



The Consequences of Chaos: *Cleopatra's Sister* and Postmodern Historiography

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Of the many ways of judging the character of a period in history, surely one of the most important is through a given era's sense of, precisely, history, for we are constituted in a profound way through our representation of experience in time. Most of our everyday conceptuality, for instance, depends upon the essentially unquestionable assumption about the temporal relationship between events that we call cause and effect. But in recent decades a different notion of cause and effect has emerged in our contemporary mindset. In the physical sciences, the new idea runs under the popular label of chaos theory, though nonlinear dynamics or complexity theory are also accepted names.¹ We shall look briefly at the concept of chaos in a moment, but what will matter to us is not so much the theory itself as the question of whether and how the theory finds a counterpart in nonscientific realms of thought. How does the scientific notion translate into more everyday notions of experience in and of time? To answer this question, we will look at recent attempts to bring chaos theory into the study of history, and then, having investigated the idea in the abstract, we will turn to a [End Page 397] novel--Penelope Lively's *Cleopatra's Sister* (1993)--in order to see the idea imagined into life. Lively has frequently written novels concerned with our contemporary understanding of history, and in *Cleopatra's Sister* she gives us both a story told in terms of this complex causality as well as a critique of the uses of such causality for the writing of history. We will find, then, that the theory can help us discover the significance of history in the novel and that the novel can help us discover the significance of the theory.

Although its importance and even its meaning have not yet been settled, chaos theory has spread rather swiftly and broadly since it first surfaced in the early 1970s.² Examples of its use may be found in the more mathematically-based "hard" sciences such as meteorology, biology, physiology, but also in other fields that make use of mathematical models in their research: archaeology, paleontology, as well as economics and sociology. It remains to be seen, however, in what ways such a theory might prove useful in the study of the less mathematical human sciences, specifically

history, and then in the study of the nonmathematical, imaginative arts. The name, chaos, actually misleads because the theory in fact describes a kind of order, one that does not appear as such to the everyday perception. When we think of everyday causation, of event A bringing about result B, we remain within the more or less intuitively apprehensible, linear world of Newtonian physics. But chaos theory discovers a different order of causation. If we isolate some sequence of change in the natural world, we have automatically distinguished a beginning state from an end state. Chaos theory has to do with the nature of the difference of the end from the beginning. In a nonchaotic sequence or system, as it is called, there is a relatively direct causal relationship between the two. Thus, the end will vary in a regular way from the beginning, such that small changes in the nature of the beginning will bring about small changes in the end, large changes in the beginning will bring about large changes in the end, etc. If we strike a baseball with a certain force, it will go a certain distance, and as we increase the force, the achieved distance increases in a similar, predictable degree.

In a chaotic sequence, on the other hand, small changes in the beginning produce large changes in the end. In fact, to everyday perception, there seems to be no causal relationship between beginning and end. The end seems simply to have happened. For example, the **[End Page 398]** smoke particles drifting up from the end of a cigarette in a still room will move in a coherent column for a time but then suddenly become erratic and diffuse, moving in all directions. Typically, we would intuitively assume some external force had caused this radical change in the smoke column. Chaos theory claims that the change need not be the effect of an external force, a draft, change of pressure, or whatever, but can arise from within the isolated system of smoke and fire. So the initial state of burning tobacco causes the orderly column, but some specifiable element within that same initial state makes its causal presence manifest only after a certain passage of time. The abrupt shift into disorder is, if we are considering a chaotic event and not just a random one, quantitatively formulable and predictable in some key way within a realm of probability.

Implied in such an idea is a paradoxical or at least counterintuitive notion of causality. The chaotic end is determined by the unchaotic beginning: the chaotic end is a necessary outcome of the unchaotic beginning. In effect we have a steady quantitative accumulation or series of like elements in a coherent system--the column of smoke particles produced by the glowing coal of tobacco--that suddenly undergoes a qualitative transformation into randomness: similarity suddenly disperses into difference.³ Usually we think of randomness and chaos as opposites of the determined and the necessary, but in this case, we have a kind of determined randomness, a quality stressed in nearly every exposition of the theory. As George Reisch says, "Chaotic behavior . . . is determinate and law-governed. . . . Chaotic systems may look as though they evolve randomly, but they are still governed by laws" (6).

Though chaos theory originated as an explanation of how disorder suddenly emerges from order, the reverse process, a different but also "counterintuitive phenomenon" in which "very disordered systems spontaneously 'crystallize'" into order, has also been defined and has been called "antichaos" (Kauffman 78). Antichaos shows promise of

becoming important in theories of evolutionary biology.⁴ Here again, we have the attempt to argue for a formulable necessity in a sequence of events that, to everyday perception, appear causally unrelated.

Time and change are essential elements of all versions of chaos theory. In fact the theory "shows us that the need for diachronic methods of understanding is much broader than previously thought," even **[End Page 399]** in the "hard" sciences (Kellert 96). Given this, it seems likely enough to consider the possible relevance of the theory to the field of history itself. But how might this be done? Stephen Kellert has argued that chaos theory gives us significant understanding of events by "constructing, elaborating, and applying simple dynamical models" (85). How can we bring the model across from the sciences to history? Charles Dyke gives one of the early discussions of this issue. He, too, writes that this kind of explanation involves the specification of a system to be explained and "the development of a suitable model" by which to explain it, but then he stops short of actually giving us a model (384). But more recently, Michael Shermer has taken the chaotic bull by the horns. In his essay, "Exorcising Laplace's Demon: Chaos and Antichaos, History and Metahistory," we finally get a model of how chaos theory can work for history.⁵

Shermer has read the important literature on chaos, and he deals directly with the previous arguments, both pro and con, about history and chaos. "The integration of chaos and history," he writes, "uses a theory of present change to explain past change" (61). More specifically, the integration of the two produces what he calls a "model of contingent-necessity." Contingency here means "a conjuncture of events occurring without perceptible design," while necessity means "constraining circumstances compelling a certain course of action" (70). Again, typically, we think of contingency as having to do with randomness and being on the opposite end of a scale that runs to determinism or necessity.⁶ These opposed ideas have been central to history forever. Though historians have traditionally made claims for determinism, they have often enough allowed for what has become known as the "Cleopatra's nose" notion of history, which holds that if Cleopatra "had had a different nose, unattractive to Roman generals, the battle of Actium might not have happened," and world history would be entirely different (McCloskey 36). But looking at this sort of randomness through the lens of chaos theory enables Shermer to come up with his model, which holds that "in the development of any historical sequence the role of contingencies in the construction of necessities is accentuated in the early stages and attenuated in the later" (70):

[At] the beginning of any historical sequence, actions of the individual elements are chaotic, unpredictable, and have a **[End Page 400]** powerful influence on the future development of that sequence. As the sequence gradually develops and the pathways slowly become worn, out of chaos comes order. The individual elements sort themselves into their allotted positions, as dictated solely by what came before--the unique and characteristic sum and substance of history, driven forward on the entropic arrow of time by the interplay of contingency and necessity.
(71)

In short, we have order appearing in an ostensibly random way out of disorder: Shermer actually integrates history with antichaos, though again, the principles and the implications for causation in general are the same.

One conclusion drawn by Shermer about writing history, given the contingency/necessity model, is that conventional cause and effect claims can still be made about history, but they must be made only for relatively short time intervals or scenes that "are narrative in structure" (65).⁷ This is because the temporal distance between beginning and ending automatically brings in more likelihood of chaotic fluctuation that either will not be seen at all or in any case will not be seen for what it is. So the narrative structuration of history remains, but it must be done in a certain way, with a certain awareness. Shermer gives a couple of quick examples of this--one involving the history of the typewriter keyboard, another the formulaic recurrence of witch crazes. But we may wonder about what this means for everyday life, for the kinds of self-histories, self-narratives that we live in the flesh. If in recent decades we have begun to rethink history, we have at the same time begun to think about the crucial role of narrative in the construction of our basic senses of being and knowledge. What we think about history and narrative is what we think about ourselves. To examine what *living* is like with this sense of history, we may turn to fiction.

Contemporary British novelist Penelope Lively has considered the implications of what we may call postmodern history or temporality in a number of fine books. Her Booker Prize winning *Moon Tiger* (1987), for instance, involves a practicing historian as its protagonist/main character as well as two supporting characters who are also historians. Throughout the book we hear arguments about the best way to do history, and we come away with a profound insight into the [End Page 401] everyday significance of the antichronological impulse of postmodern historiography. She has considered the situation of the biographer with respect to current ideas of time and self in *The Gospel According to Mark* (1984). In *City of the Mind* (1991), looking through the eyes of an architect, we see the late-twentieth century urban cityscape as the material manifestation of contemporary ideas of history. The city is the space in which "everything is simultaneous . . . no yesterday, nor tomorrow," only an ever-present processing of "decay, and construction" (24). She has also written a nonfictional book, *The Presence of the Past: An Introduction to Landscape History*. But the work that most stands out with respect to the integration of chaos and history is her most recent effort, *Cleopatra's Sister*. Since this work is a novel, we obviously cannot examine it as we would an actual history; nonetheless, as we shall see, it both has histories in it and is also very much about history. In fact this novel is typical of Lively's best work in that it gives us a representation of what a certain version of history means for the living of everyday life in the present.

Cleopatra's Sister tells the stories of Howard Beamish, a paleontologist, Lucy Faulkner, a journalist, and an imaginary north-African country called Callimbia, in the capital of which stands a statue of the legendary Berenice, who was Cleopatra's sister. Part One, making up the first half of the book, is divided into twelve chapters that alternate in the pattern: Howard, Callimbia, Lucy, Callimbia, Howard, Callimbia,

Lucy, etc., each chapter being titled accordingly. The first explains how an experience as a little boy leads to Howard's adult profession as a paleontologist. Next we get the geological prehistory of Callimbia. Then we are introduced to Lucy and learn the circumstances of her birth and early childhood. The rest of the chapters of Part One then progress through Howard's and Lucy's teen years to adulthood, and Callimbia "grows up" across the Roman and Medieval ages to the present.

History in general seems present enough in all this, but how is it chaotic history? Shermer draws five corollaries from his contingent-necessity model. The first one tells us that the "earlier the development of any historical sequence the more chaotic are the actions of the individual elements of that sequence and the less predictable are future actions and necessities" (71). In other words, the further back in time from the ending in a sequence, the more independent and unrelated do the beginning elements get to be. In *Cleopatra's Sister*, [End Page 402] other than the fact that, as we read, we pass from one differently-titled chapter to another, we find no apparent narrative linkage at all between chapters in Part One. (Of course through a process of abstraction we may uncover categories of similarity between literally any two lists of items, but this does not constitute a narrative relation.) Howard is not a character in any "Callimbia" chapter, Lucy does not appear in any "Howard" chapter, etc. We have no reason, from the chapters themselves, to feel that we are even in a sequence: we appear to be in three sequences only randomly bound together by the cover of a book.

We do, however, have narrative coherence within each chapter, and we also find that each coherent story has randomness woven into its basic texture. In the beginning, Howard discovers paleontology "because of a rise in the interest rate when he was six years old" (3). This unexpected monetary shift makes a European vacation suddenly too expensive, so Howard's family ends up in Lyme, home of the cliffs so well known in paleontology and British fiction. The family only visits Lyme once, but as a result, Howard finds a fossil, develops a "passion for classification," and begins a life interest. Lucy, we find, "was born in Luton because her father met a man in a pub who had a good wheeze going with cheap leather jackets from Spain" (21). After teaming up with this man, her father moves his pregnant wife with him to Luton, which becomes Lucy's birthplace. Later, Howard manages to become a professor only because, of the two senior professors in power, the one who would have hired Howard's competitor ends up in a car wreck and misses the hiring interview (45-46). Later still, he acquires his first real home "by accident," and because of where he lives he meets a batch of "arbitrarily acquired associates" (45). He soon falls in love for the first time with one of these neighbors and thus loses "his innocence, in various ways, and all because, on a particular morning, he walked down one street rather than another" (46, 55). Lucy secures her first real job as a journalist "because one day she leapt too precipitately off a bus, fell and grazed her leg." Upon running into a store to get new stockings, she happens to encounter an acquaintance who knows about an opening (71). Howard has a similarly fortunate fall. After tumbling "from a borrowed stepladder and [breaking] his kneecap" (83), he winds up in physical therapy right next to his future wife, Vivien. Much later, when he has left Vivien and lost [End Page 403] his sense of self-confidence, by chance he meets a museum curator from Nairobi who

happens to have some unstudied fossils. Howard decides a research project in Kenya is just what he needs to get himself generally recharged (95). Lucy's big break as a journalist comes along as a result, not of her skills, but of one editor wanting to outflank the "colleague that he most disliked" by hiring a newcomer instead of an insider (104). After becoming a successful journalist, Lucy buys a home, takes on debts, but still must deal with the economic uncertainties of being freelance. Because she happens to be in a period with no real income showing up, she feels obligated to take a travel-writing assignment in Africa. Consequently, as a culmination of these long chains of random causes, the journalist and the paleontologist take the same flight to Kenya. But--after all this, Lively continues to play with our expectations--though they even stand next to each other in line to the restrooms, they do not actually meet on the plane.

Most of us may agree that chance plays a part in determining our life stories, and novelists have always included chance in their narratives. Here though, it is not so much *that* Lively considers chance, but the *way* she considers it, that is, neither as part of some theological providence, which was typical of the way many of the great Victorian novelists saw chance, nor as some antitheological nihilism, which was typical of many of the great Naturalist representations of chance. In short, she sees chance as chaos theory does. Narrative "is a sequence of present moments, but the present does not exist, or exists only as a ripple that runs right through the story, a procession of contingent events leading tidily from birth to death." We humans always totter precariously "between the operation of contingency and decision," improvising at best "an uneasy balance" between the two as we change through time (Lively 15-16). In spite of our clocks and plans and schedules, we always confront the "strange conjunction of likelihood and contingency which is the root of life, in every sense. The accident of reality, and of human existence" (44). We have seen above how reading history as a dynamical system requires a series of discreet narrative scenes. Lively's "procession of contingent events" is just that. Her phrase describes both the construction of this book and the construction of Shermer's chaotic history. And in fact *Cleopatra's Sister* is a procession of contingencies both synchronically and diachronically. First, the chapters in relation to each other are at this point only an [End Page 404] unrelated series, a kind of laterally (synchronically) contingent relationship. However, within each chapter the (diachronic) events that determine the individual stories seem chaotic, in our specific sense, as well. Each chapter is a discrete narrative entity in itself, capturing a specific scene of change, but within each scene the important events of each life seem in a fundamental way to happen by chance, without any certifiable cause, without design: a subsequent event cannot easily be said to have been constrained to a course by its predecessor.

Lively's characters, too, consider these very problems. At one point Howard explains the interest of history to his skeptical first wife, Vivien, whose opinion of such study is that "'it's pointless . . . either things happen or they don't. If they do, then there's nothing to be done about it and if they don't, then so what?'" But there is the question of why, and, says Howard, "'you need to think about what may be determined and what may depend on contingency'" (87). Howard is a historian of "ultimate antiquity" (43).

He studies fossils of microscopic, primordial life forms, both those that somehow managed to produce modern, higher life forms and those that were evolutionary dead-ends, "the doomed originators of a host of alternative worlds, the elegant biological suggestions" that might have caused an entirely different present "if the contingent events of evolution had proceeded differently" (44).⁸ Lucy, on the other hand, is the historian of the present instant. Through her journalistic reporting she creates the historical issues of the day: "She would seize upon a subject when it was in mint condition, untarnished by discussion, before people knew that they were concerned." She lives and writes in the midst of the "unpredictable, a continuous unfurling of surprise," though "behind it all" she senses "some invisible unstoppable force, charging ahead" (105). Such a profession makes her feel always in the middle of a plot whose ending she does not know: "[I]t's as though," she says to her mother, "you were a character in a novel, living it out without any idea how it was going to end" (105). So both characters deal with the strange mix of determinacy and chance in their professional as well as in their personal lives.

Lively could, readily enough, have written a book in which the narrative threads never get woven together, but if she had done this we would have only an example of a random association of three histories. Though of course we could possibly enjoy and learn from such a book, as a whole it would be neither a chaotic nor a nonchaotic version of [End Page 405] history. So what, then, finally determines that we have a unified historical narrative at all? In Part Two of the novel, Howard and Lucy are traveling, still unknown to each other, on the same plane to Nigeria. It develops mechanical problems and must make an emergency landing at the airport in civil-war torn Callimbia, after which they finally meet. Part Two begins again with chapter 1, but now there are no chapter titles to distinguish individual narratives. One neutral number covers Howard's, Lucy's, and Callimbia's story. In chapter 1 of Part Two, as Lucy and Howard are buying plane tickets and traveling and as their plane makes the emergency landing, there remain separations in the text, but what had been held apart by chapter breaks is now held apart only by blank spaces. Not until the second chapter of Part Two, when the two protagonists actually meet, do all breaks between all narrative strands finally give way. The previously unrelated elements have come together in one interactive narrative sequence. From this time forward, chapter breaks only separate discrete changes in the action of the second half of the book, the whole of which takes place in a single week that transpires on the ground in Callimbia. During this week the passengers become the luckless hostage-pawns in an international diplomatic confrontation between Callimbia and the United Kingdom. This political situation sounds disordered enough, and we will look at its significance shortly. But in the midst of all this, perhaps the most odd order of all suddenly (in only seven days) develops: love.

Another corollary to Shermer's model concludes that "change in historical sequences from chaotic to ordered . . . tends to occur at points where poorly-established necessities give way to dominant ones so that a contingency will have little effect in altering the direction of the sequence" (Shermer 71). We have had so far the barest possible necessary relationship between Lucy, Howard, and of course Callimbia. But

now the very randomness that has conjoined the two travelers physically as people will suddenly emerge into a necessary relationship, one that becomes in a profound way impervious to further disorder.

Though in Part Two we have at last one coherent order of narrative, within that order confusion and disorientation reign. Lucy and Howard's involvement begins in a dehistoricized state: "[W]e seem to be living from moment to moment," Howard says as he brings Lucy a soft drink (141). And Lucy at one point looks around at "this jumble of people, which means something, which is a code, which tells a whole **[End Page 406]** story that you cannot understand" (166). And, as she tells Howard, "I have this odd feeling of having been flung sideways. Into some other dimension of time. Not unreal exactly. Surreal, maybe" (183). But as they come closer to each other, they become for each other order in the midst of chaos. The passengers have been herded under armed guard into a filthy barracks and told nothing at all about their situation. Howard finally sleeps, only to wake in the middle of the night completely disoriented, in a state of "wild confusion." But then seeing Lucy sleeping nearby, he is "instantly slotted back into a sequence. He knew where he was and why" (158). And the more the order of love emerges from the surrounding chaos of the present as well as from the chaos of Part One, the more Part One, that is, the past, no longer appears as a set of simple contingencies. Telling Lucy, for instance, about his first memory--finding a fossil as a child--he can now say that from that distant, random event "'springs, I suppose, my entire life. Including, come to think of it, being here now'" (184). The necessary order builds as the two spend the tedious hours telling each other their life stories. "'You've heard . . . my entire life history,'" Lucy says after a time (186). Finally they feel embarrassed at seeming so intimate, "so absorbed in each other," in the midst of so much fear. But as Howard says, "[W]e can't help it, can we?" And Lucy must agree: "'We can't'" (187). In fact we have arrived at Shermer's second corollary: the later we are in a historical sequence, the more ordered are the actions within the sequence and the more predictable are future actions and necessities in that sequence (Shermer 71). The order of love institutes a stasis that will remain. "'Whatever happens,'" Howard thinks late in the story, "there will have been this" (236). And Lucy thinks similarly: "whatever happens to me, even if it is ghastly, at least I've known what it is to be in love" (210).

Because love institutes order out of chaos, Lucy perceives the present in a significantly different way than the rest of the passengers. When a Callimbian official finally tells them that they are hostages, everyone is shocked and disbelieving: "It's so bloody unjust," says one man. "I mean, whatever's going on here is really nothing to do with us, is it? It's not our problem." But, Lucy thinks, "[I]t is. And it always has been, only we never knew it. All our lives this place has been waiting for us. . . . All our lives we've been converging upon this" (193). She thinks of the "mysterious narrative of [Callimbia], flowing also towards **[End Page 407]** this moment when it and they, she and Howard, . . . would collide here" (195). And near the end, Lucy considers the change that has occurred in herself, not because of the hostage experience, but because of Howard. She recalls their first conversation and the seemingly "vast tract of time" that had passed between. "I am someone else now," she thinks. "I am different. I can

never go back to being who I was then" (263).

This new necessary union has emerged apparently by chance from the unrelated histories that preceded it. What determines the causal relationship between the earlier unrelated sequences is, of course, the present. Corollary three of Shermer's model states what, really, is true of all history: the "actions of the individual elements of any historical sequence are generally postdictable but not specifically predictable" (71). Only from the ending can the beginning be recognized as a specific source or cause of the ending. Only now that an order--love--has been established can we look back and see how the three unrelated sequences have in fact caused just this order.

Once love has in fact blossomed, both Lucy and Howard seem impervious in a way to the contingencies of their situation, but nonetheless they remain threatened by the randomness of external events. The difference now is that, having established this necessity, it will take a very substantial contingency to change the stasis they have achieved. Death, however, is the great contingency constantly threatening the human story, and in this story it prowls nearby at all times. Which brings us round to the external situation. Thus far we have not attended so much to Callimbia itself, and yet it played a more than equal part in the first half of the book. How shall we relate Callimbia to the idea of chaos in history?

In the fifth corollary derived from his model, Shermer asserts that change "in historical sequences is rare, followed by relative nonstasis, and tends to occur at points where previously well-established necessities have been challenged by others so that a contingency may push the sequence in one direction or another" (71). The history of Callimbia in Part One is a history of colonialism. After Cleopatra's sister, Berenice, becomes ruler of Callimbia, the country becomes "part of mainstream Mediterranean history" and so undergoes a long course of what the narrator calls "historical negotiation," being constantly invaded and occupied by various Mediterranean empires (60). After **[End Page 408]** the Romans in antiquity come the Turks in the Middle Ages, the French in the nineteenth century, and then during World War II "it had been in the hands of the Italians, the Germans and the British alternately" (115). After the war, the country gains independence and prospers, but then begins to fall into Cold War political and economic turmoil, helped along by the machinations of the Americans, the Russians, and the Chinese. Oil is discovered, which brings wealth, but not political stability. Finally, just as Lucy and Howard's plane takes off from Heathrow, a charismatic and ruthless military officer named Omar stages a successful coup. As in real life, we don't get much detail about what follows, but some of Omar's ousted enemies find sanctuary in England. Seizing their lucky chance, the Callimbian government holds the passengers hostage in hopes of arranging an exchange.

Looking at this chronology from the perspective of the colonizing West, we find it to be a relatively nonchaotic system, at least until the coup wherein colonialism of one kind or another acts as the great cause of Callimbia as a political entity. As an isolated historical narrative, colonialism has been a well-established necessity. But especially since World War II, this necessity has been "challenged by others," first by native

peoples who got rid of their colonial rulers, and more recently by what appear to the West to be renegade upstarts: leaders such as Mohammar Khaddafi, the Ayatollah Khomeini, and Saddam Hussein. In relation to the long, long history of colonialism in general, to the dominance of the industrial west in the past two centuries, and even to the Cold War polarization of power (which was in its own way quite an orderly, albeit dangerous, arrangement of things), recent times have seen an eruption of chaos in the world's political story. To many of those who have long considered themselves to be at the top of the world order, a situation in which the "third world" increasingly and successfully defies the "first world" can only be a situation of outrageous disorder. In some ways this case has only intensified with the end of the USSR, because now it has become more difficult to say just who is aligned with whom or even if alignment is the right word to use anymore. It is no longer quite clear just which realms of power--political, military, economic--matter most.

This brings us to the specific contingency that upsets the colonial order as represented in Lively's book. The narrator argues that "[t]he extent to which an individual can manipulate the course of history is a [End Page 409] matter of intense debate. . . . The Cleopatra's nose theory of history refers to the operation of contingency, but also implies that personality is everything" (114). And personality alone brings Omar into power: "It was impossible to identify what he offered or stood for, to clarify his vision or his political intent. His power and his allure lay simply in furious purpose, a megalomaniac concentration of ambition which mesmerized and ignited his ever-growing cohort of supporters" (119). So the contingent effect of individual personality becomes ever more significant in a destabilized world order. We can see how the emergence of this political disorder (chaos) into the history of western domination moves in inverse relation to the emergence of order (antichaos) into the lives of Lucy and Howard.

But now, having seen examples of both chaos and antichaos, we may ask what Lively's fictional representation of these kinds of history has to say about the model as Shermer has proposed it. If the theory can illuminate the fiction, the fiction may in its turn illuminate the theory. One most evident question for the model would be this: what are the constraints by which one could prove a causal relationship of this kind? As Tzvetan Todorov has suggested, in constructing a narrative sequence the beginning and the end must be linked by qualities of both difference and resemblance or sameness along the sequence: the "exclusive presence of [either difference or resemblance] brings us into a type of discourse which is not yet narrative" (233). In other words, if the ending is only the same as the beginning, then there is nothing to explain, no need to write a story at all. If the ending is only different from the beginning, then we have no narrative relationship, but rather a random series of differing events, as, for instance, with the sequence of the day's news stories. Beginning and ending must be in important ways both the same and also different from each other, and the ending itself will be some kind of "synthesis of differences and resemblance" (233). Arthur Danto, in his still-crucial *Analytical Philosophy of History*, argues much the same, and further, he shows that both historical explanations and causal explanations in general take the form of

narrative (Danto 233-56).

In the most conventional of histories we have a relatively linear narrative line in which the presence of difference and resemblance are apprehensible all the way along. But in writing history after the contingency-necessity model, how will the historian secure some threshold **[End Page 410]** degree of resemblance between beginning and end in order to prove the causal emergence of order rather than the random emergence of order? Again, what is so striking about a chaotic or antichaotic sequence is the lack of similarity between beginning and end. If some significant element of sameness (beyond the simple presence of the same elements or characters) cannot be isolated along the way, then it will appear that the historian is just saying, as opposed to proving, that order emerges from the specific, earlier chaotic elements (and vice versa in the scenario of chaos emerging from order). It could appear that to write such a history one has only to take the given ending and simply trace backwards in time the individual paths by which the various elements arrived at the time and order of that ending. Each path would presumably work since it obviously brings the element to the ending place and time. In effect, such a history would trace only sameness--the isolated coherence of the convergent elements--until it arrived at the ending, and then, presto-chango, we have difference. But this is a report or description, not an historical explanation. Where is the necessity, which is to say, where is the resemblance of the ending in the beginning? For necessity remains in chaos theory: without it we have only randomness, only an arbitrary linkage of events in time.

Shermer asserts that necessity is a function of the normal interpretive choice made by any historian. A "historical sequence," he writes,

is what the historian says it is. The variables, however, are not arbitrarily chosen. The historian can present evidence for the significance of these precise starting and stopping points, which is what [historians] already do. Once these chronological boundaries are established, then the model of contingent-necessity and its corollaries can be used as a heuristic framework for representing what happened between these limits. (71)

The problem of arbitrariness is of course the bane of the historian. Lacking the living presence of the subject of study, lacking a subject that can be tested and retested through experiment, the historian must constantly worry about being accused of making arbitrary connections between events. Postmodern historians such as Louis Mink, Hayden White, Michel Foucault, Thomas Kuhn, and the like typically take this problem as a given, though they make different claims about history as **[End Page 411]** a result. Shermer has in effect done the same. Lively's narrator-historian, too, is distinctly postmodern. Referring early in Part One to the public history of the nation of Callimbia, she says that these "events are chronological: they take place in sequence" and are dependent upon each other. The "whole historical edifice will shift on its foundations" if we "extract a decade, or a century" from the narrative sequence that we have built up. But, she quickly adds, the narrative "edifice is itself a chimera, a

construct of the human intellect" (17).

Though Lively is writing a fiction and not a history in the strict sense, she expresses the problem of arbitrariness as described above, the problem of maintaining sufficient causality, sufficient resemblance and difference in the act of writing a chaotic history. We see this when, in the midst of the chance events that make up Part One, we find Howard, early on, recalling how his adult life has flowed out of his first memory, and he has a "vision of the entire direction of life latent at any single moment, implicit in the scheme of things, as though a silent refrain from the future were woven into the narrative, if only you knew how to pick up the frequency" (7). And in a similar manner, looking back at his early fascination with fossils, he "seemed to be directed by some echo of his own future self" (11). Retrospectively, the future seems always to have been the necessary goal of the past. Lucy vacillates between feeling that she controls her destiny and feeling always already written into an "inexorable narrative" that leads her "relentlessly towards the people and the places waiting" in the future (70). So in this way Lively puts into our minds the idea of the ending being already present along the sequence, even as she shows us change happening arbitrarily. But this in itself is not enough, really, to make the whole book cohere as a history, which is what it wants to do. Where, we still have to ask, is the presence of the ending or future in the beginning or past?

In my description of Part One, I have not mentioned certain anomalies, certain intrusions that pop, seemingly out of nowhere, into the narrative flow of each of Howard and Lucy's chapters. I have not mentioned them because they are, in an important way, not part of the narratives in which they appear. They are invisible, so to speak, to the world constituted under the name of Howard or Lucy. The intrusions consist of apparently randomly inserted, italicized quotations set off **[End Page 412]** from the narrative. In chapter 1 we are reading the story of how as a child Howard became an atheist, when a break occurs:

"Do you believe in God?" Lucy asked.

"Of course not," he said. "Do you?" (11)

Because we are only in chapter 1, we have not even heard of a character named Lucy, and the "he" does not appear to be referring to the Howard with whom we are presently concerned. Often enough, these breaks do not even give the speakers' names. They simply occur, as if the builder of our narrative had absent-mindedly mortared a white, paving brick into an otherwise red brick wall. But when we come to Part Two, the anomalous intrusions seem to disappear just as inexplicably as they had earlier appeared. Actually, however, they do not quite disappear. In fact as we move across this section of the book, our eye finds a certain familiarity in certain passages of conversation. At one point, Lucy asks Howard about his religious beliefs: "'Do you believe in God?'" He replies, "'Of course not. Do you?'" (196).⁹ It is as if now our narrative edifice has a *pattern* in which white bricks are added consciously to give our red brick edifice some contrast. But while changing patterns in a material medium may

be well enough, changing the pattern this way in time becomes thoroughly disorienting. Our experiential certainty of the linearity of past, present, and future begins to shift on its foundations. Looking back from the perspective of Part Two as the present, it now appears that the present has already happened in the past of Part One. Conversely, from the perspective of Part One as the present, it turns out that the future is already happening. In any case, we observers, we retracers of the historian-narrator's retracing, can see after the fact what must have been present in order to have a history and yet what cannot be seen by those living that history.

Thus Lively, it seems to me, clearly understands a primary problem in constructing a chaotic or contingent-necessitarian model of history: namely the problem of showing the presence of the ending all along the way. Because she is a novelist, she has license simply to wedge the ending into the beginning in this way, so that her reader experiences both resemblance and difference at the end. But a historian lacks this freedom. In giving us a fictional representation of how the contingency-necessity model might play out in "real" life, *Cleopatra's [End Page 413] Sister* shows us that the model is true but is perhaps not writable as history in its formal, at least quasi-scientific, sense. The model has a certain validity, if only because it tries to understand history in ways that we have come to understand time and change in other fields. If the chaos model seems true of material reality, and human experience occurs one way or another in material reality, then there would seem to be some relationship between the scientific model and change over time in human life. For this reason alone, we can see why historians might want to explore its relevance to their investigations.

The model also appeals because of the way it attempts to reconcile the two opposite ends of the spectrum of historical narrativity: the purely contingent sequence in time and the absolutely determined sequence in time. As we have seen, Lively's history gives us both the contingent and the necessary. In fact her version of history lies in between those histories that stress arbitrary change and those that stress deterministic change. And this is one of the effects, intended or not, of chaos theories in general: they give us a theory, an intellectual model for a realm of knowledge that straddles the opposition between the arbitrary and the determined. In their extreme senses, both arbitrary and determined are metaphysical absolutes, the former a dream of utter lawlessness, the latter a dream of utter lawfulness. The postmodern position tries to occur just in between the arbitrary and the determined.

The discovery of chaos theory at this time in history may also be related to the changing world political order as I have described it above. Shermer asserts that, although chaos and nonlinear dynamics have clear beginnings in the end of the nineteenth century, nonetheless only in the sixties did scientists recognize this kind of order as order instead of "anomalous data, natural noise, and experimental error to be dismissed" (62). The emergence of this different order of order into the realm of scientific (and other) knowledge parallels, as Stephen Kellert and Katherine Hayles have shown, certain other emergences in contemporaneous social, political, and philosophical realms. The chaos of the present might appear especially true from the point of view of England, the country that had been the most prominent of Western

imperialists. In fact it is significant that only the Americans, Russians, and Chinese manipulate post World War II politics in Callimbia: England [End Page 414] is simply no longer a player. ¹⁰ Lively of course may not feel this specifically, but she is nonetheless a part of this historical climate.

At present, we are no longer quite satisfied with the good, old, deterministic story, and we can hardly be satisfied with randomness, even if we feel that it is truly the case. We are like Howard at the end of the novel. At the last moment, the Callimbians free the hostages, give them cheap gifts, and put them on a plane out of the country. Howard finds himself imagining what is certain to happen now: the interpretive recasting of the course of events that had brought about the ending. But he "did not want any of this. He did not want to hear the reverse account of everything--the explanations, the justifications. . . . He preferred to leave it as it was: irrational and inexplicable. . . . All he could feel right now, was that explanations and revelations had nothing to do with what had happened and could not be undone, the whole contingent sequence." History, no matter what model, cannot do justice to lived reality. And yet we must historicize our experience. No sooner has Howard rejected the historicizing process about to begin than he himself begins just such an analysis: "He considered this sequence: he dismantled it and looked at its component parts, at moments which could have flown off in some other direction, at the whole precarious narrative" (281-82). Here, a narrative process has commenced in which what we hope for is a narrative that fits our self-conception, one that will provide an emotional or spiritual certainty and yet not violate the contradictions of our intellectual understandings. Given this, the uncertainty that inhabits chaos theories in general and the uncertainty that, it seems, hampers its use in historical thinking may be just what we want now.

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Notes

1. Many writers agree that the term "chaos" is now inaccurate and has become sensationalized in ways that distort the meaning of what has actually been discovered. Since we now have theories of the sudden emergence of order as well as of disorder, the terms "complexity" or "nonlinear dynamics" captures the general nature of the phenomena involved. And yet, for better or worse, the term "chaos" seems to have established itself, and so I will use it here.

2. See Horgan for a somewhat skeptical overview of the current state of affairs with chaos.

3. Kellert (101) gives a particularly clear explanation of the quantitative/

qualitative issue.

4. Stewart Kauffman is the most famous theorizer in this way. See *The Origins of Order: Self-Organization and Selection in Evolution*.

5. The other previous discussions occur primarily in the journal *History and Theory*. The first number of the 1991 volume opened with a special section entitled "Chaos Theory and History," which included Reisch and McCloskey. Both make arguments for the relevance of chaos to history. In the opening number of the 1995 volume we find a special section: "*Forum: Chaos Theory and History Revisited*" which includes an essay that criticizes the two earlier essays, a rebuttal of this criticism by George Reisch, and the Shermer essay to which I refer throughout.

6. Actually the word contingency can mean very nearly the opposite of the definition just provided. It can mean dependent upon the accomplishment of a previous event, though not in the classical, Newtonian cause-effect sense. Stephen Jay Gould proposes this rather in-between meaning of contingency as the correct description of the way evolution happens (Gould 283). Shermer, in his own way, is also reaching for this in-between kind of causality.

7. Shermer is seconding a conclusion reached earlier by Reisch, who had argued that "covering-law explanations," that is, "accepted laws or regularities" of the traditional cause-effect kind, can still be used, but only if the time involved is first divided into "many small consecutive intervals or scenes" that are "narrative temporal structures" (18).

8. Lively's interest in the history of paleontology shows through here. The image of the fossil dead-ends likely refers to the famous misreading of the Burgess shale fossils by the eminent paleontologist Charles Doolittle Walcott. Stephen Jay Gould, whose notion of "punctuated equilibrium" is a kind of chaos theory of evolutionary change, has written of the way the teleological reading of Darwin caused Walcott to misinterpret the evidence: Gould proposes the term contingency as the proper term for how evolution has actually occurred, contingency being a non-mediating "third alternative, off the line" that runs from determinism to randomness (51). He also discusses at length the fossil *Hallucigenia* (Gould 154-57) that turns out to be Howard's particular favorite in *Cleopatra's Sister* (144).

9. The other examples of these achronic repetitions occur on pages 28 and 231; 56 and 165; 71 and 142; 90 and 238; 105 and 198.

10. Such a recognition in itself makes no value judgment: some in England and elsewhere consider this present disorder to be the decay of civilization, while "others" of various kinds feel it is a great renaissance.

Works Cited

