

THE ART OF EXCESS

MASTERY IN CONTEMPORARY
AMERICAN FICTION

Tom LeClair

UNIVERSITY OF ILLINOIS PRESS
Urbana and Chicago

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For
Antonia, Ann, and Heather

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PREFACE

Nothing succeeds like excess. Nothing matters like mastery. These are the sound-bites of this book that argues a truism few people continue to believe: our big books are our big books. Most literary readers, teachers, and critics, like other consumers in Mediamerica, are, to paraphrase Neil Postman, amusing themselves to death. Here and now, as in the world of Eliot's decrepit Gerontion, "Signs are taken for wonders," small minds and small books taken for cultural achievements. But, unlike Allan Bloom's *The Closing of the American Mind*, *The Art of Excess* is no call to nostalgia. Instead, I attempt to distinguish the next stage forward, those contemporary, future-seeking intellectual and artistic masterworks that, in fact, critique some 3,000 years of Bloom's prized Western tradition: Hebrew patriarchy and linear history, Greek logocentrism and individualism, Christian transcendence, Renaissance economics and politics, eighteenth-century mechanics, nineteenth-century bourgeois culture, and the twentieth century's radical skepticisms. My thesis: excess and mastery are necessary to carry out this deconstructive task and to construct models for the future.

I began *The Art of Excess* ten years ago with an essay on Joseph McElroy. I published several other articles on excess and then set aside the manuscript to wait for more novels of excess, to leave the United States for a better view of it, and to write *In the Loop: Don DeLillo and the Systems Novel*, which redirected this book toward the systems paradigm, a contemporary scientific epistemology that influences the seven novelists—Thomas Pynchon, Joseph Heller, William Gaddis, Robert Coover, Joseph McElroy, John Barth, and Ursula Le Guin—included here. One of my purposes is to make known the concepts and uses of this paradigm to my literary colleagues, critics of contemporary fiction, and

general readers interested in postmodern culture. I intend to show how the paradigm accounts for the seeming excesses of the novels treated here, and how it helps writers and readers master—understand, measure, and evaluate—the ecological, political, economic, technological and other systems in which we all exist. Begun as distinctly literary criticism, *The Art of Excess* came to be cultural criticism as well, synthesizing into something like a system the novelists' disputes with the institutional powers of contemporary culture.

About power, *The Art of Excess* is contentious in its defense of mastery, an unpopular word. We live in our hierarchies and surround ourselves with our preferences, some conscious, others not. I make my criteria of critical judgment explicit in my introduction. My insistence on evaluation and the category of mastery issues from my role as, in McElroy's term, a "lookout cartridge" between novelists and readers. The interviews I did for *Anything Can Happen: Interviews with Contemporary American Novelists* and my discussions with other novelists, as well as my multiple readings of novels of excess, persuaded me that the charge of "self-indulgence" frequently brought against these novels was simply wrong, a terrible disservice to our most passionate and patient authors and to readers thereby shunted toward inklings and inchlings. During eighteen years of selecting books for different groups of university students and reviewing new fiction for various national audiences, I have had to consider and reconsider the nature of literary quality, identifying what I thought was not only the best fiction but also the most important. *The Art of Excess* argues the case for seven books. I hope other writers will respond with their seven or seventy and thus engage a critical discussion that should affect what academics and other "lookouts" ask their audiences to read. While much of my argument is directed to or against other critics, my exposition of systems theory and my readings of individual novels are meant to be accessible to those readers for whom I write reviews of new fiction in, for example, *The New Republic*.

I'd like to think that my criteria for evaluation are reasonable and eclectic, serving no eccentric or masked ideology. I am ultimately concerned with survival value—not necessarily books that will last the ages, but books that know and show what we as a people and a species need to understand in order to have a future. My approach to the novels I have selected for study is systems influenced—oriented to wholes, structural relations and reciprocities, the proportions and scales of information—and rhetorical—concerned with genre and its deconfirmation, formal and stylistic defamiliarization, the reader as thematized in the text. My method is intensive, concentrating on novels, not authors, working from identification of a novel's systems paradigm and definition of its particular excess

to traditional literary matters (plots, characters, structures, languages) and the novel's relations to culture and to the reader. While I am aware that Barthes, Derrida, and Bakhtin, among others, supply terms that would illuminate many of the novels here, I have couched my analyses in systems terms whenever possible. Detailed readings of individual novels, the chapters do make up, as their titles suggest, a systemic whole, a unified commentary on what I call the systext, the 5,000-page fiction composed of the seven novels I discuss. Readers who do not share my enthusiasm for the term "mastery" or for all these novels may still find useful the commentaries on some of the seven.

The Art of Excess has required help and patience from a lot of people. I want to thank Don DeLillo for reminding me that fiction should contest power; the novelists with whom I have talked or corresponded—Joseph Heller, William Gaddis, Robert Coover, John Barth, and Joseph McElroy—for answering some questions; often unnamed critics for their valuable spadework on writers such as Pynchon, Gaddis, and Coover; the editors of *Contemporary Literature*, *Modern Fiction Studies*, *Critique*, and *Studies in American Fiction* for publishing earlier and shorter versions of four chapters and for giving me permission to reprint; the editors of *Tri-Quarterly* for publishing a *précis* of this book and the editors of *Pushcart Prize VIII* for reprinting it; and the University of Cincinnati for released time and for financial support through the University Research Council and Taft Research Fund. I also want to thank my American Literature students for contending with me; my Science and Literature students for teaching me; David Gorman for his critique of systems theory; Steven Moore and Charles B. Harris for their readings of the manuscript; my friends Wayne Hall, Stanley Corkin, and Rick Powers for commenting on several chapters; and my kids, who went ahead and grew up during the time of Excess. Finally, I give special thanks to the dedicatees, three gracious muses of whatever art there may be in *The Art of Excess*.

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Excess, Mastery, and Systems

“Mastery” is a word encrusted with negative connotations in the last twenty years by post-structuralists, feminists, Marxists, Afro-American critics, and other groups disputing (and appropriately so) the rule of patriarchal power. Despite these connotations, I have used the word in my subtitle and have devoted much of this book to explaining why. American literature, no less than American life as a whole, is a field of contestation. The present economic, political, social, and mediating institutions of America have a mastery, a power to reproduce themselves, that makes small the role literature does or can play on this field. In this environment of cultural mastery, I believe, only extraordinarily knowledgeable and skilled works of literature—masterworks—have the kind of power that asserts the efficacy of literature and leads readers to contest and possibly reformulate the mastering systems they live within. My subtitle thus has a double meaning: mastery as a subject in fiction, and mastery as a central object of fiction-making. My title also has a double—and related—meaning. In a culture that seems to exceed any power that art might impose on it, the authors I treat in this book gather, represent, and reform the time’s excesses into fictions that exceed the time’s literary conventions and thereby master the time, the methods of fiction, and the reader. The art of excess is ultimately an art of balance, measuring and counterbalancing cultural power.

Mastery is a combination of quality and cultural significance. Quality in fiction is everywhere—in a Walter Abish arbitrary construct, a Rosellen Brown meditation, a Raymond Carver observation (to do one small set of ABCs). Cultural significance is also diffuse. As Richard Ohmann points out in *Politics of Letters*, “To posit standards is always to engage in an ideological maneuver, to generalize the interests and values of one class or group and present them as the interests and values of all.”¹ Rec-

ognizing the variables of quality and significance, I will argue that the category of mastery, devalued or ignored in recent criticism, should have a certain privilege and that the works discussed here fit this category. In *On Size and Life* Thomas McMahon explains how different forms of life are efficient unto themselves and appropriate to their environment.² An elephant is not better than a butterfly. In fiction, the novel is not better than the short story; the lumbering power of a large novel is not better than the beautiful grace of a novella. I have written *The Art of Excess* because the elephant-like (or whale-like) novel has, over the last twenty years, been increasingly relegated to the status of white elephant while moths are praised as butterflies. If the large book is not better than the small one, the massive novel—if profoundly informed, inventively crafted, and cunningly rhetorical—can have greater cultural significance, more authority to contest the powers in which literature exists. Most expressions of culture are designed to be consumed and forgotten. Masterworks lodge, oftentimes unpleasantly, in the memory. They judge us, our minds and memories and membership in American life.

I praise mastery not because it is rare (an investment) or demanding (a subject for academic discourse) but because masterworks take full advantage of the possibilities of their technology (the book) and medium (language) to represent large cultural and often global wholes. The impetus for this kind of representation and for my insistence on it lies outside literature—in our time's manifold and compelling recognitions that Earth is an ecological whole, that its survival is endangered by its large-scale human control systems, and that postmodern American life is composed of multiple new relations among the local and the global, the personal and planetary, the private and the multinational. I will argue that only the novel that knows and registers these relations masters—has intellectual power over—the contemporary world and qualifies for the category of mastery.

My second criterion for mastery is authorial exploitation of contemporary narrative means. In *Living Stories, Telling Lives*, Joanne Frye lists the characteristics of the novel—its cognitive function, flexibility or inclusiveness, popularity, and concern with individual experience—that make the form an efficacious cultural discourse, but she emphasizes the final characteristic and claims that the best uses of the other characteristics are in essentially realistic fiction.³ I will argue that the novels included here are masterworks because they flexibly employ postmodern methods to displace the priority of the individual and to deform the conventions of realism which encode an ideology of the local. Anticipating or written during the Age of Narcissism, the masterworks controvert it and what I think is

one of narcissism's primary expressions, literary minimalism, the work of the local self.

My third criterion of mastery—mastery of the reader—is even more relative than the first two, relative to a place (the United States), a time (1970-present), and a group (readers of serious fiction). Within this group exist the many subgroups and classes Ohmann notes. I will not claim that, for example, *Gravity's Rainbow* is more culturally significant than *The Color Purple* to black women readers, but I will argue that *Gravity's Rainbow* masters a set of global conditions that *The Color Purple* does not address, conditions and systems in which all readers—black or white, female or male, old or young—are imbricated. By mastery of the reader, then, I mean the rhetorical power of the author to use what Frye calls the novel's popularity to both solicit and transform the reader's interests, to shift his or her attention from the personal and local to the communal and global. To create such a profound intellectual shift in a time of single-issue politics, the novelists of excess braid into their fictional systems traditionally affecting materials.

I do not propose here a canon, a set of works that must be read and taught, and I do not set up an absolute hierarchy of value, but I will contend that masterworks have quality and significance, knowledge, imagination, and craft, that make them extremely valuable models of artistic ambition. Much contemporary criticism suggests I'm wrong. Mastery is a word that rarely appears in books by academics. Jerome Klinkowitz, Charles Caramello, Brian McHale, and Patrick O'Donnell, for example, describe the characteristics of postmodern theory and fiction or offer excellent interpretations of individual works, but they do not make qualitative distinctions among the fictions they discuss.⁴ Even more distressing than academic taxonomies, which transparently reproduce an ideology of literary insignificance, is Alan Wilde's *Middle Grounds*. Wilde suggests that he recognizes "the ideological wars of our time" but claims that the "best hope of American fiction" lies in a humanism that "bypasses" those wars, a "Midfiction" that "doesn't hope or pretend to master the world."⁵ "Shooting for smallness" and hitting it, Wilde and most of his writers (Barthelme, Apple, Paley, and others) merely reinscribe the ideology Wilde says he and they "bypass." Of recent critical books, only two—Frederick Karl's *American Fictions 1940/80* and Craig Werner's *Paradoxical Resolutions*—concern themselves with distinguishing artistic ambition, but the encyclopedic range of Karl's study and Werner's Joycean perspective limit what they can say about individual works of mastery.⁶

Critics with a larger audience than these academics accept mastery as a category but say that it has gone unfilled in the last twenty years. Com-

plaints about contemporary fiction by John Gardner, Warner Berthoff, John Aldridge, Charles Newman, and Benjamin DeMott are summed up by Alfred Kazin in his essay “American Writing Now.”⁷ In 1980, mournfully surveying the decade in which most of the novels in this study were written and published, Kazin said, “[O]ur many splendid talents don’t have the scope in which to exercise influence. They seem to be part of the drift instead of exercising some mastery.”⁸ Kazin and DeMott, in his fatuous essay “Did the 1960’s Damage Fiction,” look back sixty years to the 1920s and ask where are our time’s *An American Tragedy* and *The Sound and the Fury*, books that these nostalgic critics forget were often dismissed as excessive when they were published. Although we will have a better chance to answer Kazin’s and DeMott’s question in 2030 than we do now, I think the last twenty years have produced a number of novels equal to or better than the classics of the 1920s, novels that continue the prose tradition of *Walden*, *Moby-Dick*, *The Ambassadors*, *Absalom, Absalom!* and *Invisible Man*. These books are not so much achievements of militant originality as works of what Thoreau in *Walden* called “extravagance.” They exceed familiar genres and conventions such as the travel book, novel of manners, or historical novel. Like these earlier works, as well as *An American Tragedy*, *The Making of Americans*, *The Sound and the Fury*, or *Lolita*, master novels of the 1970s and 1980s practice an art of excess. In *The Post-Modern Aura*, Charles Newman calls this excess “inflation” and connects it to the period’s economic inflation that diminished value everywhere. Newman’s jeremiad against self-reflexive postmodernism and minimalist realism, as well as the economic conditions and publishing circumstances of the period, should be required reading for editors, reviewers, critics, scholars, teachers, and students, but Newman’s desire to prove the total culpability of conglomerate publishing leads him to trash the occasional works of mastery that the conglomerates did publish.⁹

It is sometimes valuable and usually easy to rail against the parlous state of literature, whatever the time, but I think the responsibility of the critic—to both artist and audience—is to identify and discuss those works, however few they may be, that exhibit mastery despite conditions that discourage it. Robert Coover, writing in the *New York Times Book Review* several years ago about his experience judging 300 novels for the PEN/Faulkner Award, bemoaned the mediocre and unimaginative works he had to tunnel through.¹⁰ But after describing the mass of what he called “priestly” novels (the serious works of realism) and “folk” fiction (genre and formula novels), Coover performed the critic’s ultimate task: defining quality. “Occasionally—rarely,” Coover said,

a third voice arises, radically at odds with the priestly and folk traditions alike, though often finding its materials in the latter and sharing with it

a basic distrust of the establishment view of things. This voice typically rejects mere modifications in the evolving group mythos, further surface variations on sanctioned themes, and attacks instead the supporting structures themselves, the homologous forms. Whereupon something new enters the world—at least the world of literature, if not always the community beyond.

Though this voice is often thought of as disruptive, eccentric, even inaccessible (which is how some previous PEN/Faulkner Award winners have been viewed), it could easily be argued that it is true mainstream fiction, emerging from the very core of the evolving form, peculiarly alert to the decay in the social forms that embrace it, early signals of larger mutations to follow.¹¹

This “third voice” I will call the voice of mastery. Although rare, works of mastery do precisely what Kazin, DeMott, and other aesthetically conservative critics say our novels don’t do: comprehend “the evolving group mythos” and represent the large realities of American public life, its business, politics, history, and what Kazin calls “the full impact of the technological storm on our mental life.”¹² Masterworks perform this act of representation by attacking, as Coover says, “the supporting structures themselves,” by modifying the forms in which the “surface variations” of “priestly” realism reproduce themselves. If “disruptive, eccentric, even inaccessible” to many readers, masterworks become, as Coover points out, the actual “mainstream,” the standard against which other novels and readers are measured.

Of the seven books I consider masterworks and discuss here—Thomas Pynchon’s *Gravity’s Rainbow*, Joseph Heller’s *Something Happened*, William Gaddis’s *J R*, Robert Coover’s *The Public Burning*, Joseph McElroy’s *Women and Men*, John Barth’s *LETTERS*, and Ursula Le Guin’s *Always Coming Home*—five were published before 1984, but only one, *Gravity’s Rainbow*, was on Anthony Burgess’s 1984 list of the best 99 novels published since 1939.¹³ Although the other six are hardly unknowns or new discoveries, my inclusion of *Women and Men* and *Always Coming Home*, more recent and less recognized works, may surprise some readers. Two of my seven novels have won prizes, all have been condemned by some deadline-weary reviewers, and three are currently unavailable in paperback editions. Several have been the subjects of profuse academic analysis, but recent critical surveys of American literature reach no consensus on any of the seven. I do not expect a consensus from readers of this book, nor do I think these seven novels are equal in quality or cultural significance. But I do believe they meet, in relative degrees, my three essential criteria of mastery: mastery of the world in which they were written, mastery of narrative methods, and mastery of the reader.

II

These seven novels are about mastery, about excesses of power, force, and authority in arenas small and large: the self's mastery of itself, economic and political hegemony, force in history and culture, the transforming power of science and technology, the control of information and art. These novels are also about the size and scale of contemporary experience: how multiplicity and magnitude create new relations and new proportions among persons and entities, how quantity affects quality, how massiveness is related to mastery. The novels are themselves long, large, and dense. Most have at least the superficial characteristics of such masterworks as *Moby-Dick* and *Absalom, Absalom!*, their range of reference, artistic sophistication, and desire for profound effect. One purpose of this study is to connect these three relations—mastery in contemporary life, the scale of contemporary culture, and the massiveness of these novels. To make these connections, I will argue the following theses: that, in the last twenty years, an important new conceptual paradigm has appeared; that this paradigm influenced the authors here; and that only within this new paradigm can these books be fully appreciated as works of mastery, novels that represent and intellectually master the power systems they exist within and are about.

The paradigm to which I refer is systems theory, what the historian of science Fritjof Capra has called "The New Vision of Reality."¹⁴ In *In the Loop: Don DeLillo and the Systems Novel* I have described some of the origins, characteristics, relations, and effects of systems theory, including what I call there and here the systems novel.¹⁵ Some of that information about systems theory I will repeat here, but this book is structured so that the reader learns much of what he needs to know about systems as he goes along. For example, in the chapter on *Gravity's Rainbow*, I introduce J. E. Lovelock's "Gaia," the systemic model of planet Earth, the master system in which all other systems take place.¹⁶ Building on the terms of the Pynchon chapter, I then show how *Something Happened* was influenced by Gregory Bateson's systems epistemology.¹⁷ Other sciences influenced by systems theory—economics, anthropology, physics, and biology—provide models and terminology for the succeeding chapters.

The basic shift of the systems paradigm is summarized by Dietrich Schwantz in his recent essay "Systems Theory and the Environment of Theory": "Systems theory has severed all connections with the epistemological traditions of philosophy, adopting instead epistemological attitudes developed in the natural sciences, particularly in biology and the theory of evolution."¹⁸ The Austrian biologist Ludwig von Bertalanffy is primarily responsible for this severance and for naming systems theory. During

his early biological studies in the 1920s, von Bertalanffy found that the then-prevalent mechanistic approach to living systems neglected and could not formulate essential qualities of life. Moving into biological theory in the 1930s and 1940s, von Bertalanffy showed that abstract mathematical models could help scientists analyze the “problems of order, organization, wholeness, [and] teleology” excluded by mechanistic approaches.¹⁹ For von Bertalanffy, systems methodology was both “top down” and “bottom up,” involving a necessary reciprocity between extremely abstract hypotheses and densely concrete data, a kind of reciprocity that Douglas Hofstadter would years later call a “Strange Loop.”²⁰ After World War II von Bertalanffy formulated his ideas as “General System Theory” and helped found, in 1954, a Society for General System Theory.

Because some systems terms and ideas have penetrated our common discourse, if not our literary theorizing, it may be difficult to appreciate von Bertalanffy’s profound clash with the dominant scientific model of his day—physics-based mechanism—and the significance of his new discourse about the world and discourse. Capra in *The Turning Point* and Morris Berman in *The Reenchantment of the World* describe the historical background of this clash and the subsequent shift.²¹ Although influential in his theory of open systems and original in his ambition for an interdisciplinary science, von Bertalanffy did not singlehandedly create an alternative to mechanism. As Anthony Wilden points out in *System and Structure*, the “radical change in the theory of knowledge” that took place at midcentury could be traced “to Freud, to Hegel, to Marx, to Clerk Maxwell, to von Bertalanffy, or to Szilard’s solution of the problem of the Maxwell Demon in 1929. Obviously, in such a complex epistemological reorganization as we are experiencing in this century, the new territory staked out by any one discipline, science, or movement cannot be comprehended except in relation to all others.”²² Other components of this “reorganization,” several of which were recognized by von Bertalanffy, were non-Euclidean mathematics, quantum physics, the gestalt psychology of Wolfgang Köhler, Lévi-Strauss’s anthropology, and, most importantly, information theory and cybernetics.

Wilden summarizes the paradigm shift with a series of epistemological redirections, to which I have added the terms below the line:

From	To
stasis	process
entity	relationship
atom	gestalt
aggregate	whole
heap	structure
part	system

analytics
closed systems
causality
energy
bioenergetics
equilibrium theory

dialectics
open systems
constraint
information
communication
negative entropy²³

one-way
force
origin
experimental separation
transparency
either/or
prediction
certitude

reciprocal
form, homology
teleology
participation
self-referentiality
both/and
equifinality
uncertainty

These terms will make more sense to the reader and should seem less schematic when they are used to describe familiar novels. The same is true of the following digest of von Bertalanffy's fundamental theses, but I place this digest here as a point of reference and to give von Bertalanffy credit for his profoundly influential way of conceiving reality:

—Because living systems are dynamic processes that combine energy and information in reciprocal relations, the systems are not separable into parts but must be considered as wholes.

—Mechanistic principles used to analyze closed systems of entities in linear chains of cause and effect cannot adequately describe the circular causality of living systems, which are open and interacting with other systems.

—Defined as “organized complexity,” these open systems also resist mechanistic study because it attends to the atomistic and reductive elements of reality.

—The nature of living systems is found primarily in differentiation of structure and form, in these carriers of information rather than in the exchange of energy and force.

—The processes of open systems are “equifinal”: end results cannot be determined or predicted from initial conditions, as mechanism claimed for its experiments.

—Living, open systems are goal-seeking, self-organizing, and self-correcting, tending toward “homeostasis” (or equilibrium), which contrasts with the thermodynamic model of closed systems and increasing entropy. (This concept—“homeostasis”—is the one most modified by later systems thinkers.)

—The optimum condition of a system exists when it has variety in its information and flexibility for adaptation.

—The privileged model of the living system is the ecosystem, which as a whole is beyond any experimental conditions.

—The observer or theorist, unlike the physicist who stands apart from his experiment, is part of the system under investigation and is therefore limited to what von Bertalanffy called “perspectivism.”

—The either/or logic of mechanism is inadequate to analyze the both/and relations—the simultaneity—of living systems.

—The isomorphisms or homologies in seemingly unrelated systems are relations, physically non-locatable.

—The description of living systems requires a hierarchy of abstractions, logical types, or frames within frames to represent wholes within wholes.

—Any theory—including systems theory—is incomplete.²⁴

Although systems theory grew out of biological theory, von Bertalanffy's primary motive was to formulate a way of apprehending the world that could cross disciplines. Aware of accelerating scientific specialization and the distance between scientific discourse and ordinary discourse, von Bertalanffy attempted to create a science of sciences, a discourse about wholes and relations that would enable workers in both the natural and human sciences to see isomorphisms in their work and to communicate with one another. Now that various disciplines—such as psychology, sociology, economics, anthropology, and biology—have been reconceptualized in von Bertalanffy's systems terms, and now that a massive systems bibliography has mounted in these disciplines, von Bertalanffy's fundamental theories may seem simplistic. I have retained them here to introduce basic systems concepts that are extended and particularized by the scientists I refer to in the rest of this chapter and in the chapters that follow. From this point on, I use “systems theory” to mean von Bertalanffy's epistemological paradigm, and I use “systems science” to mean scientific disciplines influenced by or distinctly homologous with von Bertalanffy's paradigm.

Perhaps von Bertalanffy's greatest effect was on the synthetic science of ecology. Central to the systems paradigm and ecology is a new conception of information. When von Bertalanffy conceived man's body and other organisms as networks of messages and energy, as well as heat machines, information assumed a new importance in science: it became the subject, as well as the product, of scientific research. Knowledge became information about information. At about the same time that von Bertalanffy was proposing his biological information loops, the pressures for

efficiency in communications technology generated the formal study of information by Shannon and Weaver, which in turn ushered in the new field of cybernetics. In recent decades von Bertalanffy's original systems ideas have been overshadowed by the technological achievements of the computer revolution, but, as von Bertalanffy saw, the computer gave scientists the tool needed to amass the new magnitudes of information required for the study of the hugely complex reciprocal open systems of information and energy that von Bertalanffy posited. Only with computers could scientists begin to study and to model in any analogous way the information and communication loops of the ecosystem. Computer technology also offered scientists in various disciplines sophisticated ways to locate, in their specialized information, the significant isomorphisms that von Bertalanffy sought and to test out seemingly eccentric mathematical formalisms. That is, to perform both bottom-up and top-down operations. The new chaos theory is the most dramatic—and aesthetically pleasing—evidence of the computer's power to find mathematical correspondences in what appeared to be the random motion of turbulence in disparate fields. As James Gleick shows in *Chaos: Making a New Science*, advances in the manipulation of digital information lead back to an analog or formal display of the information in the computer graphics of Edward Lorenz's butterfly loop or Benoit Mandelbrot's self-similar fractals.²⁵ These pictorial expressions satisfy the systems theorist's search for elegant whole patterns among disparate data.

The cybernetic conception of information is explained in lucid detail by Jeremy Campbell in *Grammatical Man* and is treated in my chapter on McElroy's *Women and Men*.²⁶ Concerned initially with nonhuman communication, information theorists define information in quantitative terms. The value of information is directly proportional to its statistical improbability and is inversely proportional to its intelligibility. The larger the set from which information signals can be selected and the more unpredictable the relations among those signals, the higher the information value of any individual signal. As Gregory Bateson defines it, information is "the difference which makes a difference."²⁷ Communication of information requires a compromise between the improbable and the intelligible, so information in machines, speech, and writing is coded, structured, and made redundant. The information theorists' rigorous new definition of information as quantitative difference has fed back into various disciplines, turning scientists' attention away (as von Bertalanffy suggested) from linear energy exchanges to the differential and reciprocal relations between source and receiver, threshold and gradient, environment and system. The most wondrous results of foregrounding informa-