

**Synthesizing Systems:
The Work of Art and Science in the Fiction of Richard Powers**

by

Anna Darden Copeland

DISSERTATION.COM



Boca Raton

Synthesizing Systems: The Work of Art and Science in the Fiction of Richard Powers

Copyright © 1995 Anna Darden Copeland
All rights reserved.

Dissertation.com
Boca Raton, Florida
USA • 2007

ISBN: 1-58112-356-6

ACKNOWLEDGMENTS

I would like to thank the members of my committee, Marilyn May Lombardi, Kelley Griffith, Julian Lombardi, and Greg Meyerson, for their efforts on my behalf. In particular, I would like to take this opportunity to thank my Chair, Marilyn May Lombardi, who forced me to think through and refine my ideas into a sustained argument. I would also like to give special thanks to Greg Meyerson for his friendship and for introducing me to a way of seeing that I will never abandon.

There are, of course, others without whom I might never have finished this project. Keith Ferrell and the entire staff at OMNI Magazine have my undying gratitude for their patience and encouragement. I would also like to thank Janet Stites, Jim and Susan Neilson, and most especially my husband, Simon Wheatley, for the constant reminders that without a sense of humor no work is worth the effort. To Mother, C.T., and the rest of the family: Thank you for years and years of support--the love goes without saying.

Finally, I take this opportunity to acknowledge the impact of two extraordinary men who will never see the work they inspired. To Murray Cox I owe a profession and a revived respect for the the ability of words to make a difference. And to my father, Albert Copeland, I owe more than words can convey. It is to his memory that I dedicate my own efforts to find both truth and beauty in the ordinary substance of every day lives.

TABLE OF CONTENTS

| | Page |
|--|------|
| APPROVAL PAGE | ii |
| ACKNOWLEDGMENTS | iii |
| CHAPTER | |
| I. INTRODUCTION | 1 |
| II. <u>THREE FARMERS ON THEIR WAY TO A DANCE: A READING TOUR OF THE TWENTIETH CENTURY</u> | 24 |
| III. <u>PRISONER'S DILEMMA: A PORTRAIT DRAWN IN BUTTERFLY WINGS</u> | 59 |
| IV. <u>TRANSLATING SCALES: ORIGINS AND EVOLUTION IN THE GOLD BUG VARIATIONS</u> | 93 |
| V. <u>A COUNTRY A DAY FOR A YEAR: MAPPING THE HOMELESS HEART IN OPERATION WANDERING SOUL</u> | 143 |
| VI. <u>THE POWERS PARADOX: GALETEA 2.2 AND THE LAST WORD THAT WASN'T</u> | 175 |
| BIBLIOGRAPHY | 195 |

Over ambitious projects may be objectionable in many fields, but not in literature. Literature remains alive only if we set ourselves immeasurable goals, far beyond all hope of achievement. Only if poets and writers set themselves tasks that no one else dares imagine will literature continue to have a function. Since science has begun to distrust general explanations and solutions that are not sectorial and specialized, the grand challenge for literature is to be capable of weaving together the various branches of knowledge, the various "code," into a manifold and multifaceted vision of the world.

Italo Calvino
Six Memos for the Next Millennium

But in my perplexity I know that a future will only be possible again when we find an answer and do what, as guests on this orbiting chunk of nature, we owe to one another; namely, stop frightening one another, relieve one another of fear by disarming to the point of nakedness.

Günter Grass
On Writing and Politics, 1967-1983

CHAPTER I

INTRODUCTION

With the publication of his first novel in 1985, Richard Powers became one of those writers that reviewers are constantly telling their audiences to keep an eye on, advice supported by the novel's reception in professional literary circles. Three Farmers on Their Way to a Dance received both the Hilda Rosenthal Foundation Award for Fiction given by the American Academy and Institute of Arts and Letters and The Ernest Hemingway Foundation Award granted by American PEN. The novel was also a finalist in the National Book Critics Circle Award.

Given this reception for a first novel, it is not surprising that the praise in print was lavish. In a radio show for the BBC, A.S. Byatt defended the novel for its "overt thinking," a trait she notes that many of her British colleagues find particularly American and frequently annoying.¹ In an essay for the Yale Review, Maureen Howard invoked images of Thomas Pynchon, J.D. Salinger, and even Nathaniel Hawthorne in order to situate Powers, then in his late twenties, as a writer of substance in contradistinction to the bright light and big city novelists of the eighties.² Along similar lines, Elaine Fowler Palencia distinguished Powers's writing from what she calls the "age of post-Vietnam cynicism and of post-structuralist assertions about the death of the author and the end of western logocentrism."³ She suggested that in his

attempt to unify contemporary experience in the narratives of the novel, Powers not only set himself apart from the pack of postmodern writers characterized by self-referencing irony, but that in so doing, he aligns himself with "that old master of unity, Thomas Mann."

Powers's second novel, Prisoner's Dilemma, also met with critical acclaim and brought an even wider base of comparison to established literary greats. Dan Cryer, in a Newsday review, wrote that "Richard Powers combines Saul Bellow's bent for brainy meditation, Toni Morrison's tender regard for her characters, Stanley Elkin's delight in madcap word play and Robert Stone's uniting of the personal and the political," adding that "Prisoner's Dilemma is a wonderfully original creation and its creator is a fast-rising star in the literary firmament."⁴ In an entry for the 1989 edition of Magill's Literary Annual, R. Baird Shuman compares Powers to John Dos Passo and James Joyce, claiming that with this novel Powers "has joined the company of the giants of modern fiction--Thomas Pynchon, Doris Lessing, John Barth, Vladimir Nabokov, Saul Bellow, William Kennedy, and the like."⁵ Walter Kirn, in his review of Prisoner's Dilemma for the New York weekly, 7 Day, simply states that Powers is "the writer the 80's have been waiting for and the 90's cannot afford to neglect."⁶

With the publication of The Gold Bug Variations in 1991, Operation Wandering Soul in 1993 and his fifth novel, Galetea 2.2 in June of 1995, Kirn's assessment that Powers would be hailed as a literary tour de force in the 1990's seems to have been accurate. The Gold Bug Variations, the longest and most ambitious of the novels at 638 pages, was named by **Time** as Book of the Year for 1990 and was also a finalist in the National Book

Critics Circle Award. Operation Wandering Soul was a finalist for the National Book Award as well. In addition, Powers has also received the prestigious MacArthur's Fellowship known as the "Genius Award."

Yet, in spite of his apparent success, Richard Powers is still not a name that garners instant recognition in either local bookstores or university gatherings--though it should be noted here that Powers has a stronger following in Europe than he seems to in the United States. The reasons for Powers lack of popularity in the United States are varied and complex. First, he has not been promoted well by his publishers, who are under increasing pressure to saturate the market with one or two best-sellers a season using elaborate book displays, advertising, book signing tours and talk show promotions. Powers, whose first novel is among other things a fierce criticism of the "cult of personality" upon which such promotions depend, has been reluctant even to grant interviews, much less engage in a high-profile marketing scheme. He will not, for instance, autograph copies of Three Farmers because to do so would be a violation of one of the primary motives he had in writing the book, namely to show that a work of art can be more than a static cultural artifact tied irrevocably to the hands of its creator. It also did not help that Powers chose to live abroad in the Netherlands for seven years, creating the erroneous impression among some that he was living the life of the American ex-patriot in Europe who feels contempt for his homeland culture.

Powers spoke more directly to the issue of marketing writers in one of the rare interviews he did grant. (He agreed to interviews attending the publication of The Gold Bug Variations because he said, "its a long, tough

book, and it can use all the help I can give it."⁷) In fending off questions from a Publisher's Weekly reporter about his vital statistics (age, place of birth, education), Powers responded:

I really don't see what connection all that has with the work. . . .It's not what we should be looking at. All that sort of thing [author publicity] just creates confusion about the nature of the book, deflects attention from what you've done. That's what always seem to happen in this culture: you grab hold of a personality and ignore the work.⁸

His work, however, is no more amenable to marketing than is the author. Powers's novels are dense, difficult, and demanding, a fact that alienates many of his readers. While I have highlighted the positive responses to the novels, there have been a number of reviewers who, even if they liked a particular novel, found Powers's encyclopedic references overwhelming, his characters unconvincing, his plots contrived and confusing, and his essayistic digressions disruptive. In a review of Operation Wandering Soul for the New York Times Book Review, for instance, Meg Wolitzer articulates one of the most common complaints that critics have waged against Powers.⁹ "In every mental library," she begins, "there are books that are remembered with admiration and books that are remembered with love." She goes on to explain the former "involve[s] the intricate play of language," while the latter depends "on language to support a host of strong and resonant characters." While she regards Operation Wandering Soul as an admirable insight into the nature and function of narrative in a culture which thrives on the split between sense and sensibility, Wolitzer finds that

such emphasis detracts from the ability of the author to render warm and embracable characters. Yet, all of Powers's fiction is in some way an attempt to avoid precisely the consequences of making such distinctions. In a description of what he was trying to accomplish in The Gold Bug Variations, Powers articulates a position which may be applied to all of his work. What he was trying to do, he says, was "to get those two inimicals, the head and the heart, going at the same time."¹⁰

The conflict Powers addresses can best be understood as a recasting of a more recent debate: the conflict between science and art. For Powers, repairing the strange rift between the head and the heart becomes another way of explicating the equally odd divorce of art and science which has plagued our educational system since the days of the Matthew Arnold/Thomas Huxley debates of the 1880's. It is not that Powers, in his extensive use of scientific theories, is trying to subordinate literature to science or vice versa. Rather he is relying on an intellectual arsenal frequently ignored by other writers, a choice that unfortunately alienates some readers and arouses open hostility in others. Roy Porter, for example, in a harsh review of The Gold Bug Variations for the Times Literary Supplement dismisses the novel on the grounds that: "Most of us cannot remain high on Scientific American for long."¹¹ Similarly, a review that appeared in the Sunday Telegraph jokingly warns that because of the long passages involving scientific information "it is suitable only for those who have mastered the art of skim-reading."¹² For these critics, science is better left in the laboratory or in the professional and popular journals dedicated to the subject.

For Powers, however, science is something more than the accumulation of technical data and the proliferation of theories developed to explain physical phenomena. It is an evolving body of knowledge which has important insights to contribute into the conditions which ground human experience. In the seminal 1882 essay, "Science and Culture," Thomas Huxley argued:

We cannot know all of the best thoughts and sayings of the Greeks unless we know what they thought about natural phenomena. We cannot fully apprehend their criticism of life unless we understand the extent to which that criticism was affected by scientific conceptions.¹³

Obviously, Huxley's observation is not limited to ancient Greece. His point is simply that there can be no adequate understanding of a culture's ideas or actions without a corresponding and integrated understanding of its scientific conceptions. The close and often detailed discussions of contemporary issues in science which Powers incorporates into his fiction indicate the extent to which he, like Huxley, sees science as an inseparable component in any attempt to understand the complexities of human experience.

It is not surprising then that the world of science appears early and often in Powers's fiction. In the first chapter of his first novel, Three Farmers on Their Way to a Dance, Powers alludes to an early training in physics as he explains why a rotating restaurant remains him of "the last, great empirical experiment of the nineteenth century" (12). In this novel and in those that follow, Powers moves comfortably through the history of science

highlighting issues or anecdotes pertinent to the story at hand. In Three Farmers, for instance, he examines the relationship of object and observer and interpretation in light of the theories derived (in part) from quantum mechanics. Prisoner's Dilemma, whose title is taken from the calculations of game theory, looks for a connection between chaos theory and narrative. The Gold Bug Variations is an entire novel devoted to the implications of cracking the genetic code and the impact of evolutionary biology. In his fourth novel, Operation Wandering Soul, Powers examines the relationship between measurement and interpretation and the dangers of maps unfettered from the territories they seek to describe. And finally, in Galetea 2.2 he directs his attention toward the nature of consciousness and intelligence via neuronets.

While Powers's interest in science is not limited to the twentieth century, it is twentieth century science which provides the context for understanding the connections and associations which he draws between the work of science and the work of fiction. Of particular interest is the way in which the scientific findings throughout this century have undermined the certainty and search for absolute values that characterized the practice of science in the wake of the great scientific revolution of the seventeenth century. Concepts such as Einstein's theories of relativity, Heisenberg's Uncertainty Principle, quantum indeterminacy, and the more recent sciences of chaos and complexity reflect a growing awareness that science itself is an imperfect and imperfectable body of knowledge. It is ironic, perhaps, that the same century that discovered quantum particles and DNA coding, that developed nuclear weapons and life-saving vaccines, that launched men into

space and unearthed prehistoric remains is also the century in which science found itself grappling with the limitations of what it could do. As Powers writes in The Gold Bug Variations:

Science is not about control. It is about cultivating a perpetual condition of wonder in the face of something that forever grows one step richer and subtler than our latest theory about it. It is about reverence, not mastery. (411)

Wonder is a powerful force in all of Powers fiction. It is also the common ground he uses to link the interests of science and those of fiction into a balanced, if not always harmonious, pursuit of truth. The limitations placed on science during this century do not undermine the ability of science to influence what we can know. Nor do these limitations diminish the ability of science to inspire wonder. Quite the opposite. For Powers the true wonder of the human intellect rests in our remarkable ability to balance observation and interpretation. What he discovers again and again in his fiction is that science, like literature, is a product of the human imagination, a way to mediate between the world and our perceptions of it. The recognition that science is a cultural practice--a body of knowledge thoroughly imbued with the practices and prejudices of its historical surroundings--is a necessary first step in mending the rift separating science and literature, head and heart. The greatest insight of twentieth century science may just be the recognition that there are other ways to access the truth.

In an article published in 1993, Powers suggests that fiction has an obligation and an opportunity to revitalize its function in society. He says:

"Give me a lever long enough and a place to stand and I can move the world..." I always thought the planet-long lever was the easy part. It's that request for a place away from *this* place that gets tricky. It gets infinitely harder to know a thing when knowing and stating (de facto acts of separation) already alter the thing. Even a heightened awareness of our state of "knowing" is philosophically problematic (a deep recursion lurking in that proposition). Perhaps the knot is at least side-steppable if we admit literature as a form of knowledge? Fiction may, in any case, be one of the only ways into a knowledge of positionality, as it is condemned to partake of the metaphorical process it inevitably describes. The novel is one of those things that must be what it purports to *be* about. It rides the cusp by building it, re-creating it in both emblem and essence. And as such it is definitely one resonant metaphor for the whole metaphorical process at stake here.

Yes I believe in something "Unmediated" out there as well, but I am condemned to mediated means of manipulating or understanding it. The map may not be the place, but we have only the map with which to move about in the place. Maps, rather, constantly changing, or perhaps I need to say varying. Both sides of the two-culture split may right now be coming to richer appreciations of how navigation and cartography are inseparable parts of the same journey. Symbolic understanding is both active and responsive, both empirical and imagined.¹⁴

The point that Powers is trying to make here is that if the world, or "unmediated" reality, can only be explained or understood in terms of language--whether that language is constructed in pictures, numbers, or letters--then it is important to find mechanisms which explore the veracity of symbolic manipulation. Fiction is such a mechanism. Fiction may never render relativity with the elegance of MC^2 , but neither can science position itself outside of the context of its own experiments. Just as science has a tailored capacity for describing and discerning certain aspects of the world,

so, too, fiction offers the unique opportunity to "observe" the consequences of the ways in which human experience is framed. By investing (or reinvesting) fiction with the authority to discover truth, Powers hopes to find a suitable ground for investing literature with moral significance without having to rely on unobtainable ideals, sublime flashes of insight, or inarticulate crevices just beyond the borders of language.

It is significant that Powers finds his most compelling model for asserting the moral imperative for fiction in the workings of chaos theory, a theory that rests on the idea that quantitative fluctuations within a system can affect qualitative changes. The standard analogy used to explain chaos theory is that a butterfly flapping its wings in Iowa may bring about hurricanes in Miami. While the example exaggerates the potential changes fostered by a single event, the general principle behind chaos theory is that small changes within a system may, in fact, generate significant and measurable disturbances within that same system. For Powers, chaos affirms the notion that since thoughts lead to actions, it matters literally what we think.

In defining what he sees as the relationship of literature to chaos theory, Powers offers the following explanation:

It may well be that chaos theory's lasting contribution to literature will be the creation of a place where one might once again believe in the efficacy of fiction's project--a place where "no war is inevitable until it breaks out," where the individual counts "a lot, I fancy , if he pushes the right way," where we might play the whole hypothetical piece "once more with feeling," For it seems to me that many novels get written on the naive belief that a small seed of words can still create a great stir.¹⁵

Science and literature may use different languages, but for Powers they say the same thing in patterned variation. Both seek to draw observation and interpretation into a map of the limitless frontiers of human knowledge.

Similarly, both science and literature are also tangible expressions of the human capacity for wonder.

The great stir that Powers hopes to create may be slow in coming, but it will, I trust, happen in time. In writing this dissertation, the first book length study of Powers's work, I hope in some way to facilitate an understanding of what it is that Powers is trying to accomplish as a writer. Obviously, there are many avenues to explore in his already substantial body of work. However, I will limit my focus to two primary tasks. The first is to explicate or annotate the scientific theories that pervade Powers's work for an audience who may not be familiar with either the terms or the concepts. In addition to providing at least a general understanding of the issues involved in contemporary science, I would also like to look at Powers's work as an evolving study, a fractal map of where we as a culture have been and where we are now and where to go next. The following chapters will treat each of Powers's works chronologically highlighting both the issues particular to each novel and

those elements which form the common ground on which all of Powers's work is situated.

Three Farmers on Their Way to a Dance is a wonderful introduction, both stylistically and thematically, to Powers's fiction. It is an expansive novel which follows the impact of a photograph on characters in three separate narratives that span the twentieth century. The first narrative tracks the impact of the photograph on the author and includes a first-person critical commentary on a variety of subjects including Walter Benjamin, the history of photography, the life and times of Henry Ford, and the popularity of Sarah Bernhardt. The other two narratives in the novel follow, respectively, the wartime stories of the three young men in the Sander photograph as they make their way through the Great War, and the contemporary life of Peter Mays, a fictional counterpart to the unnamed first person narrator of the first narrative. In addition to multiple narratives, a technique he uses in all of his fiction, Three Farmers also introduces the reader to the major character types, (restless intellectuals) and locations (Europe, the American mid-west and the East Coast) that show up in almost all of Powers's later works. Three Farmers is also an important introduction to issues that Powers will tackle from various vantage points in subsequent novels. What, he wonders, is the function of fiction in this century? Three Farmers examines the failure of both modernism and postmodernism to provide an adequate ground for the moral imperative he believes that fiction has. In a move that will become common in his fiction, he turns to science for help. In quantum physics he finds a mediating value between subject and object, observer and observed, which allows him to view cause and effect as both random and determined.

Prisoner's Dilemma, though no less sweeping in its focus or bold in its invention, is a personal and intimate account of the gulf separating private family histories and global events. This is the story of Eddie Hobson, Sr., a man dying from both the literal and metaphorical fallout of the second World War. It is also the story of his children and of his wife as they try to decode the enigma that Eddie has always been. Just as Three Farmers uses quantum theory to find an alternative to the deadlock of determinism, this is a novel about looking for alternatives, about finding a vantage point which links the little (individual action) to the big (global consequence). Powers finds that alternative in Prisoner's Dilemma in the overlapping patterns and variations of chaos theory.

The Gold Bug Variations, Powers's longest novel and perhaps his most impressive, is a synthesis of the positions he has taken in the first two novels. It is structured around a dual love story that replicates the mobius structure of the double strand of DNA which stands at the heart of this novel. There is the love story of Stuart Ressler and Jeanette Koss, two scientists hot on the trail of the genetic code in 1957, who discover that some codes can never be broken. And there is the love story of Jan O'Deigh and Franklin Todd, contemporary researchers who discover in Stuart Ressler a code desperately in need of breaking. Codes in need of breaking and codes which can never be broken reflect this novel's concern with the paradox of simple complexity, or patterned variation. In Gold Bug, Powers investigates the disconcerting similarity between the coding patterns of DNA and the symphonic structure of Bach's Goldberg Variations. Art and science it seems are "exactly similar." They both use a simple four letter base to evolve into

varying degrees of complexity. In some ways, both Three Farmers and Prisoner's Dilemma are Powers's attempt to find some form of continuity between cause and effect or big and little. In Gold Bug, he finds not so much an answer as a reason to take a step back and appreciate the incalculable odds of human consciousness evolving to the point that one could even ask the question. Gold Bug is ultimately a celebration of human potential--scientific, literary, personal, and social. It is also an ode to the exquisite complexity of both birth and beauty.

In Operation Wandering Soul, Powers examines the darker side of human potential. From the opening pages of this baroque fairy tale about the disappearance of childhood, it is clear that Powers is determined to confront head on the disparity between the best of human thought and the worst of human actions. Though this novel contains elements familiar in Powers's fiction, they are employed here for quite a different effect. Richard Kraft, the disheartened and frightened pediatric surgeon around whom the main narrative is centered, is a man on the verge of breakdown. Unlike Peter Mays or the unnamed narrator in Three Farmers, or Artie Hobson in Prisoner's Dilemma, or Franklin Todd in Gold Bug--typical Powers' characters who share a sense of humor, a sense of wonder, and an insatiable curiosity to understand how things work--Kraft feels impotent to make any sense of the events he witnessed as a child growing up amidst the war in Southeast Asia. This novel also uses multiple narratives, but not for harmony or balance, or patterned variation. Here they more resemble a surgeon's stitches, criss-crossed stories patched together over an open wound. The narrative digressions into children's stories are pasted around

Kraft's experiences on the pediatrics ward of Angel General Hospital and his brief affair with Linda Espera, a physical therapist who wants to mend more than broken bones. The blurring boundaries between Grimm-like fairy tales and the real-time narrative highlight the glaring failure of humanity to nurture its own potential for care. In spite of his efforts to navigate a way beyond the horror, Powers leaves the reader with the devastating conclusion that words will never be able to inspire wonder enough to outpace disaster in this or any other century. His entrance into the narrative at the end of the novel serves only to reinforce the disparity between aesthetic harmony and real world harm.

It is perhaps not surprising that the author who had once heard the music of molecules found himself, in the wake of Operation Wandering Soul, on the verge of giving up on words altogether. However, in a breath-taking rescue of the significance of narrative, Powers's rediscovers his voice in his fifth novel. Galetea 2.2 is a fictional autobiography about starting over. Having covered the twentieth century by way of the major conflicts which have defined it--World Wars I and II, the Cold War, and Vietnam--Powers immerses himself in his own biography, with a bit of help from a neuroscientist named Lentz, and the evolving intelligence of a computer program. The novel is structured around Powers's first-person account of the fictional events in the year following the writing of Operation Wandering Soul and his simultaneous recollection of the major non-fictive events of his adult life: the death of his father, (the source for Prisoner's Dilemma), the death of his mentor, (the source of Gold Bug), the experiences of his brother, (the source of Operation Wandering Soul), and an eleven year relationship, now

ended, with the woman he calls C. (the catalyst for Three Farmers, and of course Galetea, among other things). Galetea is a novel about learning--learning what it means to be alive, learning what it means to be human, learning what it means to love. In this novel, Powers also discovers the necessary reciprocity between living in the present and remembering the past, between fiction and reality, between words and the world. The novel ends with the promise of a return--an affirmation that Powers has tales yet to tell to a world he is unwilling to give up to despair.

In addition to the discussions of the individual novels, I will also pay particular attention to a character or theme--if it can properly be called either--that looms throughout all of Powers's fiction: the twentieth century. An intense mass of conflicting images, the century is a protean antagonist against which characters in each of the novels are constantly trying to define themselves. I have earlier suggested that Powers is particularly attracted to twentieth century science. It might be more accurate to say that he is simply obsessed with the century itself. He begins in Three Farmers with the events leading up to and surrounding the Great War and continues in subsequent novels to examine the century against the backdrop of its major conflicts. Prisoner's Dilemma, for instance, examines the fallout of the atomic bomb and WWII on the cultural imagination, while Gold Bug juxtaposes the Cold War policy of brinkmanship and the race to break the genetic code. Operation Wandering Soul explores the haunting legacy of the war in Southeast Asia. And while there is no global confrontation underpinning the events of Galetea, the novel takes for its subject the failure of this author to narrate some sense into the events of this century.

For Powers, however, the twentieth century is more than just a backdrop for conflict. All centuries, Powers acknowledges in Operation Wandering Soul, are equally colored by the paradox of enlightened achievement and unspeakable cruelty. What distinguishes this century, apart from his participation in it, is the advent of what Powers calls triggering points, or the point at which critical mass transforms quantitative values into qualitative changes. He writes in Three Farmers:

Trigger points come about when the progress of a system becomes so accelerated, its tools become so adept at self-replicating and self-modifying, that it thrusts an awareness of itself onto itself and reaches the terminal velocity of self-reflection.

Trigger points represent those times when the way a process develops loops back on the process and applies itself to its own source. (81)

The whole of this century is a triggering point. The urgency with which Powers pleads the need for moral action reflects his impending sense that human history is poised on the brink of a qualitative change in the evolution of our species. While acknowledging that any perspective gained is clearly limited and colored by its immersion in this culture, Powers, nevertheless, insists that we must not allow our ability to think through and analyze the changes that have taken place to be overwhelmed by the rapidity and volume of those changes. This accounts for his tireless efforts throughout all of the novels to catalogue and synthesize the major events and ideas of this century. Similarly, Powers's use of multiple narratives throughout his works

reflects his own efforts to use fiction as a way of gaining perspective on these events.

Read collectively, these novels also form an extended meditation on the function of art in the twentieth century and its obligation to grapple with complex issues and images. From his critique in Three Farmers of Walter Benjamin's "The Work of Art in an Age of Mechanical Reproduction" to his discussion of the theory of connectivity in the formation of neuronets in Galetea, Powers wrestles against the haunting possibility that Theodor Adorno might have been right when claiming that there could be no art after Auschwitz. Determined to find a significance for art beyond the hollow, if lovely, resonance of Modernism with its ideas of self-imposed order and the meaningless local celebrations of art as image in postmodernism, Powers looks again and again for a third alternative. He finds it in the world of science, where he sees metaphors at work in wondrous ways. In science he finds the truth he feels art has abandoned. If fiction is to function within society rather than languish selfishly around its fringes, it must rediscover its own ability to inspire wonder. For it is wonder, in Powers's fiction, that is the catalyst for fostering the engagement of his readers to bring about social change.

This need to encourage the participation of the reader in redefining the moral goals of society, the ultimate aim of his work, also helps to explain why Powers, a writer who has taken pains to steer clear of the public limelight, insists on appearing in most of his novels. In Three Farmers, for example, the first-person narrative which begins the novel recounts Powers's encounter with the Sander photograph and his subsequent attempt to try and

determine the significance of the event. In Prisoner's Dilemma, he enters in the penultimate chapter to link his own experiences with those of the family he has fictionalized in order to replicate the resonating patterns and variations of chaos theory. He ends Operation Wandering Soul with a similar entrance into the novel in order to beg the reader to do something, anything, to nurture care in a world numbed by violence. Though he does not actually appear in Gold Bug, it is clear that he informs both the characters of Jan O'Deigh and Franklin Todd. In Galetea, an autobiographical fable, Powers steps out of the shadows of final chapters, the anonymity of an unnamed character, and the veil of a hybrid personality to speak directly to the issue of his participation in his own work.

Fiction is for Powers a way of gaining insight on the events of his life and the events of this century. It is vantage point he needs to lever the world into view and human experience into something more than inevitable loss at its best and horrifying brutality at its worst. Fiction gives him the critical distance he needs to gain this insight. But, he discovers time and again, personal insight is not enough, even if it is shared. Fiction, like the maps which are a central image in his works, should not only detail the lay of the land. Fiction should also be a reader's guide into the potential of redefining and molding our place in history into something better. Powers's personal appearances are reminders that the point of gaining insight--through fiction, through science, through philosophy, or any other way of knowing--is to foster action, to bring about change in *this* world. The mess of living in the twentieth century which he explores in each of the novels is a clear indication that society must find alternative ways of living together. Powers demands of

his reader an exhausting commitment to think through complex issues-- scientific, literary, historical, and social. He does so because he believes that "What we cannot bring about in no way excuses us from trying to bring about what we must."¹⁶ For Powers, what we all should strive to bring about is an end to poverty, abuse, inequality, ignorance and the fundamental disrespect for human life which characterizes our contemporary culture. In his first five novels, Richard Powers proves himself to be a conscientious cartographer and an compassionate navigator in a world where hopefully "a small seed of words can still create a great stir."