lear's manpower. Certainly the two raptor children seem as unnatural as Lot's daughters, but they twist in the opposite direction: instead of lying with their father, they seek to unman him.

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We therefore watch these daughters taunt and tease, openly calculate, swiftly reduce the last vestige of the king's authority to naught.[1]

The entire calculus of Lear--that is, its choice of sign and symbol, its emotional economy, its computation of identity, its balance of proportion and disproportion, in a word, its *reckoning*--can be derived from this focal passage. For Regan and Goneril's heartless game leads directly to Lear's celebrated "O! Reason not the need" speech, and a close look shows that the passage that ends scene four is unusual in several respects. Not only does it touch on every major theme in the tragedy, so that it becomes a quick index to the play's main concerns, but it suggests at once the strongest vantage points from which to observe the action--those two extremes of perspective, irreconcilable, that determine the course of events. Most pointedly, the passage demonstrates the dramatic deployment of a numerical progression and number-words to suggest rational structures on the one hand, and a moment-to-moment shifting of the boundaries of reason on the other. Indeed, the most striking *formal* element in the passage is its controlled counterpoint of energetic word and rational number.

The section I have in mind runs from line 247 to line 284 (Arden edition, 1972), from Lear's "I gave you all--" to his final overwrought utterance before the storm: "but this heart shall break into a hundred thousand flaws / Or ere I'll weep. O Fool! I shall go mad." At its center is Lear's uttered "O!"--a single symbol that encodes three separate kinds of information. Quite literally, the "O" stands in the place of three separate signs, linked like three separate Graces into one round iconic form. The scene is organized in such a way as to draw a rational numerical perimeter around an intolerable intensity of feeling. The dramatist is using number, the prime instrument of Reason, to circumscribe and contain a dangerous explosion of Energy. We shall see that number so used, in conjunction with a certain kind of geometric structuring, functions as a retaining wall; it preserves the affective content in its pure undilute intensity. As a chalice may hold strong wine or strong poison, so the numerical structure acts positively to contain active feeling and to retain its initial potency. We are in a position now to look more closely at the arithmetical guideposts that lead into the "disquantity" passage in Act II, and then to open the lens, so to speak, to survey the structuring geometry of *King Lear*.

The orchestration of word and number first appears almost invisibly at line 131 with a proportion, a ratio of infelicity, that in itself predicts an equivalence between the sisters. We are shown an identity, in this sense, that will all too soon be confirmed as fact. Having left Goneril's house vowing never to return, Lear encounters Regan from whom he expects gratitude and hospitality. He exclaims,

Thy sister's nought: O Reagan! . . .

"Nought" is zero, spelled out, while the letter "O" to the right of the colon clearly indicates an ejaculation. And while the word *zero* occurs nowhere in Shakespeare, we can see that here and elsewhere the letter "O" provides both a graphic *and* a phonic representation of the cypher. It is significant, in this context, that textual comparison shows that the colon that stands between the word "nought" and the letter "O," at line 131, appears for the first time in the 1623 Folio.[2] But why should the absence of an apparently trivial element of punctuation in the earlier Quarto and its presence in the Folio be significant?

In company with recent scholarship (see for example *The Division of the Kingdoms: Shakespeare's Two Versions of "King Lear,"* edited by Gary Taylor and Michael Warren), Steven Urkowitz has argued persuasively that the author of the 1608 Quarto is the author of the revised play.[3] In the light of these investigations, one may entertain the likelihood that Shakespeare's choice of the colon here is an intentional emendation. If this indeed be so, the playwright is insinuating Sophoclean irony in a subtle, most elegant form--the form of the mathematical proportion. The audience--in this case the reader--is shown something in advance that the protagonist is only on the verge of discovering. Whether it is received subliminally or grasped quite consciously, the reader perceives an added dimension to Lear's "Thy sister's nought: O Regan!" The statement in the later Folio doubles as a prediction, for it graphically suggests a further meaning to Lear's expostulation:

"As G has proven worthless, so nothing worth will prove R."

Surely a question arises at this point as to how much meaning one may expect to extract from a colon. Though it projects the idea of a ratio, there is the possibility that the punctuation has been arrived at by chance rather than by choice. Is it mere quibbling (to use Dr. Johnson's word) to hang so much significance from a limb that consists of two vertically placed dots? These are considerations which will be addressed in the course of discussion. Certainly, we must consider the notion of microstructure, if briefly, before moving on to the passage in scene four which is our primary concern.

In his classic study of theological and a-theological elements in the play, *King Lear and the Gods*, William Elton underscored the importance of its structural devices. These constitute "a tacit commentary which the dramatist, operating *ab extra*, may legitimately introduce" so that, according to Elton, "juxtapositions . . . themselves may take on meaning."[4] Elton is referring to the grand structures of *Lear*, to the sequencing of dialogue and event, the *"liaison des scènes."* But as Angus Fletcher has brilliantly shown in the case of *Othello*, the playwright's tacit commentary may well extend to the microstructures of the play. That is, the playwright's shaping may be all-pervasive, touching anything and everything that may be shaped. Certainly, in the case of a

dramatist who is also a consummate poet--whom Dr. Johnson singled out as unable to resist the seductions of the *quibble*, or pun--one may expect elements of sequence and juxtaposition to be as meaningful, at times, on the level of syllable-play and letter shape, and in this instance a particularly speaking punctuation, as it is on the larger, more visible schematic surface.

It is precisely at this linguistic sub-level, at the level of particles, that Fletcher finds both the redeeming music and the fatal metaphysic of *Othello*. In one of his studies of that play, Fletcher points out that Shakespeare "Chooses one vowel, the O-sound, for continual linguistic transformation. He takes this initially meaningless phoneme, O, and gradually changes it into a more and more obviously meaningful morphemic unit, an O that 'means something.'"[5] The rapid proliferation of the "O" in the tragedy of the Moor becomes, for this theoretician, a register of tragedy itself. Starting with ideas of mere mortality, says Fletcher, the author "moves his play, and us, slowly toward a new perception, that Death itself is the only hero of tragedy. The phonemically meaningless O is transformed, by weaving iteration, into a perdurable sense. O is at last only a signature of unadulterated woe, pain beyond pain, dreadful loss."[6]

Fletcher at this point turns his attention to the production of the O-sound in performance, on stage. This aspect of the "O" as staged utterance, one should note, dovetails with Maurice Charney's attention to, his restoration of significance to, the "O-groans" in *Hamlet*. In a seminal paper, Charney reinvoked the dimension of the spoken element in performance. He sharply reminded textual scholars that the vowel functioned not only as a graphic sign meaningful within the text, but as a sound-in-itself meaningful to actors and audience: "Opinions about the O-groans seem to depend on what moves us in the theater, how we define dramatic poetry, and the way we conceive Hamlet as a dramatic character."[7] Charney underscored the singular un-quotability that parallels the emotional density of the O-sound in the plays:

> The O-groans are painful, not mellifluous, and this applies equally to Hamlet, King Lear, Lady Macbeth, Titus Andronicus and Falstaff . . . When rendered effectively on stage, they are disturbing without being quotable and belong naturally to the uncelebrated eloquence of Shakespeare's 'unpoetic poetry.'[8]

It is at this critical level of linguistic particles, of heard sound and fractionated elements, that we are now able to approach the passage in which Lear, as intensely as Othello, experiences his pain beyond pain, his dreadful loss.

As the action develops in Act II, scene four, Regan advises her father to apologize to Goneril and return to her for the duration of his month's stay. Lear's reply advances the numerical structure, the arithmetic "argument" of the scene. "Never, Regan. / She hath abated me of half my train," says Lear (156), calling upon number to defend his reason. In fact, Lear has evidently

disregarded Goneril's injunction to lessen his force by half, for following the entrance of Oswald and Goneril he may be heard to muse:

> I can be patient; I can stay with Regan, I and my hundred knights. (227-28)

However, Regan, counter to Lear's expectation, now proposes to her father to "mingle reason with your passion," and with that initiates the scene's fateful countdown. "What! fifty followers? / Is it not well? What should you need of more?" In Regan's line we see that *need* has been established as contrary to *reason*, just as "passion" has in the earlier speech. But the game is just begun and the term "need" will reappear in the mouth of each one of the three participants before the grim farce ends. Almost immediately, Regan chops "so great a number" in half. Should Lear come to her, he is to "bring but five-and-twenty; to no more / Will I give place or notice" (246-47). And Lear says,

> I gave you all--

I shall do no more than draw attention here to the quiet accumulation of absolutes as the dialogue gains speed--*nought*, *never*, *all*--absolutes that resonate, re-sound those framing the tragedy: the five "nothings" of Act I, the five "nevers" of Act V.[9]

The collaboration between word and number grows more marked as the scene progresses. Lear decides to abjure Regan and her five-and-twenty and turns back to the daughter he has cursed: "I'll go with thee," he tells Goneril,

> Thy fifty yet doth double five-and-twenty
> And thou art twice her love. (257-58)

Notice the dimension of double meaning built into Lear's "double" at line 257, its sense of duplicity and collusion, its hint of the sisters' identicality, their innate doubleness. The ratio we saw earlier is swiftly coming to proof; one sister is worth the same as the other. Nought doubled yields twice as much nothingness, and the self-same quantity, all at once. The sisters, now unbraked by decorum and harnessed to a chilling logic, respond by speeding up the process of subtraction:

> Gon. Hear me, my Lord.
> What need you five-and-twenty, ten, or five,
> To follow in a house where twice so many
> Have a command to tend you?
> Reg. What need one?
> Lear. O! Reason not the need. . . . (258-262)

Lear's "O!" at the opening of line 262 is the beginning of the anguished speech that brings the scene virtually to its close. But in an examination of the interplay, in *Lear*, of word and number-word, one must pause here and mark that the letter "O" at this point is central. Following hard on Regan's "What need one?" as the terminus of the preceding line, the letter "O" becomes as complex a semiotic device as can be construed in a single symbol. How is the reader to read it? How is the actor to voice it? What specific value should be assigned to each of the three radials of meaning it suggests? Consider the possibilities:

1) As part of the numerical structure of the scene, "O" unavoidably carries the abstract mathematical sense of "ought" or "nought": *zero.*

2) As it marks the peak of an intense emotional crisis, the vowel represents a howl, one of the well-known Elizabethan "O-groans" indicating agony of spirit.

3) As part of the larger structure of the drama, Lear's "O!" signals the exact moment of *anagnorisis* in the tragedy, and the pivot of its tragic reversal, the *peripeteia.* Hazlitt found the third act of *Othello* and the first three acts of *Lear* to be "Shakespeare's great master-pieces in the logic of passion." Surely King Lear's initial "O!" at line 262 records the moment of horrid revelation, of damning insight, that critical point at which the protagonist cannot but grasp the truth of his situation--and the totality of his loss. It means "O! I see!" And from that point on, for Lear, all is changed.

More information is thus compressed, like a microchip, within the symbol "O" at this juncture than a single letter may be expected to hold. In *King Lear* however, such triple-threat coding is not only probable but necessary, for the separate waves of meaning that ripple out from the "O" connect the microstructures of this scene to the larger geometric framework of the tragedy. As Fletcher observed, "In *Lear*, 'nothing' is the generative term," and the circle of "nothing" is indeed pregnant with dramatic meaning in *Lear.* In its arithmetic character, *nought* is the most abstract of the play's circular images. But we shall see, in its capacity as a positional notation or "holding place," the algorist zero contains a built-in contradiction. As for the *word* "nothing," it too propagates a healthy paradox in this play. In short, the circle of nothing does more than symbolize the absence of quantity, signify absolute zero; "nothing" in *Lear*--from Cordelia's first utterance of the term--holds within itself the qualitative absolute "all."

But the "disquantity" passage does not end with Lear's "O!" The velocity with which Regan and Goneril reduce his "century" of men (and, we suspect, his full span of years) continues to increase after the zero point is reached. Frustrated, stripped of illusion, harried beyond the threshold of restraint, Lear breaks into the impassioned speech that ends, as the external storm approaches, with a tremendous acceleration into the irrational, an infinite breaking and cracking, an endless fractionating regress into negative number and the void. The final words are a premonition of madness:

I have full cause of weeping, [Storm heard at a distance.]
but this heart
Shall break into a hundred thousand flaws
Or ere I'll weep. O Fool! I shall go mad. (281-84)

The king's fortunes are inventoried at line 291 in Regan's final, unconditional ruling: she will receive her father, "But not one follower." Not one.

The letter-coding in the lines shown immediately above (281-84) repays careful notice. Double vowels and doubled consonants predominate. The two "-ll's" of "full," "I'll," "Shall" and "shall" indicate a liquid sound, the soft moan originating in the throat. For the reader of the scene they graphically suggest two identical figures standing side by side, two "I's." Indeed, from Lear's initial "O!" to the final "mad," the letter-play reinforces our sense of double-dealing, blindness, loss. As in *Othello*, the o-vowel proliferates. One is struck by the double-o's of "poorest," "poor," "fool," and "O Fool!" peering like Gloucester's blind eyes from the text, and it is hard to escape the echoic doublings in "weep," "weep," "weeping," weep," and especially in the reiteration of the word "need." The sisters' tacit complicity has reduced their father to the status of a dependent. Both literally and figuratively they have "unmanned" him and, by virtue of the "woman's" tears he would not shed, Lear, in his own mind, is unsexed. The multiple letter doublings throughout the passage serve to cryptically underscore his daughters' duplicity and their identical aims.

The passage, as noted earlier, indexes every major concern in the play--and there are many. Lear's "O! Reason not the need" speech is resonant with themes of home and homelessness, broken filial decorums, calculated behavior and rhetorical flight; themes of human weakness, denial, blindness, age, madness; of arrogance, vengefulness, bestiality and greed; themes of appearance versus truth, being clothed and being stripped. Lear's speech touches on the King-as-Fool, Nature and the unnatural, kind and unkind, and the topos of world-upside-down. It rings forth notions of value: currency and exchange, financial and emotional equivalencies. At the last, Lear's calling upon his Fool in conjunction with a breaking *heart* poignantly suggests the presence-in-absence of Cordelia, the loved and loving child, whose very name intimates heart (*cor cordis*) and bond (cord), and the medicinal, healing effect of a cordial. Each one of these themes fits somewhere into place between the quiet pole of reason and the unquiet pole of need.

The scene we have been examining stands forth as probably the most elegant model, the most sharply-etched example of a dramatic schema in which an otherwise uncontainable intensity of emotion is enclosed, hedged about, actually supported by number--and surrounded by a more remote constellation of cosmic absolutes. It becomes evident, too, that this particular scene develops an independent drama of inverse ratio. As Fortune's Wheel describes a half-turn in *Lear*, as poor, forked, unaccommodated man may be stripped and stood upside-down, so in this scene are things pulled inside-out.[10] As his

external forces are decreased, Lear's fury increases. The surge of internal energy--"negative" emotion, rage and the desire for retribution--grows in inverse proportion to the lessening of external power. And, as the opposed plate movements of a geological fault must eventually result in massive tectonic upheaval, so Lear must crack. The division of the kingdom has become the division of the king, separated from his men, from his daughters, from his reason.

From the standpoint of the protagonist, however, the dialectic of the passage entails a quick, simple retrogression as energy converts from external power to internal rage. The numerical structure of the scene in question, and Lear's progress into negation, can be expressed arithmetically as a progression into negative number:

+ 100 . . . 0 . . . - 100,000

What began with Regan's proposal to reduce the king's bodyguard by half moves from the positive integer 100, Lear's original "century" of knights, through the zero point "O" at the opening of his speech, to the "hundred thousand flaws" at its close. This last is a number that indicates transfinite negation: Lear's heart is breaking into ten-fold myriads, i.e., countlessness beyond mere uncountability. In the Hindu-Arabic notation (above) it can seen as minus-one followed by five zeros, a series of *five nothings*. In sum, it would appear that the center of the arithmetic progression, the central emotive point of scene four, and the turning point or peripety of the play--all three--can be located in the "O" at line 262.

Zero, Circle, Sphere

The geometry of *Lear* is round. Its plot, germinated by dark amorality, continues to swell and grow "round-womb'd" as Edmund's unwed mother. Its world view anticipates Vico, involving great cycles of history. Its dramatic continuum is as curved as Einsteinian space-time; at its end an old man has grown boy: "Pray you, undo this button" (V. iii. 308).[11] Its action, focussed at the beginning on what may well have been a round map,[12] spirals like a vortex toward an elegiac finale. Coleridge, in fact, compared the action of *King Lear* to "The hurricane and the whirlpool, absorbing while it advances," while Hazlitt likened Lear's embattled mind to a "sharp rock circled by the eddying whirlpool that foams and beats against it." Included in the play's circular imagery is the identifying ring Cordelia gives to Kent, the wheel of impenetrable Fortune, the "sacred radiance of the sun," and the sphere of fixed stars, remoter "orbs / From whom we do exist and cease to be" (I. i. 110-111). The most abstract of the play's circular images, as noted earlier, is the cypher zero. Paradoxically, the "nought" signifies both emptiness and fullness, absence of quantity and potential presence. We are presented with its most

negative aspect when the Fool calls his master "an O without a figure" (I. iv. 189). But the algorist function of zero as a "holding place" strengthens the positive aspects of circularity in the plot. This particular use of nought as zero, which first entered English schoolbooks during Shakespeare's boyhood, projects a far more complex concept of "nothing" than notions of absence or nullity. It refers to *potential presence*, just as the zero in the "tens" or center column of the number "103," for example, has no numerical value in itself but holds the place open for a digit that does express a numerical value.

The mathematical use of zero as a holding place relates to the theme of presence-in-absence that runs like a silvery thread through the whole action of *King Lear*. It explains the peculiar economy of the Fool/Cordelia exchange (including the practice of both parts being played by the same actor), and it also has a bearing on the more obvious correlation of insight to blindness in the roles of both Gloucester and Lear. The "place" that is vacated by Cordelia is filled immediately by the Fool, and when Cordelia returns the Fool disappears. As Lear mourns Cordelia's death by observing "my poor fool is hanged!" we cannot help but mark the correspondence--whether we watch the play performed or read the text. But as William Empson noted with some vigor in his remarkable little study of the Fool in Lear, "the point is not that they are alike--it is shocking because they are so unlike--but that he must be utterly crazy to call one by the name of the other."[13] Just so, the cypher betokens nonentity and identity; it signifys "nothing" yet holds open the place for an entity shockingly unlike itself--a digit that, as Fletcher put it, "means something." The blindness/insight correlation is less riddling. For Gloucester only perceives the truth after he is literally blinded. He "sees" his own ignorance and the dark motives of those about him. Lear, figuratively "blinded" to the facts, similarly sees it all when he is reduced by Regan and Goneril to what his Fool calls him: "an O without a figure." These refractions of the algorist zero into the very structure of the plot, taken together with the formal composition of the "disquantity" passage, urge a reconsideration of Shakespeare's use of number--not in terms of caballistic or Pythagorean mystical symbolism, but as a practical, living component of dramatic language.

By way of contrast, and to supply necessary background, I should like to draw attention to a recent study of *Lear* by Brian Rotman, whose training is in mathematics. In *Signifying Nothing: The Semiotics of Zero* (St. Martin's, 1987), Rotman is chiefly interested in showing a relation between what he calls "meta-signs": the zero as an indicator of absence, the "vanishing point" in perspective studies, and "xenomoney," or currency that is based on paper. He is not interested in showing the zero as a conveyor of potential presence, or in exploring the cypher in its capacity to project ambivalent meanings. Rotman usefully discriminates between simple iterative counting and the use of number in more sophisticated mathematics. He traces the entrance of the zero into European systems of computation, expands on the conflict between "abacist" and "algorist" methods of computation, and is able to suggest the source of

Shakespeare's training in elementary mathematics. Both Jonson and Shakespeare, he points out, "were in the first generation of children in England to have learned about zero from Robert Recorde's Arithmetic, which bases itself on a strange pedagogical mixture of the new decimal notation and the old abacus manipulations."[14]

In his approach to Shakespeare's *King Lear*, however, Rotman pursues a single-level "semiotics" reading of zero as the evil genius of negation--Albany's "Most monstrous! O!" For Rotman, the play "not only explicitly and obvious concerns itself with a certain sort of horror that comes from nothing, but which less obviously . . . locates the origin of this horror in the secular effects and mercantile purport of the sign zero."[15] Rotman's reading of the "disquantity" passage deductively arrives at the zero balance required by double-entry bookkeeping, but stops short at Lear's "O!" From Regan's "What need one?" Rotman deduces that the king "arrives at zero," and concludes that "the language of arithmetic, in which the train of followers is counted down, and in which the Fool articulates the loss of Lear's kinghood as the thing reduced to zero, becomes the vehicle and image of the destruction of Lear's self and natural love."[16] This is, of course, perfectly orthodox interpretation and Rotman's juxtaposition of secular and emotional currencies is wonderfully valid for Lear, who, in not so sweet sessions of remembrance, will "heavily from woe to woe tell o'er / The sad account of fore-bemoanéd moan."

The point to be made is that the "destruction of Lear's self" and the loss of Regan and Goneril's "natural love"--that is, the loss of *arrogations* of identity, power, love--do indeed produce for Lear the empty space. But it is precisely in this vacuum that something positive develops. Indeed, it is almost a critical cliche to observe that it is only in the space emptied of egocentric delusion that the devastated king is finally able to recognize the value of Cordelia's love, where he acquires a sense of common humanity, the tenderness he extends to poor Tom, the humility and love he will bring to Cordelia. This is not to argue that *Lear* is a redemptive morality play, but to recognize that the circle of zero in it signifies more than Rotman's "ur-mark of absence." It is to see that the empty space in *Lear* is a locus of transformation.

Clearly, a single-level semiotics reading fails to register the complexity of the "conceit" involving the play's circular images, nor can it capture the ambivalence present in the play--an ambivalence that has marked also the reception of the zero since its appearance in Western systems of accounting. This is hardly the place to survey the progress of the cypher from Hindu to Arabic mathematics, through its induction into 13th century Europe by Fibonacci and his less brilliant, perhaps, but far more mysterious contemporary, Johannes *Nemo*rarius (Lat. *nemo* for *no man, no one, nobody*), until it jumps into the occupancy of the "empty set" some six hundred years later. We can note in passing that Gottlob Frege, in *The Foundations of Arithmetic* (1884) continued the cypher's history of ambivalence. After observing, during his meditations on the "logico-mathematical" concept of number, that "the

charm of arithmetic lies in its rationality,"[17] the great mathematician and logician embedded the science of number, charmingly, in a paradox--recursively founding the whole structure on the cypher. To be precise, Frege famously defined nought as "the Number which belongs to the concept 'not identical with itself,'" remarking at the same time that "some may find it shocking." He then defined the number one as that number which belongs to the concept "identical with zero."[18] Thus Frege continued, in the nineteenth century, the contradictory status that the zero had traditionally enjoyed in Western thought: The theological doctrine that God's Word created all that exists *ex nihilo* stood contrary to the widespread classical principle: *ex nihilo nihil fit*, or, as Lear tells Cordelia, "Nothing will come of nothing."

The complex character of the figure "O," which is also the negative "O without a figure," can shed some rational light on the positive and negative circularities in *Lear*. Cordelia's ring is the play's manifest token of presence-in-absence. As a device, it serves to establish Kent's true identity and Cordelia's absolute integrity. It is the agent that summons her physical return to the stage, to the scene and her father's side--but also to her undoing. The ring that symbolizes unity, a shared oneness, also predicts the shape of the hangman's noose; the cord of filial attachment changes into the cord of death. Similarly, in the first Act, the sphere of light, the "sacred radiance of the sun," of Lear's damning invocation, is immediately darkened, so to speak, by his call to the "mysteries of Hecate and the night" (I. i. 108-9), and, it may be, by the presence of the new moon, the round of blackness. The wheel of blind Fortune that strips Lear of the last of his powers turns on his enemies as well. As Edmund tells his vindicated brother, "The wheel is come full circle" (V. iii. 173). Edmund, Goneril and Regan flourish only briefly and all three lie dead at the end. We are returned at the last to the great "orbs" of the first act, "from whom we do exist and cease to be." One feels shaken at the close of a performance of *King Lear*. One feels like Prospero at the end of *The Tempest*, that the theatre of action,

> the great globe itself,
> Yea, and all which it inherit, shall dissolve.

And yet, one leaves the Globe Theatre after the show and walks out into another larger world. The "orbs" in *King Lear* seem also to exist "outside the action" proper, as the remotest principles of causation. Perhaps they reflect a Lucretian nature of things and the notion of impersonal divinities. Or perhaps they suggest the mathematical notion of the godhead that Borges traced from the presocratics in his wonderful essay, "The Frightful Sphere of Pascal." In the 15th century, Rabelais was one of those who framed the idea anew, putting the words in the mouth of his sybilline priestess: "God is like an intelligible sphere whose center is everywhere and whose circumference is

nowhere." In the final scene of *Lear*, when the old order is gone, when the howls, the despair, and the suffering give place to silence, the remoter powers and larger cycles remain in force. In the face of apocalypse the remaining actors stir with activity; they are preparing to leave the stage, to vacate the premises, to reduce the number, with good reason, to zero.

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Notes

1. William Elton points out that Regan and Goneril respect material wealth and physical strength. Their "contempt for their father," he adds, "is partly involved with their criterion of natural potency." See *King Lear and the Gods* (San Marino, California: Huntington Library, 1968) 121.

2. According to Vietor, the colon that appears in the Folio of 1623 is not present in the 1608 Quarto. See Wilhelm Vietor, *King Lear: Parallel Texts of the First Quarto and the First Folio* (Marburg, 1892) 70-71.

3. Steven Urkowitz, *Shakespeare's Revision of King Lear* (Princeton UP, 1980) and *The Division of the Kingdoms: Shakespeare's Two Versions of King Lear*, eds. Gary Taylor and Michael Warren, in *Oxford Shakespeare Studies* (Oxford UP, 1987).

4. Elton 329.

5. Angus Fletcher, "The Black Swan and the Bewitching Bedfellow: on *Othello* and the Criticism of its Author," delivered at the Shakespeare Symposium, Graduate Center of CUNY (Spring, 1981) 14.

6. Fletcher 16.

7. See Maurice Charney, "Hamlet's O-groans and Textual Criticism," in *Renaissance Drama* NS.9 (1978): 109-119.

8. Charney 118-19.

9. In this context I should like to draw attention to William Empson's discussion of the word "all," in *Paradise Lost*, in *The Structure of Complex Words* (Ann Arbor: U of Michigan P, 1967) 101-104. The same study also contains Empson's notable chapter on the Fool in *Lear* (see 126-156).

10. For a good discussion of the "world-upside-down" topos in the play, see Joseph Wittreich's *"Image of that Horror": History, Prophecy, and Apocalypse in KING LEAR* (San Marino, California: Huntington Library, 1984), see 68-74.

11. Of this scene Charney remarks: "King Lear's O-groans in the Pied Bull Quarto of 1608 have . . . vanished from modern editions, although in context they have a brute force very apt for the old king's final burst of energy before he dies: 'O thou wilt come no more, neuer, neuer, neuer, pray you undo this button, thanke you sir, O o,o,o" [V. iii. 307-8]. Quarto 2 (1619) has a string of five "O's" here, whereas the Folio text has five "nevers" and no "O's."

12. It seems likely that the "prop" map will have been inscribed upon a scroll. The scroll, however, may have contained a round *Mapa Mundi*, or it may have been fashioned on the design of the medieval "T-in-O" map—a circular world already divided into three sections. For a description of the "T-in-O" map, see *Geography and Literature: A Meeting of the Disciplines*, eds. William E. Mallory and Paul Simson-Housley (Syracuse UP, 1987) 149, 165-67. I am

indebted to Professor Thomas King and Professor Steven Urkowitz, both, for their conjectures and suggestions on this point.

13. Empson, "Fool in Lear," in *The Structure of Complex Words* 152.

14. Brian Rotman, *Signifying Nothing: The Semiotics of Zero* (New York: St. Martin's Press, 1987) 78. Also see Carl B. Boyer on Robert Recorde in *A History of Mathematics* (Princeton UP, 1968) 317 ff. On page 319 of Boyer's discussion is a facsimile page of Recorde's text-book, as well as a number of the arithmetic symbols--such as parallel lines to indicate equivalence, a long "equals" sign--in use in Shakespeare's 16th century England.

15. Rotman 5.

16. 83.

17. Gottlob Frege, *The Foundations of Arithmetic: A logico-mathematical enquiry into the concept of number*, tr. J. L. Austin, rev. ed. (Northwestern UP, 1980) 115. (The original publication was in 1884.)

18. Frege 87, 90.