

## ***N* Tropes for Entropy in Pynchon's Early Works**

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1

When Pynchon republished all but one of his short stories in *Slow Learner*, he severely criticized most of his early texts. Among the stories which find no grace in the eyes of their author is "Entropy." The reason Pynchon gives for his "bleakness of heart" when he has to look at this story is that it was a mistake "to begin with a theme, symbol or other abstract unifying agent, and then try to force characters and events to conform to it" (12). He points out that he had read Henry Adams and Norbert Wiener, and that "the 'theme' of the story is mostly derivative of what these two men had to say" (13). The theme of the story is, of course, entropy, and in this essay I argue that Pynchon's perspective on the concept changed considerably after "Entropy" was published, and that this development has not yet been fully appreciated in Pynchon criticism.

The argument in "Entropy" is indeed very close to the evaluation of the physical principle as explained by Wiener. In *The Human Use of Human Beings*, Wiener argues that the inevitable tendency of nature toward disorder and the ultimate heat-death of the universe is evil (he uses the image of the Augustinian devil to specify the form of evil he refers to) while negentropic activities like the creation and processing of information are good because they help keep entropy at bay, if only temporarily. (In his account Wiener successfully promoted his own new field of science, cybernetics.) He persistently argues that life-imitating machines in particular are a valuable asset in the perennial fight against entropy. It is striking, though, that his examples of negentropic machinery are frequently military. In fact, war appears to be a driving force toward the perfection of a cybernetic world when Wiener claims that "a new war will almost inevitably see the automatic age in full swing within less than five years" (218). Furthermore, he occasionally fails to distinguish among genres of technology: for example, he writes indiscriminately about the "successful inventions of the steam engine, the steam boat, the locomotive, the modern smelting of metals, the telegraph, the transoceanic cable, the introduction of electric power, dynamite and the modern high explosive missile, the airplane, the electric valve, and the atomic bomb" (63) to point out the revolutionary

changes within the past few centuries.<sup>1</sup> Pynchon was hardly likely to pass lightly over these elements in Wiener's text.

In addition, Wiener's account of negentropic enclaves of order raises a crucial problem. Within highly dissipative processes, that is, processes which occur in a situation of great energetic imbalance, order can appear spontaneously out of chaos. As our world is, for the time being, a place where such processes are fueled by vast amounts of energy from the sun, we experience natural growth (and possibly evolution) which tends to be directed toward an increase in complexity. But this order does not come free; it results from an enormously greater increase of entropy caused by the infusion of energy into the enclave of order. Then again, order can appear from disorder, because the law of entropy is only statistically valid. There is always the infinitely small chance that order may result from the Brownian movement of particles or from any other random process. This possibility may be the basis for the "anarchist miracle[s]" (CL 120) which appear in some of Pynchon's texts, for example, the "historic moment" of the Duke di Angelis quartet in "Entropy" (SL 94) or the dance of the deaf-mutes in *The Crying of Lot 49* (131-32). But the willful creation of artificial enclaves of order within a system is irrevocably linked to an increase of entropy in the system. Thus the creation of life-imitating machines may produce a local enclave of order, but the price one has to pay for it is a distinctly larger loss of available energy or order elsewhere, and the overall entropic process is sped up rather than slowed down. This fact was already an issue for Adams, whose law of acceleration describes the exponential increase in the expenditure of energy in the course of technological development (Adams 489-98).<sup>2</sup> Again, Pynchon could hardly have failed to notice this crucial problem raised by Wiener's text, and it gains significance in the course of Pynchon's work.

Nevertheless, "Entropy" still shares Wiener's perspective on and evaluation of order and disorder. In both Callisto's and Meatball Mulligan's apartments the tendency toward disorder and chaos is inevitable. But while Callisto's attempt to bring the natural process to a complete stop turns out to be futile<sup>3</sup> and leads to the gloomy image of "darkness and the final absence of all motion" (SL 98), Meatball's work will for some time counteract the ultimately inexorable process and thus offers the possibility for the party to go on for a while. Between the extremes of permanent order, which is impossible, and maximum entropy, which is fatal, is the enclave of human life in which the negative forces have to be constantly battled in a heroic but doomed struggle with Mother Nature.

However, while the story affirms Wiener's evaluation of entropy as dangerous and of order as, in principle, necessary and thus good, a (still

rather mild) attack on his equation of life and life-imitating machines is embedded in it. The quarrel between Saul and his wife hinges on the question whether machines can resemble human beings and vice versa. Promoting the negentropic potential of life-imitating machines, Wiener claims that “such words as life, purpose, and soul are grossly inadequate to precise scientific thinking” (45)<sup>4</sup> because they blur the distinction between natural and artificial processes, between living organisms and inanimate machines.<sup>5</sup> But these words are highly significant in literature, and thus Saul’s argument about communication theory is seriously flawed. When he explains the concept of noise, he uses as his example the sentence “I love you”:

“No trouble with two-thirds of that, it’s a closed circuit. Just you and she. But that nasty four-letter word in the middle, *that’s* the one you have to look out for. Ambiguity. Redundance. Irrelevance, even. Leakage. All this is noise. Noise screws up your signal, makes for disorganization in the circuit.” (90–91)

Saul evokes a closed system; like Callisto, he tries to overcome entropy—in this case the loss of information. He uses the terminology of engineering again to explain the problems of marriage: “You never run at top efficiency, usually all you have is a minimum basis for a workable thing” (91). In Saul’s argument the word “love” marks the excluded middle, which, as we will see later, is “bad shit” (CL 181). But the elimination of the noisy word would also destroy the connection between the I and the you; the result would be the expression of difference, a binary system of unrelated positions. Moreover, Saul extends the specific term “redundance,” and adds irrelevance and ambiguity to the defining features of entropic utterances.<sup>6</sup> Irrelevance is an important quality of common language, though, and Meatball’s reaction to Saul’s explanation is a good example of “well-meaning social noise” (Freese 413). Moreover, the introduction of ambiguity strikes a different, even more significant note. According to William Empson, “the machinations of ambiguity are among the very roots of poetry” (3), and it is almost an understatement to proclaim that Pynchon makes extensive use of ambiguity (Schaub). To eliminate ambiguity not only would abolish the connotative aspect of almost all human language, but also would decrease the informational content of messages and destroy the equivocal overdetermination which creates the polyvalent potential of poetic language. Art is in itself negentropic,<sup>7</sup> and hidden in the names in Pynchon’s story is a celebration of this quality of creativity.

Peter Freese points out that Callisto in Greek means “the most beautiful” (415) but leaves it at that. I think it is possible to move one step further. “To the most beautiful” was inscribed on the golden apple which Eris, the goddess of discord, rolled to the feet of Hera, Athena and Aphrodite when she was not invited to Peleus and Thetis’s wedding,<sup>8</sup> the apple which led to the quarrel among the goddesses and ultimately to the Trojan War. The movement from happiness, harmony and beauty to strife, war and destruction resembles the entropic movement from order to disorder. The same movement, albeit on a smaller scale, can be found in the meaning of the name Aubade and the necessary parting of lovers at dawn. However, both names also refer to the transformation of these entropic processes into art—the Homeric epics and the troubadour’s dawn-song—and thus to a new form of order and harmony brought about by creative human work. Callisto’s and Aubade’s attempt to halt the entropic process may have failed, but the story of their failure may temporarily succeed where they have not, that is, in creating an enclave of order.

This reading of “Entropy” does not differ significantly from most other interpretations. (Freese has convincingly rejected the identification of Callisto’s position with Pynchon’s view [416]; Pynchon’s own critique of the story also renders a close identification between him and a character extremely unlikely.) But a problem arises if the evaluation of and perspective on entropy as presented in the story are taken to be paradigmatic of Pynchon’s novels, that is, if one claims that “Callisto anticipates Herbert Stencil and lays the groundwork for all of Pynchon’s subsequent works” (Plater 54). I argue that in Pynchon’s novels as well as in “The Secret Integration,” order in human affairs becomes increasingly negative and even menacing, while entropy appears as an ultimately destructive yet necessary process by which new energy can be released within a system and which may thus be instrumental for the rejuvenation of society. Rigid order and maximum entropy are complementary, two sides of one coin, while life takes place on the interface between the extremes in a continuous process oscillating between the creation and destruction of order.

2<sup>9</sup>

On the last page of *V.* the puzzle of how Sidney Stencil, Herbert’s father, died is solved:

Draw a line from Malta to Lampedusa. Call it a radius. Somewhere in that circle, on the evening of the tenth, a waterspout appeared and lasted for fifteen minutes. Long enough to lift the xebec fifty feet, whirling and

creaking . . . and slam it down again into a piece of the Mediterranean whose subsequent surface phenomena—whitecaps, kelp islands, any of a million flatnesses which should catch thereafter part of the brute sun’s spectrum—showed nothing at all of what came to lie beneath, that quiet June day. (492)

The passage moves between mathematical precision and vagueness. The duration and the course of the event are presented with the exactness of an experiment, while the time and place of the disaster are far less clearly defined. The fatal waterspout is the final image of a text which constantly oscillates between polarities, among the most important of which are chaos and order, randomness and determinism. In the motif of the waterspout the polarities coincide. The behavior of the physical phenomenon appears chaotic when viewed from the inside: its genesis is governed by unpredictable causes, and the individual particles move in random paths. Nevertheless, it appears as a well-defined and orderly structure when viewed from a distance. Order and disorder are different aspects of the same process.<sup>10</sup>

This description is also a good summary of Sidney Stencil’s own concept of history as a succession of constellations he calls Situations:

The Situation is always bigger than you, Sidney. It has like God its own logic and its own justification for being, and the best you can do is cope. . . .

Don’t act as if it were a conscious plot against you. Who knows how many thousand accidents—a variation in the weather, the availability of a ship, the failure of a crop—brought all these people, with their separate dreams and worries, here to this island and arranged them into this alignment? Any Situation takes shape from events much lower than the merely human. (483)

The Situation is governed by accidents, randomness and chance—little wonder that all three causes given in the passage (weather, harvests and maritime travels) belong to the vast field of unpredictability and Dame Fortune’s intervention—but it appears in a guise which suggests a conscious plan and a hidden intention. In consequence of his own concept of history, Sidney Stencil dies in a Situation.

This dichotomy of chaos and order appears in the novel in various motifs and images, and the question of whether history and human life are governed by a plan or by chance is omnipresent. *V.* thus raises a question also posed in Thornton Wilder’s *Bridge of San Luis Rey*: “Either we live by accident and die by accident, or we live by plan and die by plan” (9). Wilder’s text offers clues to both alternatives: it

evokes a “series of coincidences so extraordinary that one almost suspects the presence of some Intention” (8), but also links all the characters somehow to a woman with the distinctly dangerous name Perichole.

In V. the polarities are personified. Herbert Stencil represents order and the suspicion that history is governed by a master plot, while Benny Profane, the schlemihl who takes but never gives back, lives without a plan and moves wherever the forces that be happen to lead him, until he finally declares, when asked about his experiences, “I haven’t learned a goddamn thing” (454). But Profane makes this final declaration in Malta, and he has reached the island in the company of Stencil, whose path he had crossed several times before. Ultimately, the determined search for the enigmatic woman V. and random movement lead to the same point: order and chaos coincide once more.

The motive for Stencil’s search for V. is an entry in his father’s journal: “There is more behind and inside V. than any of us had suspected” (53). This sentence will turn out to be literally true when V. is disassembled by the children on Malta and Fausto observes what, in fact, is inside her. William Plater and a host of other critics argue that “V. becomes a symbol of the world’s closed system, with its increasing disorder and tendency toward an inanimate stasis” (Plater 22).<sup>11</sup> But this claim fails to take into account that V.’s assimilation of inanimate matter into her body does not indicate decay, but rather evokes the life-imitating machines that Wiener hailed. The text is riddled with examples of Wiener’s negentropic technology, ranging from the weird Fergus Mixolydian’s invention of a “sleep-switch,” which turns him into “an extension of the TV set” (56), to the dummies SHOCK and SHROUD, who tell Profane they are “[n]early what you are. None of you have very far to go” (286). All these images drive home Pynchon’s crucial point against Wiener’s unreserved promotion of life-imitating—and frequently destructive—machinery: that all you gain by paying the price of an overall increase of entropy for creating an artificial enclave of technological order is one more piece of negentropic death. Later, in *Gravity’s Rainbow*, the rocket symbolizes this principle as “an entire system *won*, away from the feminine darkness, held against the entropies of lovable but scatterbrained Mother Nature” (324), a grail that will never restore life, a negentropic system of death and destruction.

Accordingly, V. does not die because her supply of energy is depleted; she is killed in an air raid. And this attack is actually carried out by the Luftwaffe, indicating that V. is killed by the rigid and deadly order of fascism she herself adhered to for most of her life. The raid exemplifies the principle V. symbolizes: a system of rigid order tries to

maintain itself by the increase of destruction and entropy elsewhere. In this case the smaller system V. is swallowed up and sacrificed in the process of preserving the order of a larger system, fascism.

Order and entropy are complementary tendencies of all organic processes, deadly in their extreme forms but temporarily life-sustaining in the continuous, if ultimately terminal, oscillation between the creation and destruction of order which takes place in all organisms. The preference of one over the other will lead to an imbalance and speed up the loss of energy within the system, and life will come to a premature end.

The most obvious example of such a coincidence of opposites occurs in Vheissu (one of the notorious V-words), the land where Hugh Godolphin experiences and finally flees from complete disorder as represented by its maddening colors and shapes: "As if you lived inside a madman's kaleidoscope. Even your dreams become flooded with colors, with shapes no Occidental ever saw. Not real shapes, not meaningful ones. Simply random" (170). I suggest that the name "Vheissu" is based on the German *Verheissung*, "das Land der Verheissung" being the Promised Land. From this word four letters are missing, e, r, n and g. Reshuffled, the sequence "nerg" might be read either as "*n* erg" (that is, an unspecified amount *n* of the unit of work in physics, erg) or as the core of the word "energy." Thus Vheissu is the Promised Land as envisaged through the gloomy predictions of the Second Law of Thermodynamics, a realm in which the energy required for physical work is missing, a place of maximum entropy. Of course, no place of maximum entropy can exist on earth in history, but as a symbol for it Vheissu will do. Godolphin flees from Vheissu in horror, only to detect its maddening colors again on another expedition, in the prismatic effect of ice in the crystalline desert of the South Pole. A crystal at zero degrees Kelvin is, in theory, the only object in physics with zero entropy.<sup>12</sup> On earth, the icy landscape of the Antarctic "in the dead of winter" (205) is the region closest to this extreme state of total but deadly order, and the text makes this clear when Godolphin ends his narrative with the words "Vheissu itself, a gaudy dream. Of what the Antarctic in this world is closest to: a dream of annihilation" (206). Crystalline order and maximum entropy are merged in Vheissu; they are equally distant from a life-sustaining environment, extreme states in which all life and communication come to an end and despair reigns.

Crystals frequently appear in the text in the form of rocks and mirrors—the mirrors occasionally signifying mirror-time and thus a reversal of time's arrow (see 45–46). Pynchon stresses the ordered inanimateness and timelessness of crystals when Father Avalanche

ponders the Bad Priest's teachings: "'to be like God we must allow to be eroded the soul in ourselves. Seek mineral symmetry, for here is eternal life: the immortality of rock. Plausible. But apostasy'" (340).<sup>13</sup> This is the order advocated by V.: "to be like a crystal: beautiful and soulless" (340), and she herself has gone a long way toward this kind of order by introducing into her own body inanimate objects which either are crystalline, like the sapphire in her navel, or resemble Wiener's life-imitating machines. The apotheosis of the human—and particularly the female—body as a life- (and sex-) imitating automaton is evoked twice in the text: in Herbert Stencil's daydream vision of V. "at age seventy-six" (411-12), and in Profane's desire for "an all-electronic woman. . . . Any problems with her, you could look it up in the maintenance manual. Module concept: fingers' weight, heart's temperature, mouth's size out of tolerance? Remove and replace, was all" (385).<sup>14</sup> But the text bears little evidence that Pynchon might share this fascination with inanimate if nevertheless negentropic machinery.

While many critics have discussed the novel's V-words and their significance, less attention has been paid to its V-shapes. If these shapes are occasionally less conspicuous, they are equally relevant, as the text makes clear in linking V-shapes and V-words in the opening of chapter 3: "As spread thighs are to the libertine, flights of migratory birds to the ornithologist, the working part of his tool bit to the production machinist, so was the letter V to young Stencil" (61). The most prominent V-sign is, of course, the designation of the enigmatic woman which gives the book its title. However, that sign consists not only of the letter but also of the full stop, the tiny round dot which turns it into the polyvalent initial, a linguistic *passe-partout*. The letter appears to be the visible part of a whole which comes in the course of the novel to signify everything, and the symbol of totality is the circle. The V-shapes in the novel are frequently linked to circles, and these circles are invariably significant. For example, when Hanne in the Egypt episode discovers a V-shaped stain on a plate, her reaction is a miniature of the search for V., whose existence may be a question of the observer's perspective:

She rinsed and stacked the last plate. No. A stain. Back went the plate into the dishwasher. Hanne scrubbed, then examined the plate again, tilting it toward the light. The stain was still there. Hardly visible. Roughly triangular, it extended from an apex near the center to a base an inch or so from the edge. . . . She tilted the plate another few degrees toward the light and the stain disappeared. Puzzled, she moved her head to look at it from another angle. The stain flickered twice in and out of existence. (90)



The most important of these images is probably the wheel of Fortune with its spokes, the “vectors of evil” (338) pointing at Malta. Fortune and virtù, chance and plan coincide in this image. The image mirrors Sidney Stencil’s Situation, in which the appearance of general order results from innumerable accidents. The wheel of Fortune is made up of an unspecified number of Vs: chance and randomness appear to result from various inter- and counteracting intentions, each of which exemplifies virtù. At the center, the hub of the wheel, is Malta, where the two aspects are merged in an everlasting process: the parents salvaging order from the war’s destruction, and the children destroying the death-propagating Bad Priest’s order. “Manhood on Malta . . . became increasingly defined in terms of rockhood” (325); but this tendency is balanced by the opposite principle, as there is still hope in the kids, who are “all ‘in’ the secret” (331), “[k]nowing full well that if every girl became a sister there would be no more Maltese: and that rock, however fine as an object of contemplation, does no work” (340). The gap between parents and children is bridged by one of the few instances of genuine affection in the novel, Fausto Maijstral’s parental love. One of the children on Malta was Paola, and the fact that in the novel’s penultimate chapter she possesses the comb taken from the dying V. makes it likely that she took part in the literal deconstruction of the Bad Priest. The fact that she gives away the comb as a token of reconciliation invests the object with a new and more benevolent meaning, and indicates that she will not follow in the former possessor’s footsteps on the path to rigid and deadly order.

In the wheel of Fortune, Vs appear as parts of the circle formed by its spokes. But in at least two other V-shapes, the circle and the letter coincide even more closely. Bloody Chiclitz’s Yoyodyne, Inc., began as a toy company which experienced a boom when “the children of America conceived . . . a simultaneous and psychopathic craving for simple gyroscopes, the kind which are set in motion by a string wound around the rotating shaft, something like a top” (227). The spinning top seen from the side is shaped like a V, but seen from above is shaped like a circle. It appears to be made up of an infinitude of Vs arranged spherically or of an infinitude of concentric circles arranged conically. The shapes not only coincide as the part and the whole: they are complementary aspects of the same structure.

In his explication of the divine principle, Heraklitus took fire to be an image of the coincidence of opposites because it rests while it changes and thus unites one of the crucial dichotomies of pre-Socratic philosophy, stasis vs. movement. In the fifteenth century, Nicolaus de Cusa used the spinning top to convey a similar idea in *De ludo globi*. In V. the same image merges a different set of opposites. Chiclitz prospers

initially by manufacturing toys for children, but his business expands exponentially after he finds out—in fact, learns from school children—that “these toys worked on the same principle as a gyrocompass” in the guidance systems of missiles (227). Thus the gyroscope, in *V.* and even more so in *Gravity's Rainbow*, is part of a complex machinery of death.

However, Yoyodyne's production of death is accompanied by a kind of growth: in *V.* and later in *The Crying of Lot 49*, the factory is referred to ambiguously as a “plant” (V 227; CL 47, 53, 83). Chiclitz “kept expanding, buying, merging. Now less than ten years later he had built up an interlocking kingdom responsible for systems management, airframes, propulsion, command systems, ground support equipment” (V 227). The list evokes Wiener's examples of negentropic machinery, but there can be little doubt that Chiclitz's kingdom of order is a kingdom of death. The expansion of inanimate order is one side of America as depicted in *V.*, the American present-time equivalent of the order of death portrayed as the evil face of fascism in the historical episodes. Like fascist regimes, it produces death to stabilize itself. In *The Crying of Lot 49* Pynchon stresses what is not yet quite obvious in his first novel: that this order is created and maintained by the creation of human waste, by the inhuman use of human beings who are then discarded from the system (as Oedipa will see during her journey into the underworld of nighttown). In *Gravity's Rainbow* Pynchon spells out this point by transferring the schlemihl's entropic disposition to “take' from other people without giving of himself” (Slade 91) to the System's opposite tendency toward order:

Taking and not giving back, demanding that “productivity” and “earnings” keep on increasing with time, the System removing from the rest of the World these vast quantities of energy to keep its own tiny desperate fraction showing a profit: and not only most of humanity—most of the World, animal, vegetable and mineral, is laid waste in the process. (412)

The System may try to “*violate* the Cycle” (412) by reversing the unidirectional arrow of time, but the increase of order in any small system inevitably leads to an increase of entropy in the larger system. An increase of inanimate order is thus accompanied by an increase of equally inanimate disorder, and life, which can exist only on the interface between the extremes, will be eradicated.

The spinning top does not appear at a prominent point in *V.*, and it may easily be overlooked or taken to be not particularly significant—even though Chiclitz's reappearance in *The Crying of Lot 49* and in *Gravity's Rainbow* should serve as a clue that he is more than just a

minor character.<sup>15</sup> But the shape of the spinning top recurs at the end, which adds weight to the image. The waterspout on the last page is shaped like a cone: it resembles a V when observed from sea level and a circle when seen from above. Michel Serres stresses the coincidence of opposites in turbulence, in the conic spiral: “Movement and rest are joined in turbulence, constancy and variation, life and death” (120). Thus Sidney Stencil is killed by a V. after all, by an image of the Situation, of the coincidence of the opposites order and entropy, fortune and virtù, chance and intention which structure the text.

## 3

In *V.* order and entropy are equally fatal. Vheissu is as hostile to life as the South Pole, and the schlemihl, who appears to be a close relative of Serres’s *Parasite*, offers little consolation in the city, which is only “the desert . . . in disguise” (83).<sup>16</sup> But things change again in Pynchon’s subsequent work, and in *The Crying of Lot 49*, *Gravity’s Rainbow* and *Vineland* order appears to be not just as dangerous as entropy but rather the primary source of the threats and terrors which beset mankind and the world in general. In these novels the natural tendency toward entropy is exceeded by a similarly inevitable desire for order in human affairs. Pynchon introduces this latter tendency—and the first of his serious counterforces, Operation Spartacus—in “The Secret Integration.” The endangered order of terror in this story is racial segregation, and it tries to stabilize itself by a literal increase of disorder elsewhere when the members of the community dispose of their garbage on the front lawn of the newly-arrived black family. But the entropic process of dissolving the order of segregation is not denounced as a dangerous development toward the inanimate, toward decadence or decay; rather, it is presented as a necessary and desirable movement toward a more humane and civilized way of life. The fact that this process fails indicates that entropy is hardly an inevitable tendency in human affairs but that, on the contrary, there exists in society and possibly in the human psyche a powerful and inexorable tendency toward a rigid and inhumane order.<sup>17</sup>

Pynchon’s new perspective on order and entropy was not out of tune with the times—which, as Bob Dylan sang, were a-changing. In a decade which saw Kenneth Anger hail *Lucifer Rising* and heard the Rolling Stones call for “Sympathy for the Devil,” Wiener’s evil principle was not exempt from a thorough reevaluation. Entropy could thus assume the role of insurgence against fascist tendencies and capitalist excesses in America, and the idea of an equal distribution—the state in physics and chemistry of maximum entropy—takes on completely

different connotations when applied to the problem of apartheid or the gap between rich and poor. But in “The Secret Integration” the liberating potential of entropy is under siege, and the overwhelming powers of rigid economic and political order not only carry the bigger guns but can also rely on the natural tendency within their juvenile adversaries to give in sooner or later to the reality principle. In the kids who organize Operation Spartacus against Them, the world of the grown-ups, the text takes up the motif of the children of Malta who destroy the order of death in the figure of the Bad Priest. On Malta, though, the children do not rebel against their parents; they struggle, just like the adults, with the catastrophes of war and the vectors of evil pointing toward their island. But in “The Secret Integration” things look rather bleak for the future. The kids’ conspiracy comes to an end when they finally return to their homes and the rituals of family life. There is no indication that the children might fail to grow up to live exactly like their parents and to acquire their habits and prejudices. If there is hope, it lies in the kids, but they don’t stay kids for long enough. Future counterforces in Pynchon’s novels invariably have to face the anarchist’s dilemma: You can’t win unless you get organized, but once you are organized, you have moved just that much over to the side of the enemy.

This topic is picked up again in *The Crying of Lot 49* with its more complex counterforce, Tristero. Interpretations of Tristero range from Lyons and Franklin’s claim that “the silent sad empire expected represents the final state of the disordering process of entropy” (198)<sup>18</sup> to Freese’s diametrically opposite suggestion that Tristero appears as “one of those antientropic enclaves which Wiener speaks about, that is, as a ‘local and temporary island of decreasing entropy in a world in which the entropy as a whole tends to increase’” (Freese 550; cf. Wiener 52). Two contradictory aspects of Tristero are thus highlighted: the sinister, threatening force on the one hand, and the hope of the disinherited subcultures Oedipa discovers on the other. To come to terms with this contradiction it is useful to take quite literally one of the text’s statements about entropy and Maxwell’s demon: that the demon brought together two fields, thermodynamics and communication, which “were entirely unconnected” (105).<sup>19</sup> In both fields entropy may indeed be a metaphor,<sup>20</sup> as may also be the work of the sorting demon. Many critics have taken Oedipa’s role as executrix—with “the job of sorting it all out” (9)—to be similar to the demon’s function. But sorting molecules is not the same as sorting information, and in the context of *The Crying of Lot 49* the difference is even more significant.

The closest analogy in the novel to the negentropic work of the demon is not Oedipa’s task but the processes that fuel Pierce

Inverarity's estate and Yoyodyne. Like the demon, the industrial plant creates a hierarchy and sorts out the quick and the slow, promoting the former as long as they can be put to any use and discarding the latter as the refuse of the productive process. The order the system achieves is one of increasing economic difference and a widening gap in the fabric of society. The work is one of excess, since the process does not necessarily stop with the rejection of the slow particles but moves on to exploit and reduce them even further. In Ray Bradbury's *Fahrenheit 451* the firemen's slogan concerning books runs "'burn 'em to ashes, then burn the ashes'" (7). In Pynchon's novel the same principle is applied to human bodies, whose bones are eventually recycled as charcoal filters for cigarettes. The term "harvest" (63) for the gathering of the bones indicates that the work of the grim reaper can still be improved on. However, this acceleration of the entropic process again increases order elsewhere, producing a profit for the entrepreneurs.<sup>21</sup>

But the demon's sorting is only the first part of the process required to do work. Stanley Koteks explains the easier but nevertheless necessary next step: "You can *then* use the difference in temperature between this hot region of the box and any cooler region, to drive a heat engine" (86; emphasis added). To keep the machine moving, to make use of the difference gained between the energy levels, the very difference must be dissolved again. If this next step is not taken, merely abandoning the sorting process will return the two closed systems to a state of maximum entropy anyway,<sup>22</sup> while continuing the sorting process indefinitely will require increasingly strict standards of selection and thus constantly decrease the number of particles available for the demon to choose from. The inevitable result of excessive sorting is exemplified by the fate of the Scurvhamite sect, which gradually loses all its members until even its founder goes over to the preterites; the dual system ends up with only one set of members, its fast or hot compartment depleted.<sup>23</sup> Thus the demon's sorting has to be balanced by a remixing of the two compartments of the system, by the dissipative process which enables the spontaneous creation of order within a chaotic system. The only way to "'keep it all cycling'" (105) or "'Keep it bouncing'" (178) is to oscillate between order and entropy. Oedipa's task, even though she remains unaware of its implications,<sup>24</sup> resembles exactly this complementary process.

Inverarity's property is "an organized something [left] behind after his own annihilation" (81), the order which survives the individual's entropy, that is, his death. As an inheritance it is a potential which may either be preserved in its present form, thus remaining sterile, or else be distributed and thus reintroduced into the processes which sustain the life of America. Oedipa considers this latter alternative for the

briefest of moments—“What would the probate judge have to say about spreading some kind of a legacy among them all, all those nameless, maybe as a first installment?”—only to reject the idea as impossible because the action would be revoked immediately and she herself would be denounced as a “redistributionist and pinko” (181). The term “redistributionist” indicates, though, that she would be returning the legacy to its rightful owners. But she shies away from the consequences, and the problem of the enormous property remains unsolved; the question of who the actual, legal heir to Inverarity’s estate will be is never raised. Similarly, it is unclear who has been managing the estate since Inverarity’s death. The “shareholders and proxies and company officers” who indulge in “a Yoyodyne songfest” (82–83) during their meeting do not seem to be in charge of relevant administrative decisions. There is no way of telling who is; the estate may not be run by any human agency any longer, but by automated processes which stabilize the system against all external interference.

In this situation, the sorting out of Inverarity’s estate, of the “legacy [that] was America” (178), could be a form of disentanglement, a taking apart—ideally—similar to the breaking up of IG Farben after the Second World War. But even that breakup did not bring the desired results, a point *Gravity’s Rainbow* drives home repeatedly. Such a sorting out is purposive, but its aim is the dissolution of an artificially ordered structure; its tendency is thus entropic. Nevertheless, it is desperately needed in a world in which the military-industrial complex makes its employees redundant, automates them out of their jobs by replacing them with information-processing machines (the founder of IA), destroys their creativity (Stanley Koteks) and in general turns them into human waste.

On the other hand, the sorting of information is negentropic, akin to solving a puzzle by creating an ordered pattern from unsorted parts. The problem with Maxwell’s demon is that gaining knowledge about the elements in a system requires information or energy from outside the system (Mangel 91–92). Similarly, if Oedipa intends to increase the order within the system, she needs external input. Thus she repeatedly invokes transcendental meaning: “the central truth . . . which must somehow each time be too bright for her memory to hold; which must always blaze out, destroying its own message” (95). But every new piece of information she receives merely enlarges the informational system she has to face, since there is no place truly outside of the world. To search for meaning external to the system is to miss the point of her task, and all the information she needs is readily available. Oedipa’s effort to increase or even to preserve the order of the system, like Callisto’s effort to maintain his hothouse, can succeed only if the

entropy elsewhere is disproportionately increased, that is, by widening the already existing gap between levels of society. The image of Callisto desperately holding the dying bird has its analogue in the scene in which Oedipa meets the dying sailor and "discover[s] the irreversible process" (128). At that moment a reminder of Vheissu also appears in the "music made purely of Antarctic loneliness and fright" (129). The moment of delirium tremens, of madness and a complete loss of control, is once more balanced by its opposite, the vision of crystalline order and death.

But while Oedipa is still hoping for external information, a demon in the guise of Yoyodyne and the rest of Inverarity's estate has already sorted and ordered to the extreme point where order is dehumanizing and life is turned into waste. To keep the system bouncing, the opposite process, remixing, is needed as a complement to the demon's work, but the tendency toward order, which seems to be inherent in every character, prevents this necessary solution. There is no easy dichotomy in the novel between the rigid defenders of deadly order and the mild, well-meaning anarchists. In fact, Yoyodyne's hierarchical sorting has its equivalent among the revolutionaries, which seems inevitable once counterforces get organized: the *Conjuración de los Insurgentes Anarquistas* is strictly divided into "footsoldier[s]" and "[t]he higher levels," while effective communication between the two seems to have ceased (121). Every kind of rebellion against power, no matter how sincere its beginnings, eventually turns into a fight for the very power it had battled. Similarly, every segment of society strives for order. This inexorable human drive is carried to its extreme in the story of the *Inamorati Anonymous*, "a society of isolates" (116) in which people dedicated to solitude get organized.

Tristero, the entropic principle of disruption and subversion, may offer hope without losing its ultimately sinister aspects. Even if the system will eventually run down, for the moment the best hope is to release the built up energy to postpone the terminal moment of truth. Only the dissipation of energy will bring forth a new creativity and diversity within Oedipa's uniform world. Life flourishes in the realm between order and entropy, between the poles, which is exactly where Oedipa sees herself in the end but which she fails to recognize as the possible solution to her problem. The image of "a great digital computer, the zeros and ones twinned above" (181), recalls Wiener's inanimate but life-imitating machines and indicates that Oedipa is caught up in a false dilemma. Human life is not governed by simple dichotomies but by the complex interplay between the extremes, in the realm of the "excluded middles" which she rejects as "bad shit" (181). The image of the less than benevolent information-processing machine

reappears in *Vineland*, where the servant has turned into the master and now rules supreme over the subdued human beings, who are but "digits in God's computer," their lives and deaths merely forming patterns of ones and zeros (VI 90-91). In *Vineland* the computer has taken the place of the deity whose plan surpasses all understanding, and the government subsidy is granted or withheld according to rules which are as impervious to the recipient's influence as the harvest or the rise of the spawning salmon in Yurok mythology.

But like Operation Spartacus—and future local pockets of resistance—even the counterforce in *The Crying of Lot 49* is not free from occasional tendencies to change colors, as several times in its history schisms occurred during which members of Tristero sided with their former enemies. The fact that these schisms took place near the end of the Thirty Years' War and during the French Revolution (164, 172), that is, at times of extreme tumult and chaos, implies that, just as in *V.*, order and entropy are complementary in *The Crying of Lot 49*,<sup>25</sup> and that like yin and yang they each carry a grain of their counterpart, which leads to a reversal when one side reaches the extreme.<sup>26</sup> Moreover, whenever Tristero acquires a human face, as in the tale about its founder or about Bortz's imaginary Konrad (159-60, 163-65), its primary interest appears to be in gaining power or property. Only in a depersonalized and faceless obscurity does the counterforce acquire the menacing and encouraging features of the entropic principle.

## 4

*The Crying of Lot 49* completes Pynchon's reversal of the earlier evaluation of order as predominantly good and of entropy as evil. In it all the entropies of war are only a trick of the ruling elite to increase their own power and to serve the needs of their cartels and technologies. In the subsequent novels the rebellion against order comes under siege time and again. The inevitable process by which each attempt to take a stand against the powers that be sooner or later succumbs either to pressure from outside or to the rebel's own inherent desire for order is emphasized repeatedly. This universal tendency finds its most direct expression when the gaucho anarchist Squalidozzi describes not only his "national tragedy" but the human condition: "We are obsessed with building labyrinths, where before there was open plain and sky. To draw ever more complex patterns on the blank sheet. We cannot abide that *openness*: it is terror to us" (GR 264). Turning the law of entropy on its head, he then explains: "In ordinary times [. . .] the center always wins. Its power grows with time, and that can't be reversed, not by ordinary means. Decentralizing, back



toward anarchism, needs extraordinary times'" (264–65). Thus the openness of the zone will be only a brief intermezzo in history, lasting a few months, contrasted with "'the proliferation of little states that's prevailed in Germany for a thousand years'" (265). And ultimately, even the anarchists will probably go over to the enemy: as Gerhardt von Göll prophesies, "'even the freest of Gauchos end up selling out, you know. That's how things are'" (387). Similarly, the Counterforce in *Gravity's Rainbow* eventually has an official spokesman who gives interviews to the *Wall Street Journal* elaborating on historical divisions and heretic-chasing (738–39).

But order also takes on a new cast in *Gravity's Rainbow* when Slothrop "watches flights of birds and patterns in the ashes of his fire," and "reads the guts of trout [. . .] scraps of lost paper, graffiti on the broken walls where facing has been shot away to reveal the brick underneath" (623). When everything—even the debris of the preterites—turns into a complex message that can be read and understood, the human seeking for symmetry and clear-cut divisions appears inferior to the rich order of nature and the seemingly chaotic world. As Borges claims, the labyrinth of the open desert is superior to even the most complicated human construct<sup>27</sup>—a theme of nature's complexity that Pynchon takes up again in *Mason & Dixon*. Moreover, some aspects of order in *Gravity's Rainbow* may be better understood in terms of quantum physics and Bell's theorem of nonlocality than in those of thermodynamics. Slothrop's entanglement with the rocket can be read as exemplifying on the macroscopic level the principle that particles that were connected once in their history remain so no matter how far apart they may become in the future.<sup>28</sup> As Slothrop was once linked to Jamf and Imipolex G, so was the rocket, and his later (supposed) erotic anticipation of the V-2's impact is a powerful metaphor for the principle David Bohm calls "the implicate order."<sup>29</sup>

In *Vineland* the human desire for order governs every historical process as well as the individual lives of the characters. The most obvious examples are Frenesi's erotic obsession with uniforms—an inheritance she receives from her mother and passes on to her daughter—her betrayal of the revolutionary cause, and Brock Vond's assessment of the youth movement:

Brock Vond's genius was to have seen in the activities of the sixties left not threats to order but unacknowledged desires for it. While the Tube was proclaiming youth revolution against parents of all kinds and most viewers were accepting this story, Brock saw the deep—if he'd allowed himself to feel it, the sometimes touching—need only to stay children forever, safe inside some extended national Family. (269)

The list of names recited by the elders of the Becker-Traverse clan at the annual reunion—“Hitler, Roosevelt, Kennedy, Nixon, Hoover, Mafia, CIA, Reagan, Kissinger” (372)—sums up history as a long succession of wrong roads taken. And in the novel’s present the area of Vineland, the enclave for the remnants of the American left, is clearly under siege as CAMP moves in on the last few acres cultivated by the agrostological<sup>30</sup> segment of American agriculture. In the end Vond’s death offers the counterculture a brief respite, and in his death the image of wrong roads taken is reversed. The bifurcation tree is turned upside down in the image of “the Ghosts’ Trail leading to Tsorrek,” which can begin suddenly anywhere (379, 186), indicating a loss of choice when all paths lead to the same result.<sup>31</sup>

## 5

*Gravity’s Rainbow* and *Vineland* do not radically alter the view of order and entropy developed in *The Crying of Lot 49* but rather cast it in different contexts through a plethora of new images while pursuing various other topics—for example, quantum theory. But in *Mason & Dixon* a new perspective appears, and the dichotomy between order and entropy is replaced by a new set of images and metaphors. Complexity has always been a central feature of Pynchon’s novels; now it becomes one of the most important subjects of the text, when once more life and nature are threatened by order. But this time the necessarily entropic tendency of life is balanced by the potential for creativity within the complexities of nature.

In *Mason & Dixon* human order appears as a noncomplex phenomenon. While this idea was already present in *Gravity’s Rainbow*, as we have seen, now it is elaborated and worked into the central image of the novel. The literal linearity of the surveyor’s enterprise and the metaphorical linearity of Western rationality are contrasted with the less simple constructions of space in Eastern philosophy—particularly the ideas of Feng-Shui (see, for example, 542–45)—but most of all with the complexities of nonlinear nature. Human attempts at order turn out to decrease complex forms of natural order, and thus they are, in fact, entropic rather than negentropic. When Captain Zhang claims that “‘Ev’rywhere else on earth, Boundaries follow Nature,—coast-lines, ridge-tops, river-banks’” (542), the contrast is not between order and chaos, but between two distinct forms of order, both of which are emblems of infinity: the vast but simple infinity of the geometric straight line<sup>32</sup> vs. the minuscule but complex infinity of the self-similar fractal, such as the “shoreline tending to Infinite Length, ultimately unmapable” (354). The image of the waterspout, the culminating

metaphor of *V.*, also recurs in the multitude of vortices which, as Hanjo Berressem has pointed out, riddle *Mason & Dixon*. Once more linearity and causality are replaced by a form that fuses order and chaos in the determined but incalculable movement which has become something like an emblem of nonlinear dynamics.

The Western fear of open spaces—of Borges's second labyrinth—which Squalidozzi evokes in *Gravity's Rainbow* is also taken up again in *Mason & Dixon* in Wicks Cherrycoke's image of death as being left alone by a coach in mid-journey, "'the Machine, fading as we stand, and a Prairie of desperate Immensity'" (361).<sup>33</sup> But this image of life as a teleological journey on a charted road offers only the Western—and Protestant—perspective. The novel offers the complementary image as well, and the concept of death as the moment when the straight journey ends (and the human construction is divorced from the nature it had invaded) has counterparts in the similarly straight slash of the knife that murders to dissect (cf. 542) and in the "'Tellurick Injuries'" (544) inflicted on earth.

The Mason-Dixon Line's function is to divide, to formalize the destruction of an original unity and thus to create a hierarchy. The unifying vision is replaced by a division. The demon is still busy, and the sorting this time draws a line between the slave states and the free. Linking the survey back to the first division, when "'G—d made the Firmament, and divided the Waters which were under the Firmament, from the Waters which were above the Firmament'" (361), emphasizes the negentropic tendency. But then the undifferentiated condition before the first division ever took place was also the divine unity, while, according to some kabbalistic writings, the first division, the *zimzum* or the moment when God withdrew into himself to create the space for the world to come, was the primeval cosmic crisis. All further subdivisions—of light from dark, of woman from man, and finally the tearing of the fruit from the tree of knowledge—were merely reenactments of that first split within the godhead which still needs to be redeemed. In short, the seemingly chaotic undifferentiated condition resembles Empedocles's *philia* or *harmonia* while the act of division leads to *neikos* and brings forth strife. Once more, the human striving for order increases entropy.

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#### Notes

<sup>1</sup>My selection of quotations here does not offer a balanced and unbiased account of Wiener's ideas, and thus fails to do justice to a great scientist. But my intention is to emphasize some aspects which have left their mark on

Pynchon's fiction. I do not want to suggest that Wiener favored military action or war; several statements in his book clearly show his concern with the inherent dangers of the new weapons and a possible future war. Nevertheless, there are also some rather unpleasant or equivocal passages in his text, and I argue that they, no less than the scientific concepts, influenced the argument and imagery of Pynchon's literary work, and that this influence manifests itself in the rejection of Wiener's conclusions.

<sup>2</sup>Adams also mentions the less than benevolent workings of machinery: "The railways alone approached the carnage of war; automobiles and firearms ravaged society, until an earthquake became almost a nervous relaxation" (495).

<sup>3</sup>This point is stressed by the fact that Callisto's apartment is not really a closed system, since the necessary nourishment for its inhabitants is brought in from the outside (cf. Freese 417).

<sup>4</sup>It is a nice pun that Wiener's position is argued by a character whose name is almost homophonous with "soul."

<sup>5</sup>The German title of Wiener's book, *Mensch und Menschmaschine*, is even more fitting in this respect than the English original.

<sup>6</sup>Anne Mangel points out this extension (93) but does not elaborate on it.

<sup>7</sup>Freese raises this point repeatedly: see, for example, 452 and 479.

<sup>8</sup>The word *kallisto* or rather *kalliste* does not appear in the sources I have been able to check. Lucian has *he kalé labéto*, which translates as "the beautiful shall take it" (78, 7[5]1). (I want to thank Immanuel Musäus for his help in finding this source.) Nevertheless, the connection of the name Callisto with the apple of Eris seems valid. The word *Kallisti* is also important in Robert Anton Wilson and Robert Shea's *Illuminatus* trilogy, where it is said to have been the inscription Eris put on the golden apple (see EP 97). Thus another source I have not yet found may exist.

<sup>9</sup>Part of the following reading of *V.* is based on my essay "Cosmic Pool Balls," published in German.

<sup>10</sup>The waterspout exemplifies turbulence, a phenomenon studied in chaos theory. The scientifically knowledgeable Pynchon used this image of deterministic chaos in 1963, when the field of chaos theory hardly existed, thus paralleling or anticipating in literature developments in science.

<sup>11</sup>Freese writes similarly that *V.* "gradually turns from an animate human being into an almost completely inanimate 'thing' and thus embodies the ravishes [sic] of entropy in the waste land of a civilization which has squandered its former energies through the evils of war and colonialism, racism and sexual perversity" (421).

<sup>12</sup>This is only according to thermodynamics; in quantum theory it does not apply. Alan Friedman (96–97) refers to crystals as ordered structures, but only in the context of *Gravity's Rainbow*.

<sup>13</sup>It is a nice touch that the Bad Priest's creed is paraphrased by Father Avalanche, whose name hardly emphasizes the perpetual symmetry and timelessness of rocks.

<sup>14</sup>Stencil's motto, "Approach and avoid" (55), and Profane's "Remove and replace" are almost identical in indicating an impersonal distance; together they form a kind of chiasm.

<sup>15</sup>Perhaps his seemingly subordinate role emphasizes the point that those who are actually in power remain almost invisible. The point recurs in *Vineland*, where even the major villain, Brock Vond, only "caught a fatal glimpse of that level where everybody knew everybody else, where however political fortunes below might bloom and die, the same people, the Real Ones, remained year in and year out, keeping what was desirable flowing their way" (276). "Real Ones" here has the distinct ring of H. P. Lovecraft's "Great Old Ones" or "Ancient Ones," the monsters that lay waste the world in their battles for power without any regard for the humans who inhabit the planet.

<sup>16</sup>In the context of colonialism in *V.*, this equation of the city and the desert evokes a passage in Oswald Spengler's *Der Untergang des Abendlandes* stressing the contrast between the nomadic masses and the heroic "Caesars":

Mitten im Land aber liegen die alten Weltstädte, leere Gehäuse einer erloschenen Seele, in die sich die geschichtslose Menschheit langsam einnistet. . . . Massen werden zertreten in den Kämpfen der Eroberer um Macht und Beute dieser Welt, aber die Überlebenden füllen mit primitiver Fruchtbarkeit die Lücken und dulden weiter. [In the midst of the land there are the old cosmopolitan cities, empty shells of a burnt-out soul, slowly occupied by a humankind with no history. . . . Masses are crushed in the battles fought by the conquerors for power and for the riches of this world, but the survivors' primitive fertility fills the gaps, and the sufferance continues.] (2.1107; my translation)

Spengler celebrates the Caesars and despises the masses, but his imagery can easily be translated into Pynchon's more compassionate account of the Elect and the Preterite.

<sup>17</sup>I have argued elsewhere that this tendency accords with the Freudian concept of the death instinct, which manifests itself as the desire to return to a previous state of inanimateness and thus disobeys time's arrow—while death itself, of course, does not. For an elaboration of this idea, see my "Subliminal Cues."

<sup>18</sup>Lyons and Franklin also argue that Tristero and the WASTE carriers are "entropic forces at work in an information system" the work of which "evidences the danger of a less ordered system, for, on a large scale, it would reduce communication to chaos" (199). But when messages are mere clichés, noisy disruptions in fact increase the messages' informational content.

<sup>19</sup>Matheson and Kirchoff emphasize the argument that the connection is indeed no more than a "coincidence" (CL 105):

Shannon's use of "entropy" is related to the entropy in physical systems at best through the parallel mathematical formalism between Shannon's equation expressing the lack of redundancy in a given message and Boltzmann's equation for statistical entropy. Therefore . . . there is no deep conceptual link between these two uses of the term "entropy." (38)

<sup>20</sup>Nefastis's "'entropy is a figure of speech, then . . . a metaphor'" (106) may also well be a tautology, since the Greek root of the word "entropy" is *tropos*, and a trope is simply a figure of speech, a metaphor.

<sup>21</sup>Similarly, in Pasolini's film adaptation of de Sade, *Salò, o, le 120 Giornate di Sodoma* [*Salò, the 120 Days of Sodom*], the human body and even excrement are reified and used for consumption. Such an extreme form of consumption also appears in the coprophagy scene of *Gravity's Rainbow* (235-36).

<sup>22</sup>The danger of an unresolved difference in the potential of the compartments is exemplified by the explosion of the can of hair spray, when the sudden release of high speed particles under pressure turns the harmless commodity into a dangerous projectile (CL 36-38).

<sup>23</sup>This again recalls *Salò*; setting de Sade's novel in a secluded enclave within the already diminished fascist republic of Salò emphasizes the last stages of a radical and deadly order which nevertheless stabilizes itself by forms of ritualized destruction until it runs out of victims and is reduced to zero.

<sup>24</sup>One of the main problems in dealing with this text is that Oedipa's perspective is seductive for the reader and that the resulting identification blurs one's vision. Oedipa sees her own task as "'bringing something of herself' . . . to the scatter of business interests that had survived Inverarity. She would give them order, she would create constellations" (90). She is not exempt from the apparently inherent human desire for order, and the impasse she reaches in the end, immobilized between seemingly insoluble dichotomies, indicates that her view in this respect is deficient and that she fails to come to terms with her situation.

<sup>25</sup>This complementarity appears in political terms when Metzger tells Fallopian, "'You're so right-wing you're left-wing'" (88-89).

<sup>26</sup>I argue in "Subliminal Cues" that this yin-yang complementarity is emphasized by the contrary names Tristero and Hilarius, which allude to the epigraph of Giordano Bruno's play *Il Candelaio*, "In tristitia hilaris, in hilaritate tristic" ["In sadness there is laughter, in laughter sadness"], and that the complementarity expressed in this epigraph can be traced in Tristero and Hilarius (59).

<sup>27</sup>Squalidozzi evokes the master builder of literary labyrinths in the passage quoted above when he adds "'Look at Borges'" to his diagnosis of the human obsession with order. But then Borges also wrote about the two kings and the two labyrinths and the superior kind of maze, the desert, "no hay escaleras que subir, ni portas que forzar, ni fatigosas galerías que recorrer, ni muros que te

veden el paso" ["which has no stairways to climb, nor doors to force, nor wearying galleries to wander through, nor walls to impede thy passage"] (140 [263]).

<sup>28</sup>It does not matter here that nonlocality is a quantum phenomenon which can be observed only through the most complicated experimental procedure and which cannot be simply transferred to the macroscopic level. Literature can choose its images without constraint. Slothrop's disappearance also resembles a subatomic process, that is, spontaneous radioactive decay and the subsequent radiation, which can be detected all over the zone.

<sup>29</sup>Bohm also mentions the principle of nonlocality (129).

<sup>30</sup>Agrostology: "The study of grasses." I would like to thank Anu Garg and A.Word.A.Day <<http://www.wordsmith.org>> for bringing this word to my attention on March 6, 1999.

<sup>31</sup>This image is taken up again in *Mason & Dixon*, when Mason puzzles:

"As if . . . there were no single Destiny [. . .] but rather a choice among a great many possible ones, their number steadily diminishing each time a Choice be made, till at last 'reduc'd,' to the events that do happen to us, as we pass among 'em, thro' Time unredeemable,—much as a Lens, indeed, may receive all the Light from some vast celestial Field of View, and reduce it to a single Point." (45)

The image here reverses the divisions and subdivisions of order imposed on nature (see below) and replaces linear time with an eternal now. The allusion to Eliot's "Burnt Norton"—

Time present and time past  
Are both perhaps present in time future,  
And time future contained in time past.  
If all time is eternally present  
All time is unredeemable (ll 1–5)

—once more confirms this image.

<sup>32</sup>Moses Mendelssohn describes the view of an unvarying repetition of columns in a straight colonnade as a possible source for the experience of the sublime:

Ein Beyspiel in der Baukunst ist ein gerader Säulengang, wenn die Säulen sich einander ähnlich sind, und in gleichen Zwischenräumen von einander abstehen. Ein solcher Säulengang hat etwas Großes, das also bald verschwindet, wenn die Einförmigkeit der Wiederholung unterbrochen und an gewissen Stellen etwas hervorstechendes angebracht wird. [One example from architecture is a straight colonnade, if the columns are similar to and at equal distance from each other. Such a colonnade has a magnificence which immediately disappears once the uniformity of the repetition is broken and something is made to stand out at certain places.] (208–09; my translation)

The terror evoked by sublime linearity permeates *Mason & Dixon* and accompanies the surveyors as they "mark the Earth with geometrick Scars" (257).

<sup>33</sup>In *Vineland* the heroine's name Prairie Wheeler fuses Leo Marx's images of the machine and the garden.

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