Mathias F. Clasen

Darwin and Dracula:
Evolutionary Literary Study and
Supernatural Horror Fiction

MA Thesis
Department of English
University of Aarhus, Denmark
10 September 2007

mathias@horror.dk
www.horror.dk
# Table of Contents

1 Summary ................................................................................................................................ i
2 Introduction ...........................................................................................................................1
3 Science and Literature: Adaptationist Literary Study .........................................................3
   3.1 The Two Cultures and the Science Wars ........................................................................3
   3.2 Evolutionary Psychology ..............................................................................................8
   3.3 Evolution and Literature ...............................................................................................11
      3.3.1 A Science of Literature .........................................................................................13
      3.3.2 Literature as Adaptation ......................................................................................17
      3.3.3 Criticisms of Literary Darwinism .........................................................................21
   3.4 Concluding Remarks ...................................................................................................23
4 Supernatural Horror Fiction: A Bio-Cultural Approach ...................................................24
   4.1 Homo Timidus ..............................................................................................................24
   4.2 What Is Horror? ..........................................................................................................25
   4.3 The Origin of Horror Stories .........................................................................................28
      4.3.1 Historicist Approaches .........................................................................................29
      4.3.2 Freudian Approaches ...........................................................................................32
   4.4 Evolutionary Studies of Horror Fiction .........................................................................34
      4.4.1 Lovecraft’s Instinctual Theory of Horror Fiction ..................................................36
      4.4.2 Sporadic Remarks on the Evolutionary Substrate of Horror Fiction .................37
   4.5 Monsters and Dramatics ...............................................................................................40
   4.6 Universal Monster .......................................................................................................42
      4.6.1 Biophilia ..................................................................................................................47
   4.7 Fear and Phobias ..........................................................................................................50
   4.8 The Physiology of Fear .................................................................................................55
   4.9 Disgust ..........................................................................................................................57
   4.10 Horror and Play .........................................................................................................60
      4.10.1 Horror and Nightmares .......................................................................................61
   4.11 Horror and the Cognitive Science of Religion and the Supernatural .......................62
   4.12 Concluding Remarks .................................................................................................68
5 A Darwinian Perspective on Dracula ..................................................................................71
   5.1 Darwinism in Literature ...............................................................................................71
   5.2 The Fin de Siècle: The Cultural Ecology of Dracula ....................................................73
   5.3 The Origin of Vampires ...............................................................................................75
   5.4 Dracula the Monster ....................................................................................................76
      5.4.1 Dracula the MCI ....................................................................................................80
   5.5 Concluding Remarks .................................................................................................84
6 Conclusion ..........................................................................................................................87
7 List of Sources .....................................................................................................................89
1 Summary

In recent years, a number of literary scholars and social scientists have attempted to cross the gap between the “Two Cultures” described by C. P. Snow in 1959, the humanist-literary and the technical-scientific ones. Thoroughly dissatisfied with contemporary, postmodernist humanist scholarship and theorizing, these bridge-builders – whether trail-blazing or delusional – have looked to evolutionary biology and psychology in their attempts to ground the study of literature in the *terra firma* of the natural and social sciences. They proceed from the premise that the human mind, no less than the human body, is a product of evolution by natural selection.

This movement is commonly known as literary Darwinism or evolutionary literary studies, and its theoretical underpinning is the approach to psychology known as evolutionary psychology. Evolutionary psychologists study the mind in the light of the selective pressures which presumably “designed” it in our long evolutionary history as hunters and gatherers. Evolutionary psychology, a not uncontroversial science still in its adolescence, regards the human mind as an information-processing device. In this view, the mind consists of a number of functional modules or “psychological adaptations” which were installed by natural selection in our ancestors as they increased their chances of survival and propagation, and which are still part of our genetic make-up. Thus, evolutionary psychologists argue against the so-called “Standard Social Science Model,” according to which the mind is a blank slate.

Literary Darwinists note that storytelling is a true human universal, and they ask whether it is an adaptation or a by-product of adaptations which evolved for other reasons. They attempt to study literature through a Darwinian lens, interpreting works of art in the light of models of human behavior and human nature gleaned from evolutionary psychology.

The Darwinian study of supernatural horror fiction, although a very fertile area of research, is largely uncharted territory. The hypothesis running through this thesis is that horror fiction is crucially dependent on evolved properties of the human mind. The monsters of horror are products not of nature but of the human mind, and as such they ought to be able to tell us something about the minds that produce them and the minds with which they have such an eerie resonance.
I argue against traditional historicist and psychoanalytical approaches to horror, claiming that it is a “natural” genre rather than an entirely cultural construction. Implicit in many historicist accounts of the genre is the notion that horror and the things we fear – the fears that are symbolized or channeled by the monsters of the genre – are infinitely variable. This follows from a view of the mind as a tabula rasa which can be taught to fear anything poured into it by culture. However, building my claim on evolutionary theory, I argue that we are “hard-wired” or biologically prepared to fear certain things which played a vital past in our evolutionary past, and that these things – in more or less “tweaked” version – are over-represented in horror fiction, even as they play little or no part in present-day mortality statistics. Thus, horror fiction varies within a narrow range, since there are only so many effective ways of scaring the human animal.

I also take from the cognitive study of religion the insight that category-violating concepts are particularly salient and memorable, noting that horror monsters commonly confuse or violate the categories of our intuitive, innate ontology. This makes them remarkably interesting and attention-grabbing, and may partly explain the genre’s appeal.

Supernatural horror fiction appears to be a kind of “pleasure technology,” a non-adaptive use of an adaptive system, a technology which takes advantage of the way that our minds are constructed in order to procure an ultimately pleasurable response. It features dangerous and often disgusting animals or animal-like creatures which engender powerful, unconditioned responses. Alternatively, horror fiction might be an outgrowth of an adaptive tendency to engage in play behavior and exploration, a way of gaining emotional flexibility and charting the outskirts of one’s inner landscape.

I apply this theoretical apparatus – the Homo Timidus theory of horror – to Bram Stoker’s Dracula. I attempt to understand the novel as a work of horror, that is, as a fiction which is designed to scare and disturb its audience, and I am particularly interested in the way that Stoker chose to endow his central villain, Count Dracula, with certain animal characteristics. Conceivably, the predatory vampire evokes an innate fear of large alpha predators in the reader. And the fact that Dracula has a range of counterintuitive properties makes him particularly attention-demanding. Perhaps Stoker was unconsciously channeling an ancestral fear of predators when describing Dracula, and perhaps he was deliberately making a context-dependent statement on the possible degeneration of the human race. At any rate, Stoker’s king vampire is representative of horror monsters in that he strikingly combines animal features with counterintuitive, attention-demanding characteristics.
2 Introduction

With a joint Bachelor of Arts degree in English and the History of Science I have a keen interest in the relationship between the sciences and the humanities, and particularly in the areas where the two intersect. I have also been a fan of supernatural horror fiction for a decade and a half, and have for almost as long been vexed by this very interest: why would anyone want to be scared? And why can something which is manifestly unreal, fictional, scare anybody? How does it work? And having no belief in the supernatural, why am I captivated by such stories?

When in 2001, in an obligatory philosophy of science course, I first encountered evolutionary psychology and saw Donald E. Brown’s impressive list of human universals, the inclusion of “fear” on that list eventually worked itself into a chapter in my 2004 book on horror fiction, Homo Timidus. This chapter, entitled “Horror i et evolutionspsykologisk perspektiv” (“Horror in the Perspective of Evolutionary Psychology”) used some very general insights from evolutionary psychology to make some very general comments about horror fiction. It seemed and seems to me that the sciences and the arts meet in the evolutionary study of the arts, and that Darwinian approaches to literature can connect the humanities with the sciences, thus building a bridge across the gap between the “Two Cultures,” in C. P. Snow’s phrase.

Early research for this thesis put me into contact with Jonathan Gottschall, a Darwinian literary scholar who encouraged me to attend the annual gathering of the Human Behavior and Evolution Society, which is presently the primary “home” for literary Darwinists. My submitted abstract was accepted for presentation, and I went to the conference at the University of Pennsylvania, Philadelphia, in June 2006 (partly funded by a grant from the Faculty of the Humanities, University of Aarhus). At the HBES conference, which attracted more than 500 participants from various fields and disciplines, I met many of the luminaries of literary Darwinism (Joseph Carroll, Brett Cooke, Brian Boyd, Jonathan Gottschall, and others) and received valuable feedback on my presentation.

In the following, I outline the larger cultural-historical context in which Darwinian literary study is situated, discussing the Two Cultures gap and describing the “Science Wars.” I present the theoretical framework of Darwinian literary study, evolutionary psychology, and give an introduction to Darwinian literary study itself. I then move on to the more original part of the thesis, the evolutionary and cognitive study of supernatural
horror fiction. This is an elaboration of and addition to my HBES poster presentation, “Homo Timidus: Why Modern Horror Stories House Stone Age Monsters” (available for download at www.horror.dk). A slightly revised version of this presentation, “Darwin & Dracula: An Evolutionary Perspective on Scary Stories,” was presented at the interdisciplinary conference Human Mind – Human Kind at the Department of Psychology, University of Aarhus, in August 2007.

In the final section, I attempt to apply my theory to Bram Stoker’s Dracula. I have chosen this novel partly because I admire it very much, and partly because it is probably the most well-known horror story of all time. Straying from the “traditional” aim of Darwinian interpreters, I am not so much interested in the internal dynamics of the novel, in explaining why the characters act as they do. Rather, I want to understand it specifically as a work of horror. How did Stoker construct his story to have a certain effect on his readers? Why is Dracula portrayed the way he is? And how can evolutionary and cognitive psychology enhance our understanding of the story? It is, then, the aim of this thesis to answer the following question: What, if anything, can Darwin tell us about Dracula?
3 Science and Literature: Adaptationist Literary Study

3.1 The Two Cultures and the Science Wars

There is a new literary movement underway, one which aspires to integrate literary study with the social and ultimately the natural sciences. This movement goes under many names, for example literary Darwinism, adaptationist literary study, biopoetics, and evolutionary literary theory. Common to its practitioners, most of whom are American literary scholars (increasingly aided by social scientists with an interest in the arts), is a commitment to the scientific method and ethos, a reliance on evolutionary psychology and the concomitant notion of “the adapted mind” as the theoretical bedrock of their inquiries, and a more or less wholesale rejection of contemporary literary or cultural theory (poststructuralism in its many incarnations) along with a sense of crisis within the humanities. It is the ambition of these scholars to construct a literary theory and critical practice which is, in the well-known and controversial scientist E. O. Wilson’s word, consilient, that is, consistent with the sciences, and thus to re-establish literary theory on the solid foundation of science, as it were, freed from what is supposed to be the current sorry state of postmodern confusion, relativist obscurantism, wild speculation, and ideologically driven political critique: in a phrase (Alan Sokal and Jean Bricmont’s, from their eponymous book), freed from “fashionable nonsense.”

In an article on the relationship between the sciences and the humanities, the Danish philosopher Hans Fink describes what he considers two dominant (and wrongheaded) ways of viewing this relationship, namely isolationism and reductionism (32-34). The isolationist approach appears to be the standard mode of viewing the relationship between the two fields. This approach claims mutual independence between the sciences and the humanities and justifies a sharply defined border between the two, presupposing “two separate modalities of knowing” (Livingston 18) and claiming for the humanities a special humanist area of study and methodology which are distinct from those of the sciences (Fink 32). In contrast, the reductionist approach (which can emanate from both the sciences and the humanities) seeks to subsume one under the other, or at least integrate the two within a matrix of common assumptions about the world.

In certain respects, the isolationist mindset reflects C. P. Snow’s notion of the gap between the two cultures, while the reductionist approach is what E. O. Wilson attempts with his idea of consilience (most famously and comprehensively espoused in his 1998 volume of that title), namely to unite the sciences and the humanities. Consilience is defined
by Wilson as “a ‘jumping together’ of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation” (6). In other words (Harold Fromm’s), consilience is “an attempt to unify all the arts and sciences within one grand science-structured epistemological cosmos” (“Science Wars and Beyond” 585). As Wilson contends, the “greatest enterprise of the mind has always been and always will be the attempted linkage of the sciences and humanities” (Consilience 6); it is Wilson’s view that the world (including the human animal and its culture) is lawful and ultimately understandable with the tools of science.

When the author and scientist C. P. Snow in his famous 1959 Rede lecture spoke of the “Two Cultures,” he was addressing what he perceived to be a dangerous and expanding “gulf of mutual incomprehension” between literary intellectuals and scientists (4). In Snow’s eyes, this lack of mutual communication and understanding was “a problem of the entire West” (3), yet perhaps particularly grave in Great Britain due to an educational system which encouraged over-specialization. Snow was especially acidic in his portrayal of humanist or literary intellectuals, whose culture was the defining one, he claimed: “They still like to pretend that the traditional [literary] culture is the whole of ‘culture’, as though the natural order didn’t exist” (14). As Snow famously lamented: “So the great edifice of modern physics goes up, and the majority of the cleverest people in the western world would have about as much insight into it as their Neolithic ancestors would have had” (15).

Snow’s bipolar coinage has currency today. The problem (if one perceives it to be such) is perhaps not so much the “natural Luddism” of avant-garde writers, but rather the isolationism mentioned above, in particular the tendency of some humanist scholars to remain willfully ignorant of the history, progress, and relevance of the natural sciences. It should be noted, however, that Snow was primarily attacking writers and critics, rather than academic humanists, as Stefan Collini points out in his introduction to Snow’s lecture (li). Yet when the Two Cultures divide is invoked today, the intended target is usually humanist or

---

1 Along similar lines, the Danish historian of science Helge Kragh has complained that today, to be cultivated [dannet] means to be well-versed in humanist, literary and political knowledge, not to possess scientific insight. In Kragh’s eyes, what is lacking from the current intellectual ideal is a knowledge perhaps not so much of the contents of natural science, but of the history of science (46). Similarly, the psychologist Steven Pinker writes that in “a gathering of today’s elite, it is perfectly acceptable to laugh that you barely passed Physics for Poets and Rocks for Jocks and have remained ignorant of science ever since, despite the obvious importance of scientific literacy to informed choices about personal health and public policy. But saying that you have never heard of James Joyce or that you tried listening to Mozart once but prefer Andrew Lloyd Webber is as shocking as blowing your nose on your sleeve or announcing that you employ children in your sweatshop, despite the obvious unimportance of your tastes in leisure-time activity to just about anything” (How the Mind Works 522-3).
literary academics. And an interesting development in the argument is that whereas C. P. Snow attacked the traditional literary culture for being anti-progressive and conservative, denying the poor of the world the benefits of scientific and technological progress, the Snows of today are usually attacking the literary establishment for being overly politically progressive to the detriment of truth and other “conservative” values.

What appears to be an outgrowth of the Two Cultures gap is the hostility between humanists and scientists known as the Science Wars of the 1990s, that is, a series of arguments and rhetorical battles between “realists” (or scientific naturalists) and “postmodernists” (or relativists, or constructivists) in relation to epistemology, in particular the nature of science and scientific knowledge. In one of the seminal works of the Science Wars, the scientists Paul R. Gross and Norman Levitt’s *Higher Superstition* (1994), the authors wrote about the “peculiarly troubled relationship between the natural sciences” and what they “for convenience but with great misgiving” called the members of the “academic [political] left” (2). Basically, this “large and influential segment of the American academic community” (ibid.) was criticized for its alleged abuse of science. The aim was twofold: to criticize the social constructivist accounts of scientific knowledge, which had flourished for two decades or more, and which were (and are) propounded by humanist scholars and social scientists (mostly sociologists), as well as to criticize the misapplication of scientific concepts by humanist scholars.

The constructivist account of science is a kind of – in Fink’s terminology – reductionist attempt by humanists and social scientists to subsume the field of natural science within a largely literary discourse. In the 1960s, the natural sciences became a legitimate area of research for cultural studies, and the basic claim of constructivist science studies is that science is invention rather than discovery. This approach in science studies was inaugurated with the publication of Thomas Kuhn’s influential 1962 volume *The Structure of Scientific Revolutions*, which was a reaction against “classical” philosophies of science such as logical positivism and empiricism, as well as the theory of science formulated by Sir Karl Popper known as critical rationalism (cf. *The Logic of Scientific Discovery* from 1934). Kuhn posited that science does not progress by a linear accumulation of knowledge (as in Popper’s falsificationist account); rather, the history of science is characterized by a series of shifts in characteristically incommensurable paradigms. Yet even though Kuhn precipitated the following decades’ social studies of science and the emergent focus on the constructedness of scientific knowledge, he was dismayed by subsequent developments in the thoroughly
relativist sociology of science: “I am among those who have found the claims of the strong program [in the sociology of scientific knowledge] absurd: an example of deconstruction gone mad” (“The Road Since Structure” 110). Whereas earlier historians and sociologists of science such as Robert K. Merton had been aware of and explored the way that social factors such as politics and economics influenced for example the direction of scientific research, Thomas Kuhn’s successors (Bruno Latour and Paul Feyerabend, among others) claimed that scientific knowledge itself was socially constructed. The radical consequence of the constructivist or relativist account is that science is just one way of knowing among many other, that the “narratives” produced by science are no better than other accounts of the world, that there are no objective truths but only local and contingent (constructed) beliefs, and that science is all rhetoric and power play in which its practitioners by various ingenious linguistic strategies try to convince one another of the truth of their statements (cf. for example Latour & Woolgar).

Another high point in the Science Wars was reached when the scientist Alan Sokal in 1996 published his famous paper “Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity” in the academic journal *Social Text*, which featured a special issue on the Science Wars, mostly compiled of articles written by scholars of postmodernist or constructivist persuasions. The paper, a collection of “fashionable nonsense” which purported to demonstrate the constructed and arbitrary nature of scientific knowledge (allegedly supported by quantum physics), turned out to be an elaborate hoax, designed to showcase the shaky ground on which the postmodernist theory of science was erected. Sokal wanted to see if the editors of *Social Text*, “a leading North American journal of cultural studies,” would “publish an article liberally salted with nonsense if (a) it sounded good and (b) it flattered the editors’ ideological preconceptions” (“A Physicist Experiments with Cultural Studies” 62).

In recent history, at least, the relationship between the Two Cultures has been troubled, and various attempts to bridge them have been advanced.² The one attempt I will be focusing on, literary Darwinism, emanates primarily from literary scholars who propose to take science seriously. There are, of course, various ways of taking science seriously, one of which being the attempt to construct a scientifically sound literary theory. As the literary

² An emerging third culture has been proposed, as well. Writing in 1991, John Brockman, literary agent and owner of edge.org, described the new body of public intellectuals composing “The Emerging Third Culture” as scientists communicating directly with the public and changing our views on important matters (scientists such as Steven Pinker and E. O. Wilson).
scholar Glen A. Love, one of the main proponents of ecocriticism (and a scholar congenial to the notion of an evolved human nature, the main focus of the literary Darwinians), writes: “Ecological thinking about literature requires us to take the nonhuman world as seriously as previous modes of criticism have taken the human realm of society and culture ... Taking the world seriously means, among other things, learning something scientific about it” (560). Love claims to follow C. P. Snow, who (according to Love) in his 1963 retrospective essay about the Two Cultures “argued that, among the natural sciences, biology may offer ... humanists the best and most available means of taking nature seriously through significant and valid interdisciplinary effort” (563).

Glen Love is not alone in calling for what Joseph Carroll calls a “basic scientific literacy” for literary scholars (Literary Darwinism 39). Commenting on a 2004 Presidential Address to the MLA by then-president Robert Scholes, another ecocritic, Harold Fromm, argued that Scholes’ address “fell sadly short” of the “one thing needful” for rescuing the crisis-afflicted humanities: “science” (“Letter to the Editor” 297). The sciences that Fromm has in mind are in particular evolutionary biology and psychology. As Joseph Carroll notes: “People who could be described as evolutionary literary critics presuppose the validity of a scientific understanding of the world, and they believe that the biological study of human beings is the necessary basis for a scientifically valid understanding of literature” (Literary Darwinism 29). However, as Carroll himself concedes in one of the founding texts of literary Darwinism, his Evolution and Literary Theory from 1995, the “relevance of biology to literary theory is by no means self-evident” (1).

Following an introduction to evolutionary psychology, I describe in more detail the emergent evolutionary approaches to literature.

---

3 Actually, Snow suggested molecular biology as “a branch of science which ought to be a requisite in the common culture” (“A Second Look” 72-3) instead of thermodynamics, a knowledge of which Snow originally had suggested to be the scientific equivalent of having read a work of Shakespeare’s (The Two Cultures, 15). In the retrospective essay, Snow speculated that molecular biology was “likely to affect the way in which men think of themselves more profoundly than any scientific advance since Darwin’s – and probably more so than Darwin’s” (74). Snow went on to suggest that another incipient “[m]ajor scientific breakthrough ... as closely connected to human flesh and bone as [the] one in molecular biology” was to be expected in “the nature of the higher nervous system”; here Snow seems to prophesize the “cognitive revolution” and the recent advances in neuroscience. All this was linked to “those parts of [men’s] own nature which seem to be predestined” (in other words, human nature), guesses about which, Snow thought, would within a generation have been “tested against exact knowledge” (75).
3.2 Evolutionary Psychology

When Darwin published *On the Origin of Species* in 1859, evolution was very much in the air. Darwin’s revolutionary insight concerned the mechanism which drives evolution, namely natural selection. In Darwin’s own words, his theory of “descent with modification through natural selection,” as he called it, was this:

> As many more individuals of each species are born than can possibly survive; and as, consequently, there is a frequently recurring struggle for existence, it follows that any being, if it vary however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be naturally selected. From the strong principle of inheritance [the observation that “offspring [tend] to be more like their parents than like their parents’ contemporaries” (Dennett 41)], any selected variety will tend to propagate its new and modified form (*On the Origin of Species* 6).

“No serious biologist doubts the fact that evolution has happened,” writes the evolutionist Richard Dawkins (287). However, even if the basic evolutionary process is established orthodoxy within biology, evolution continues to generate some controversy. As the historian Peter Bowler remarks: “Because evolution theory so directly affects our views on human nature and the relationship between humans and the natural world, it continues to provide a focus for debate” (2). One obvious debate is the one raging in USA (and occasionally stirring feeble echoes in Denmark) over the entirely unscientific theory of Intelligent Design, which grants evolution its place in the development of organisms while claiming that some “intelligent designer” started the whole thing.

As Philip Appleman notes in the *Darwin: A Norton Critical Edition*, Darwin’s theory had an impact on many diverse fields of human thought. “Hardly any kind of thought – scientific, philosophical, religious, social, literary, or historical – remained long unchanged by the radical implications of the *Origin*” (7). This is one fascinating aspect of evolutionary theory: it creeps out from biology and attempts to devour apparently unrelated fields – it is, in the evolutionary philosopher Daniel Dennett’s words, a “universal acid” which “eats through just about any traditional concept, and leaves in its wake a revolutionized world-view” (63).

As Bowler mentions, another focus of debate is the question of human nature. Darwin himself was a champion of an evolved human nature; in fact, he was the first evolutionary psychologist (*The Descent of Man*, published in 1871, is arguably a work of adaptationist psychology). In a famous passage, which provided the only allusion to man in the *Origin*, Darwin wrote: “In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each
mental power and capacity by gradation. Light will be thrown on the origin of man and his history” (368).

Evolutionary psychology springs from sociobiology, the research program inaugurated by Edward O. Wilson in his eponymous book from 1975. Like Darwin the integrationist, Wilson did not so much present new and groundbreaking facts as collect a wealth of convergent evidence into his thesis that behavior is a product of biology. Wilson’s book generated much controversy, particularly due to its last chapter, “From Sociobiology to Sociology,” which attempted to understand social behavior as a product of evolutionary mechanisms. And although a basic sociobiological understanding seems to have become generally accepted today – as the editors of an anthology critical of evolutionary psychology contend, it “seems to have got into the cultural drinking water” (Rose & Rose 3) – evolutionary psychology continues to generate dispute. For example, evolutionary psychology is seen as privileging the “nature” side and ignoring the “nurture” side in the nature/nurture debate. However, as John Tooby and Leda Cosmides assert, evolutionary psychology is not just another swing of the nature/nurture pendulum. A defining characteristic of the field is the explicit rejection of the usual nature/nurture dichotomies ... What effect the environment will have on an organism depends critically on the details of its evolved cognitive architecture ... Every aspect of an organism’s phenotype [its observable characteristics] is the joint product of its genes and its environment (“Evolutionary Psychology: A Primer”).

Whereas sociobiology is an approach to the study of animal behavior, evolutionary psychology focuses on the human animal. Theories, concepts, and findings from many areas of science are fused into this project, such as “evolutionary theory, ethology, linguistics, artificial intelligence, neurophysiology, evolutionary anthropology, analytic philosophy, evolutionary epistemology, and many branches of psychology” (Boyd, “Jane, Meet Charles” 1). Although Darwin is recognized as the first evolutionary psychologist, the field is usually seen as having been inaugurated with the publication of the anthology The Adapted Mind in 1992 (eds. Barkow, Cosmides & Tooby).

“Evolutionary psychology,” wrote the pioneers of the field John Tooby and Leda Cosmides in 1997, “is an approach to psychology, in which knowledge and principles from evolutionary biology are put to use in research on the structure of the human mind” (“Evolutionary Psychology”). The core premise of evolutionary psychology is that human psychology – the mind – is a product of evolution by natural selection, with the corollary that human psychology has remained more or less unchanged since Palaeolithic times when
our ancestors lived as hunters and gatherers, so that while our environment and culture have changed dramatically within the last 10,000 years (since the Neolithic or Agricultural Revolution), our psychological make-up has not. Evolutionary psychologists see the mind as an evolved information-processing device and contend in the words of Steven Pinker that the “mind is … designed by natural selection to solve the kinds of problems our ancestors faced in their foraging way of life” (How the Mind Works 21). Tooby and Cosmides further note in their “Evolutionary Psychology” that our “ancestors spent well over 99% of our species’ evolutionary history living in hunter-gatherer societies,” allowing millions of years of natural selection to fine-tune our psychology to a nomadic existence in small bands of hunter-gatherers, and not necessarily to the exigencies of urban modernity.

The idea that we are poorly adapted to our present environment, that we are round pegs in square holes, is known as “mismatch theory.” As the writer H. G. Wells suggested in 1896, “what we call Morality becomes the padding of suggested emotional habits necessary to keep the round Palaeolithic savage in the square hold of the civilised state” (“Human Evolution” ). The standard example both of the way in which we cater to our evolved dispositions and the way that we are poorly adapted to our current environments is that of fast-food (Buss 60). The obesity epidemic in the West should be explained, evolutionary psychologists argue, at least partly in terms of our evolved, “hard-wired” taste for fat and sugar. These tastes used to be adaptive since they steered us toward ripe fruits and healthy meats, yet in a society teeming with McDonald’s restaurants, they have become maladaptive.

Although the question of massive modularity is a focus of debate and disagreement within evolutionary psychology, the mind is usually portrayed as consisting of an array of mental modules or psychological adaptations (in what is known as the Swiss army knife model of the mind). Inspired by cognitive psychology and research in artificial intelligence, evolutionary psychologists see the mind as a computer, a problem solver which evolved to deal with the problems encountered by our evolutionary forebears. Yet rather than being a general-purpose problem solver, the mind consists of modules, an unknown number of functionally specialized neural circuits, for example for vision, language acquisition, cheater detection, and incest avoidance (Tooby & Cosmides, “Evolutionary Psychology”).

I will not detail the arguments against evolutionary psychology; at any rate, much of the criticism directed against the movement is based on simplifications and misunderstandings, as Kurzban and Haselton show in their essay “Making Hay Out of Straw,” which tackles many of the attacks provided by the essays in the aforementioned
Rose & Rose-edited *Alas, Poor Darwin*. Further, as the leading historian of the “Sociobiology Wars” Ullica Segerstråle notes, the controversies generated by evolutionary psychology and its detractors are in large part a continuation of the controversies following the publication of Wilson’s *Sociobiology*, and as such are due at least partly to “a clash between two total scientific-cum-moral worldviews,” to “different beliefs in the relationship between science and values” (“Evolutionary Explanation” 122). Thus, for example, the evolutionary psychologist sees no scientific or moral problem in presenting a finding which corroborates some unsavory aspect of human nature as for instance aggression. The critic, however, might complain that the evolutionary psychologist thereby legitimizes this aspect, saying that since aggression is “natural,” it is good or at least unavoidable (this is known as the “naturalistic fallacy”). *Au contraire*, say the proponents of evolutionary psychology. If we know human nature, if we know the environmental circumstances which provoke or stimulate certain innate tendencies, then we can truly do something about it: we can change the environment. The motive behind much – perhaps most – criticism against evolutionary psychology is ideological or political, which is unsurprising since theories of human nature have a direct impact on political and ideological issues (cf. Pinker, *The Blank Slate*).

### 3.3 Evolution and Literature

In E. O. Wilson’s assessment, there is “only one way to unite the great branches of learning and end the culture wars. It is to view the boundary between the scientific and literary cultures not as a territorial line but as a broad and mostly unexplored terrain awaiting cooperative entry from both sides” (*Consilience* 138); the neglected question reposing in this “mostly unexplored terrain” being the matter of “how biology and culture interact” (ibid.). And so, Darwinian literary critics bring along literature and apply the tools of evolutionary biology and psychology; indeed, the introductory chapter of a recent anthology of Darwinian literary criticism, *The Literary Animal* (eds. Gottschall & D. S. Wilson), bears the subtitle “Literature – A Last Frontier in Human Evolutionary Studies” (xvii). The editors explain: “We call literature one of the last frontiers because it is an easily documented fact: choose any subject relevant to humanity – philosophy, anthropology, psychology, economics, political science, law, even religion – and you will find a rapidly expanding interest in approaching the subject from an evolutionary perspective” (ibid.). However, that does not
really hold for the study of literature, at least not yet, according to these writers – but it is one way of bridging the gap between the two cultures.

Jonathan Gottschall, who is a scholar of classical literature and the most prominent junior literary Darwinist, remarks along lines similar to Wilson’s call for consilience in his well-argued, if somewhat rhetorically inflated, introduction to Darwinian literary study, “The Tree of Knowledge and Darwinian Literary Study”: “The time is high for literary studies to move past the defunct hard constructivist paradigm, to embrace new central hypotheses anchored in the scientific study of human nature, and to begin to harvest some of the fruits of mutual consistency. The time is high for a Darwinian literary study” (259).

So what, exactly, is Darwinian literary study? Basically, Darwinian literary scholars propose to understand literature with the aid of evolutionary psychology. They contend that there is such a thing as “human nature,” that this nature is the product of evolution by natural selection, and that literature is the product of mankind’s evolved psychology. Thus, to understand literature, one must understand the minds that produce and consume (and are represented within) it – and according to Darwinian literary scholars, the currently strongest account of human psychology is being built under evolutionary auspices.

Although adaptationist literary study is an already well-developed school with many articles and anthologies under its belt, as well as a few monographs and dedicated conferences, “there are only about 30 or so declared adherents [of literary Darwinism] in all of academia,” according to a recent New York Times piece (Max). However, the movement appears to be gaining ground; not only does it continue to produce articles and books, but recently, literary Darwinism has received a lot of positive media coverage. Most of the reviews, however, come from the scientific press; for example, the anthology The Literary Animal received favorable reviews from such prestigious publications as Nature (Whitfield) and Science (Fromm, “Science and Literature”).

In Denmark the movement has received little notice so far. In the newspaper Politiken in 2006, a mainly favorable (if superficial and imprecise) review of The Literary Animal was supplemented by an interview with D. S. Wilson and Jonathan Gottschall (Lundtofte), and the previous year, the newspaper Berlingske Tidende printed a rather more critical feature (Lindberg). In 2006, the popular science magazine Aktuel Naturvidenskab printed my “Darwin & Dracula – om biopoetik,” which I like to think is a rather more in-depth (if largely uncritical) examination of the movement. To my knowledge, the only declared adaptationist
arts scholar in Denmark is the esteemed film scholar Torben K. Grodal (at the University of Copenhagen), who is building a cognitive and evolutionary theory of film.

### 3.3.1 A Science of Literature

The promise of Darwinian literary criticism is the promise of a scientifically sound literary theory, yet it is perhaps not obvious why a “scientific” literary theory and practice is what is needed to lift humanist study from its alleged state of crisis.\(^4\) One good argument for why a scientifically robust theory of literature is attractive is that of “vertical integration” (Barkow 29) or “mutual consistency.” As E. O. Wilson writes: “Units and processes of a discipline that conform with solidly verified knowledge in other disciplines have proven consistently superior in theory and practice to units and processes that do not conform” (*Consilience* 219). Jonathan Gottschall notes that at present, mutual consistency applies only to the natural sciences, although the social sciences are moving in the right direction (“The Tree of Knowledge” 257). It seems to me that the attempt to achieve mutual consistency for the humanities as well is a worthwhile one. If the findings of a literary scholar fly in the face of well-established scientific consensus on the same issue (or a closely related one), something is likely to be wrong. That does not mean that the whole of traditional literary criticism is wrong or worthless, of course – as long as it does not conflict with the best currently available scientific understanding of human psychology, behavior, and culture. Besides, much humanistic inquiry is bound to be indifferent, irrelevant, or extremely peripheral to evolutionary biology and psychology.

Another argument for taking science seriously is provided by the esteemed literary scholar Brian Boyd, who polemically contends that

> [u]ntil literature departments take into account that humans are not just cultural or textual phenomena but something more complex, English and related disciplines will continue to be the laughingstock of the academic world that they have been for years because of their obscurantist dogmatism and their coddled and preening pseudo-radicalism (“Getting It All Wrong” 19).

> It is the contention of the Darwinian literary scholars that the “blank slate” version of the human mind – the “modern denial of human nature” that, as Steven Pinker documents

\(^4\) Frederick Crews, who is probably best known as a harsh critic of psychoanalysis and Freudian literary theory, warns in his foreword to *The Literary Animal* that “a science of literary criticism, strictly construed, may be neither desirable nor feasible at all.” However, he is sympathetic to the contributors’ Darwinian commitment, and commends them (sensibly, I think) for believing that “humanists ought to play the knowledge game according to the ethical rules that apply throughout the sciences. In brief: test and compare hypotheses, attend to negative as well as positive evidence … [and] fairly confront objections” (xiv).
in his *The Blank Slate*, has dominated twentieth century social sciences – has become untenable. As Boyd notes,

In the social sciences since the 1900s and the humanities since the 1960s, the world and the mind have increasingly been seen as socially, culturally, or linguistically constructed. Culture, not biology, shapes what we are; language, not the world, determines what we think ... Over the last few years the [“poststructuralist”] Theory wave has started to break under the inherent weakness of its arguments and the welling counterevidence ... Those reluctant to read outside Theory's approved reading lists may not be aware of it, but evidence has been accumulating for more than thirty years ... that culture is a product and a part of biology, and that it is impossible to explain cultural difference without appreciating the complex architecture of the human mind, of a 'human nature [that] is everywhere the same’” (“Jane, Meet Charles” 1-2.)

Boyd, who is a fierce critic of “cultural critique” or poststructuralist philosophies, as well as one of the main proponents of adaptationist literary study, ends with a quote from what has become the *locus classicus* of evolutionary psychology, John Tooby and Leda Cosmides’ 1992 essay “The Psychological Foundations of Culture” (38). In this influential exposition, Tooby and Cosmides attacked the so-called “Standard Social Science Model,” according to which there is no evolved human nature, no biological component or determinant to behavior and culture; a model, they claimed, that “required an impossible psychology” (34). Tooby and Cosmides saw evolutionary psychology as the necessary corrective to outmoded and wrong theories of human psychology, and it appears that time and the scientific community has largely been on their side. The Darwinian framework has long been orthodoxy within biology, of course, but also the social sciences are increasingly accepting the Darwinian framework (cf. Barkow).

However, Joseph Carroll, the godfather of Darwinian literary study and also an uncompromising critic of postmodern cultural and literary theory, wrote in 2004 that although the humanities will “in all likelihood” follow “in the train of this [Darwinian] movement [underway in the social sciences] ... they will probably be slow and late in catching up.” In an uncharacteristically caustic passage (Carroll is a careful and temperate, sometimes even dry, writer), he compares the humanities to a Third World country, philosophically speaking. There,

scholars happily confident of their own avant-garde creativity continue to repeat the formulas of Freud, Marx, Saussure, and Lévi-Strauss – formulas that have now been obsolete, in their own fields, for decades. It is as if one were to visit a country in which the hosts happily believed themselves on the cutting edge of technological innovation and, in support of this belief,

---

5 Not only did Carroll, a very prolific writer, compose literary Darwinism’s first and heaviest book, *Evolution and Literary Theory*, he is also active as an organizer and historian within the field, keeping track of developments and contributions and encouraging young scholars who are interested in evolutionary approaches to literature.
proudly displayed a rotary-dial phone, a manual typewriter, and a mimeograph machine (Literary Darwinism x).

Thus, Carroll notes that evolutionary literary scholars reject “both the irrationalism of postmodernism and the blank slate model of human behavior that informs standard social science” (“Evolutionary Approaches” 639).

I have been presenting postmodernism and poststructuralism as though they were synonymous and monolithic enterprises. That is obviously not the case, but I think a simplified account is adequate to my purposes. Even though postmodernism and poststructuralism encompass a profusion of different approaches and claims, I will follow Joseph Carroll in asserting that these theoretical or ideological orientations all share a few basic assumptions about the world. Carroll identifies the “central doctrines of poststructuralism” as “textualism and indeterminacy,” explaining that textualism is “the idea that language or culture constitute or construct the world according to their own internal principles,” and that “indeterminacy identifies all meaning as ultimately self-contradictory” (Literary Darwinism 15). Carroll’s own position, which he shares with most other adaptationist literary scholars, is that “the doctrines of textualism and indeterminacy are not true and that truth is itself the primary criterion in assessing the validity of all doctrines” (17). These and similar concerns expressed by Carroll are essentially Enlightenment values; it is not surprising, then, that most (if not all) Darwinian literary scholars affiliate themselves with the “naturalist” camp of the Science Wars.

To which degree the Darwinian framework is establishing itself within the humanities is hard to tell from my vantage point. Contrary to Carroll’s and Boyd’s bleak assessments, the anthropologist Jerome Barkow recently asserted that “the humanities … are to a reasonable extent engaging with Darwinian thought” (12). Now, if the standard humanist is thought to be a highly unreasonable obscurantist, Barkow’s “reasonable extent” is probably not very far. You can only expect so much from a tenured biophobe. At any rate, the purely “culturalist” take on human beings and their culture and art lives on in the upper echelons of the humanities. In a telling response to Harold Fromm’s call for biology in literary studies mentioned above, Robert Scholes writes that yes, “we were natural for eons before we were cultural … but so what? We are cultural now” (“Reply” 298). It is as though cultural is opposed to natural (or biological); as though one excludes the other. As Brian Boyd asks, incredulously: “We were natural? Have we ceased to be so?” (“Getting It All Wrong” 19). The
false dichotomy between nature and nature, or biology and culture, has been abandoned by evolutionary psychologists. Biology makes culture possible; it enables and constrains culture. Paying attention to the biological underpinnings of human behavior does not – or should not – entail a negligence of the social and cultural factors simultaneously shaping this behavior, just as a Darwinian perspective on literature does not entail a denial of cultural factors shaping this literature.

Darwinian literary scholars urge that literary criticism incorporate relevant and valid knowledge from the social and the natural sciences. At the same time, and conversely, they argue that the study of literature can become of relevance to the sciences – that their approach makes consilience a two-way argument, as Michelle Scalise Sugiyama suggests (“Review” 98). The argument is basically that the world’s literature (including literature’s oral antecedents) is a largely untapped source of information about the human animal, and that quantitative methods – what Franco Moretti calls “distant reading” (Graphs, Maps, Trees) – may help scholars glean scientifically sound and relevant data from literature. According to Gottschall and D. S. Wilson, “[l]iterature – from classic novels to erotica to world folktales – is a vast, cheap, and virtually inexhaustible argosy of information about human nature” (197). Apparently, this is not just a case of literary scholars prettying themselves up to the scientists; for one thing, D. S. Wilson is a distinguished evolutionary scientist, not a literary scholar (by training, at least), and for another, the argument is made by the other side as well. David Buss, a vocal spokesperson of evolutionary psychology, argues in his popular 1999 introduction to evolutionary psychology, Evolutionary Psychology – The New Science of the Mind, that the “patterns of culture we create and consume … may reveal about human evolutionary psychology as much as or more than the most carefully planned psychological experiments” (410). And as Joseph Carroll points out, by “developing quantitative methods of analysis and by using data to test specific hypotheses, literary scholars can produce knowledge that is both falsifiable and genuinely progressive” (“Evolutionary Approaches” 644-5).

Accepting the usefulness, if not the necessity, of quantitative approaches to literary study does not entail a wholesale rejection of traditional subjective humanistic methodology; rather, the tools of quantitative social science become additional instruments in the literary scholar’s toolbox. Joseph Carroll distinguishes between “Darwinian literary criticism” and “Darwinian literary science,” noting that the two approaches “share subject matter but differ in methodology.” Darwinian literary criticism “uses information from the social sciences and
acknowledges the validity of empirical criteria for truth, but its methods are humanistic – they involve tact, intuition, and personal response.” In contrast, Darwinian literary science is a “subspecies of Darwinian social science,” studying literature “by adopting the methods of social science – statistical analysis and experimentation” (“Contributions”).

As an example of the way that quantitative literary study or Darwinian literary science can work, Jonathan Gottschall and colleagues have analyzed 1,440 folktales from around the world, paying special attention to the representation of gender in this cross-cultural sample. Gottschall argues against claims made by radical feminists to the effect that gender is an arbitrary construct in which biology plays no or virtually no part, and that the “European fairy tales reflect and perpetuate the arbitrary gender norms of western patriarchal societies” (“Quantitative Literary Study” 207). Instead, his “findings converge with emerging biosocial models of behavior and psychology” (219) which posit an evolved human nature as the enabler and constrainer of behavior, and thus clash with a radically constructivist account. The “gender norms” found in European fairy tales – such as young and beautiful females and heroic and active males – are in fact found in folk tales of all cultures, and are thus likely to be at least partly a product of the evolved dimorphic psychologies of a gendered species. This finding should be of interest both to literary folklorists and social scientists; the study shows that statistical analysis can be of relevance to literary studies and that literary studies can be of relevance to the social sciences.

3.3.2 Literature as Adaptation

In his famous 1991 book Human Universals, the American anthropologist Donald E. Brown listed the hundreds of traits found in all known cultures. Brown’s is an extended argument against tabula rasa-thinking in anthropology and ethnography, a call for examining the similarities between cultures, rather than as per tradition focusing solely on the differences. These similarities are in large part due to a common mental architecture, a universal human nature which entails a large number of regularities in behavior. As Steven Pinker writes, paraphrasing Brown: “Hundreds of traits, from fear of snakes to logical operators, from romantic love to humorous insults, from poetry to food taboos, from exchange of goods to mourning of the dead, can be found in every society ever documented” (The Blank Slate 55).

Inspired by Noam Chomsky’s concept of a Universal Grammar, a set of linguistic principles underlying all the world’s languages as a consequence of innate mental characteristics common to all normal humans, Brown described at length a hypothetical
Universal People – a description of what “all people, all societies, all cultures, and all languages have in common” (130). And intriguingly, the Universal People engages in narrative (132): storytelling is a true human universal, an activity found in cultures around the globe.

According to Joseph Carroll, “narrative is a universal human disposition [which] develops reliably and spontaneously in all known cultures, no matter how isolated they might be, and [which] takes the same basic form in all cultures – a form involving characters, goal-oriented action, and resolution” (Literary Darwinism xix). It would appear, then, that Homo sapiens is “hard-wired” to tell and listen to made-up stories, since the very universality of narrative suggests that it springs from our species’ common mental architecture, our neural hardware. Why? What benefits could accrue to this penchant for narrative? Evolution should favor traits which contribute to the organism’s survival and reproduction, but how could our perennial and ubiquitous love-affair with fiction have helped our evolutionary ancestors survive and propagate?

Evolution by natural selection ensures that “useful” traits are preserved and passed on in the population. These traits are adaptations (although there are two other possible outcomes of the evolutionary process, namely byproducts of adaptations and random effects or “noise”), which in the biological sense can be defined as “an inherited and reliably developing characteristic that came into existence through natural selection because they [sic] helped to solve problems of survival or reproduction during the period of their [sic] evolution” (Buss 36). Any trait which in the struggle for survival gives an organism a competitive edge is likely to be selected for.\footnote{In a joke which well illustrates the idea of selective advantage, two biologists on the African savannah spot a rapidly approaching predator. One biologist quickly hauls a pair of Nikes from his bag, prompting the other to say, “Surely, you don’t think those shoes will make you outrun that lion.” “No,” answers the first, “but they’ll make me outrun you.”}

In Daniel Dennett’s words, “[a]ny phenomenon that apparently exceeds the functional cries out for an explanation. We don’t marvel at a creature doggedly grubbing in the earth with its nose, for we figure it is seeking its food; if, however, it regularly interrupts its rooting with somersaults, we want to know why” (quoted by Boyd, “Evolutionary Theories of Art” 147). Dennett is talking about religion as a kind of apparently inexplicable “somersaulting,” but he might as well have been talking about art, as Brian Boyd points out. Boyd explicates: “How can a species as successful as Homo sapiens have evolved to devote
so much time and energy to ‘somersaults’ like sculpture, song, and story, rather than stalking steadily after food or mates?” (ibid.).

These questions – why, whether and how the arts might be adaptive – trigger much debate within biopoetics and Darwinian literary study. As Joseph Carroll wrote in 2004, the “adaptive function of literature [including its oral antecedents] and the other arts is still very much a live question among adaptationists” (Literary Darwinism xix). To date, a host of theories and opinions regarding the adaptive function of arts and literature have been offered, but I will mention only a few which have bearing on my attempt to understand supernatural horror fiction in an evolutionary perspective.

The adaptationist literary theorist Michelle Sugiyama has dealt extensively with oral narratives in diverse cultures, and in her eyes, narratives “serve as a vehicle to convey adaptively useful information about resources in the environment” (summarized by Carroll, “Human Revolution” 41). Similarly, according to Steven Pinker (in Carroll’s paraphrase), “narratives can provide models of behavior that can be useful in solving adaptively significant problems, and [Pinker] also suggests that the pleasure afforded by art is a parasitic side-effect of the gratification produced by activating cognitive capacities that have evolved to fulfill other adaptive functions” (ibid.).

Pinker follows Horace in claiming for the arts two functions, namely to delight and to instruct: “It’s helpful to distinguish the delight, perhaps the product of a useless technology for pressing our pleasure buttons, from the instruction, perhaps the product of a cognitive adaptation” (How the Mind Works 539). Regarding the instruction, Pinker compares fictional plots to “those books of famous chess games that serious players study so they will be prepared if they ever find themselves in similar straits” (542). And regarding the delight, Pinker famously describes the arts as a “pleasure technology” and compares them to cheesecake:

We enjoy strawberry cheesecake, but not because we evolved a taste for it. We evolved circuits that gave us trickles of enjoyment from the sweet taste of ripe fruit, the creamy mouth feel of fats and oils from nuts and meat, and the coolness of fresh water. Cheesecake packs a sensual wallop unlike anything in the natural world because it is a brew of megadoses of agreeable stimuli which we concocted for the express purpose of pressing our pleasure buttons. Pornography is another pleasure technology ... the arts are a third” (525).

In other words, pleasure is built into an organism as natural selection’s way of saying “do more of this, this is good”; pleasure tends to be adaptive. (The obvious example is sex: an organism which enjoys sex is likely to pass on more copies of its genes than one which
doesn’t.) And so we construct technologies that simulate adaptive experience, giving us the pleasure without the discomfort, trouble, or, in some cases, danger which these experiences entail in the real world. Thus, horror fiction is a kind of pleasure technology, but a curious one since it seems to work in reverse; this is a point to which I return.

Carroll thinks that “the functional hypothesis put forth by Sugiyama and Pinker is sensible but incomplete” since it fails to identify “any adaptive function that is specific to art or literature proper” (Literary Darwinism xxi). By viewing literature merely as a means to an end (information transmission), the authors fail to explain why people everywhere seem to have a deeply felt psychological need for fiction. Further, Carroll has criticized Pinker’s cheesecake model of literature, arguing powerfully that literature is not a pointless pleasure technology but plays a “vital role … in the healthy development of human beings” (66).

However, it seems that Pinker and Carroll are talking about two different kinds of literature. Carroll is a scholar of “high” Victorian fiction, whereas Pinker seems more comfortable with popular culture; when Carroll talks of how “arts, music, and literature … are important means by which we cultivate and regulate the complex cognitive machinery on which our more highly developed functions depend” (65), he surely isn’t thinking of canned shit, The Texas Chainsaw Massacre, Napalm Death, or Danielle Steel. When arguing that the arts “embody emotions and ideas [and] are forms of communication … [communicating] the qualities of experience” (66), Carroll seems to be thinking of high-quality naturalistic literature, and yet much – probably most – contemporary popular fiction is better understood as a kind of pleasure technology, a kind of cheesecake for the mind.

Drawing on E. O. Wilson, Carroll has put forth a theory on the adaptive function of literature, one which assigns to literature a very special place in human psychology and development; the arts, in Carroll’s view, are much more than idle pastimes. Carroll’s is a more sophisticated functionalism, and he thinks that literature does have an adaptive function. In Carroll’s words, it is Wilson’s thesis that “the large human brain has adaptive (survival) value, but … in solving some adaptive problems the brain produces a new adaptive problem – it causes confusion and uncertainty … It is in order to cope with this challenge, Wilson argues, that human beings have created religion and the arts” (Literary Darwinism xxi). Thus, our species gradually acquired high intelligence which gave us adaptive or behavioral flexibility. However, this intelligence presents the world to us in all its chaotic confusion, and not just as an arrangement of stimuli, each of which activates an instinctual response.
As Wilson writes, the “dominating influence that spawned the arts was the need to impose order on the confusion caused by intelligence … Because of the slowness of natural selection … there was not enough time for human heredity to cope with the vastness of new contingent possibilities revealed by high intelligence … The arts filled the gap” (Consilience 250). And as he put it in Biophilia from 1984, culture is “a product of the mind, which can be interpreted as an image-making machine that recreates the outside world through symbols arranged into maps and stories” (101). Carroll grants that fiction may function as a testing grounds for various hypothetical scenarios as in Pinker’s chess book analogy; literature, writes Carroll, “contributes to … the capacity for responding flexibly and creatively to complex and changing circumstances” (Literary Darwinism 116). So, in the Carroll-Wilson-thesis, our need for narrative is adaptive, since when satisfied it helps us deal with and make sense of a highly complex social and mental world.

As Carroll wrote in 2006, “[t]heories about the adaptive function of literature and the other arts remain in a highly speculative state” (“Evolutionary Approaches” 644.). Yet this aspect is one reason why adaptationist literary study is valuable, even if it should turn out to be wrong: the entire discussion on whether and how our proclivity for fiction is an adaptation necessitates speculation on the very nature of art and narrative; it focuses on the “deep” questions of what art is and what it’s for.

3.3.3 Criticisms of Literary Darwinism

Several commentators find the evolutionary theories of art fascinating, yet are more critical of the readings produced by the literary Darwinists. Adaptationist critics handle well the “big social novels,” says T. D. Max, but what, he asks, of Gustave Flaubert and Henry James? And what about Romantic poetry? As Steven Pinker warns (yet doubts) in a recent review of The Literary Animal: “It’s conceivable that evolutionary thinking will raise, and eventually solve, the scientific question of why we enjoy fiction without offering anything to the field of literary criticism beyond our folk theories of human nature” (“Toward a Consilient” 75).

The good Darwinian reading combines biological universality with historical particularity and individual difference. For example, David Michelson, in his unpublished Master’s thesis, offers a “bio-cultural” investigation of the reception of Shirley Jackson’s “The Lottery,” analyzing the complex interplay of innate dispositions, cultural context, and varieties in individual identity which gave rise to the powerful reception of the story in 1948.
A Darwinian reading regards a text in terms of an organism’s response to its environment and other organisms (as interpreted by the author, him- or herself an organism responding to his or her environment), as an imaginary construction which is shaped by species-wide dispositions, individual authorial identity, and locally contingent factors, and which bears a very real relation to a world which really exists. In a reading of Jane Austen’s *Pride and Prejudice* (in *Literary Darwinism*), Joseph Carroll shows how the biological and cultural aspects of mate choice permeate the novel and examines the interplay of evolved dispositions and historically situated mores. As he explains in an interview:

> I don’t look at *Pride and Prejudice* and try to sort out what is biological and what is cultural … I … examine the way underlying biological dispositions are organized in a specific cultural ecology. Nobody in the novel escapes the problems of mate selection, status and forming alliances. But the characters also integrate these concerns with human qualities, such as intelligence, character, morals and cultivation” (Whitfield 389).

Carroll grapples with issues of tone and style, elements otherwise easily eluding the Darwinian critics, who are often intent on explaining the behavior of fictional characters in terms of precepts developed within sociobiology and evolutionary psychology (such as mate selection and status-seeking behavior). Darwinian criticism is strongest on thematic content and explains without much ado why certain plots are extremely common across cultures, while others would interest no-one at all. “Why,” asks Denis Dutton, “have no great novels been written about income tax preparation?” (451). Bluntly put, Darwinian critics note with some satisfaction that literature is all about “boys meeting girls” (Gottschall, “The Tree of Knowledge” 262), and they explain this fact with another, namely the biological imperative of reproductive success. This is what we care about, this is what concerns us.

Carroll criticizes the “simple” Darwinian readings, the ones which merely scan texts for universal patterns of behavior as described by human evolutionary theory (such an approach is performed by the psychologist David Barash and his daughter Nanelle Barash in their accessible and popular *Madame Bovary’s Ovaries* from 2005). He attacks this “common notion” of what Darwinian critics could or should do, stating that the method is “naïve and … vulnerable to obvious objections.” As he writes, “[p]eople in reality do not simply exemplify common, universal patterns of behavior” – and further, to “treat characters as if they were actual people is to ignore the whole concept of ‘meaning’” (*The Literary Animal* 76).

So far, serious criticism of the adaptationist program in literary studies has been scant. Carroll’s books, as well as *The Literary Animal*, have received largely positive reviews, which is perhaps surprising given the strong attacks on contemporary literary scholarship that
these volumes offer. Yet silence is a kind of criticism as well, and a very effective one, and most literary journals (with the exception of Dutton’s Philosophy and Literature) have ignored the Darwinian approach to literature.

3.4 Concluding Remarks

Darwinian theory seems to me to be quite relevant to literary studies. Not only is it the case that Darwin’s theory has seeped into literature since the publication of Origin (Darwinian evolution seems to have tickled the literary imagination to a higher degree than any other scientific theory, a point to which I return in the final section), but accounts of human behavior and psychology derived from Darwinian theory can be directly applied to the study of literature. That does not mean that only works of literature published after 1859 can be read with Darwinian glasses. If evolutionary psychology gives a reasonably accurate picture of human nature, and if human nature is what literature is basically about (if literature is about human nature, fashioned by a human nature to a human nature), then any work of literature (including its oral antecedents) can advantageously be understood with the aid of Darwinian psychology.

To understand the present, we must know the past and the forces that hammered and twisted our species into shape. One problem recurrently faced by our forebears in the “environment of evolutionary adaptedness” – the hypothetical, statistical conglomerate of selective pressures which shaped Homo sapiens – was that of predators. It seems that we have specialized neural hardware dedicated to the problem of predator detection and avoidance, and it is my contention that this has consequences for the study of horror fiction.
4 Supernatural Horror Fiction: A Bio-Cultural Approach

4.1 Homo Timidus

In what follows, I put forth the *Homo Timidus* theory of supernatural horror fiction, my claim that supernatural horror fiction – referred to, in shorthand, as “horror” – is crucially dependent on evolved properties of the human mind. I spend some time presenting and criticizing the dominant approaches to horror, and considerably more time presenting the revised theory, the bio-cultural approach to the genre.

Fear-inducing storytelling may be a by-product of the evolved mind, a neat trick which has been re-invented a billion times and more because it is an easy, free, and efficient way of pushing buttons that were hard-wired by natural selection into the human central nervous system. Horror may be a kind of “pleasure technology,” a non-adaptive exploitation of an adaptive system, but a curious one which seems to bring pleasure via displeasure. And horror may have the potential to be adaptive, to improve our (ancestors’) chances of survival in a dangerous world.

To understand the nature of horror, it is essential to recognize that horror fiction is evolved from earlier, recognizable similar kinds of stories; that horror is not, exactly, a social or cultural construction, but rather a predictable product of an evolved human nature. Horror is what happens when *Homo sapiens* meets the world; it is a “natural” genre, not the chance product of an unusual mind or a specific set of cultural circumstances. The biologically modulated impulse that drives many of us to consume horror is manifested in thrill-oriented variants of children’s play, of which the more formalized, self-conscious, and culturally mediated and tinted artistic genre seems to be an outgrowth. The shapes that horror takes vary within narrow bonds; like languages, horror stories are cultural variations on a limited, biologically constrained set of “rules.” In adopting a bio-cultural approach, one which recognizes both the biological underpinnings and the cultural variance of horror stories, I hope to explain salient features of the genre and to cast new light on old problems.

My account of supernatural horror fiction does in no way exhaust the subject. I proceed in a reductive way by isolating certain central elements of the genre, for example looking at “fear” and “monsters” and “disgust,” altogether ignoring other aspects. I believe, however, that the elements to be discussed constitute the engine of the genre. My efforts are largely

---

I borrow the term “Homo Timidus” from my book of the same name. Originally, the phrase was coined by the Danish author Dennis Jürgensen in his horror tetralogy *Relief*. Here, it referred to a theory espoused by one of the novel’s protagonists, a parapsychologist, which posited that our innermost fears may become physical reality if the circumstances are right.
exploratory and open-ended; this is a preliminary sketch and a suggestion of routes to be traveled by further research.

4.2 What Is Horror?

Supernatural horror fiction is that kind of fiction which is designed to scare and disturb its audience, using supernatural props. Thus, unlike most other genres, horror is defined affectively and not according to setting or content, for example. Several scholars have noted that, as the critic Douglas E. Winter put it in his oft-quoted introduction to the fiction anthology *Prime Evil*, “[h]orror is not a genre, like the mystery or science fiction or the western. It is not a kind of fiction, meant to be confined to the ghetto of a special shelf in libraries or bookstores. Horror is an emotion” (12). It is an *element* which occurs not only in horror novels, but in all literature. This fact has been used by many critics to validate the genre, asserting that most, if not all, of our great writers have written horror stories or stories with fear-inspiring passages (Winter 12; Sullivan vii; Lovecraft 15).

Even as horror is not defined according to content, a limited stock of situations and characters seems to make up most horror stories. The American writer Peter Straub has put a positive spin on this limitedness, comparing the genre to playing the blues: “there is an incredible amount of richness and variety in what seems to be an extraordinarily limited stock of situations … You know there’s only a certain chord progression, and that’s the blues … But what you can do with that chord progression is staggering!” (quoted in Wiater 110). How can we account for the fact that a genre which is supposed to be, in the words of Douglas Winter, “a progressive form of fiction, one that evolves to meet the fears and anxieties of its times” (“The Pathos of Genre”), is so obsessed with a few themes and figures? Presumably, it is because certain things (darkness, death, ghosts, humanoid predators, etc.) are scarier than others. That realization begs a *new* question, however: Why is darkness scary? Why is death scary? And why are monsters, vampires, ghouls, and ghosts?

My definition of the genre, although adequate as an operational definition, is easily criticized. It is perhaps too inclusive. And what about works of art which disgust, but do not scare or disturb, such as many splatter movies? And what about individual reader or viewer response? One fiction might scare the wits out of one person, while it leaves another rather unperturbed; however, insofar as a work of horror is discernible as being consciously
designed to scare and disturb, the parameter of the “scariness” of a fiction can be viewed as descriptive, rather than as a criterion of success.

And what about fictions which are, by most accounts, works of horror, even though they were not conceived as such by their authors? Take *The Exorcist*, William Peter Blatty’s 1971 novel: “When I was writing [*The Exorcist*] scaring people was the furthest thing from my mind,” Blatty recently said in a talk at Georgetown University. Rather, “he was driven to write *The Exorcist* after becoming disillusioned with the practical approach science takes in explaining the nature of human beings. Refusing to believe that human beings were made solely of matter, Blatty wanted to show that people were also ‘spiritual beings’” (Al-Arian).

Also, “the supernatural” is a slippery term, one whose meaning is bound to change in time as the natural world is charted, and one whose ontological status is a matter of some dispute. And while the enjoyment of supernatural horror fiction requires no real belief, some of its practitioners do, in fact, believe in ghosts and otherworldly monsters. Richard Matheson, one of the most influential horror writers of the twentieth century, is an ardent believer of supernatural phenomena, even as he rejects the very term “supernatural,” preferring, instead, “supernormal”: “Nature cannot be transcended,” as he has a character say in his seminal 1971 horror novel *Hell House* (13-14). Several of his novels (for example *A Stir of Echoes*) read as dramatized apologies for the existence of the supernatural, and he has written non-fiction works about psychic phenomena (for example *Mediums Rare*). Similarly, Blatty conceived of *The Exorcist* as a kind of docudrama. And in the other extreme, Denmark’s most accomplished and prolific horror writer, Dennis Jürgensen, has in an interview denied any belief in the supernatural or the parapsychological (in Clasen, Drager, damer & daemoner 263). At any rate, these and other writers are undoubtedly aware of the dramatic potential of supernatural themes.

In his definition of horror in *The Encyclopedia of Fantasy*, co-editor John Clute distinguishes “‘pure’ horror” from those horror stories which are “set in entirely mundane worlds and [can be] simple exercises in sadism” (478). This latter category “does not concern us,” as Clute writes; neither does it concern me here. I am interested primarily in supernatural horror, not works of psychological terror such as Robert Bloch’s *Psycho*. However, the in-between category of “explained supernaturals,” such as many of Ann Radcliffe’s Gothic novels, is of relevance to my project as it invokes the supernatural, even as it is explained away in the end. Moreover, stories exist which cannot be termed “horror,” but which, nevertheless, contain passages or scenes of a horrifying character. The writer H. P.
Lovecraft – lurking always in the periphery of literary history with his densely written and superbly conceived “weird tales” – noted in his seminal essay *Supernatural Horror in Literature* that “much of the choicest weird work is unconscious; appearing in memorable fragments scattered through material whose massed effect may be of a very different cast” (16).

Lovecraft further asserted that “the horror-tale is as old as human thought and speech themselves.” This is “naturally [to be] expected of a form so closely connected with primal emotion,” as he wrote (17). In his history of the genre, Lovecraft found the roots of the modern horror story in “the earliest folklore of all races” and charted its development from folk- and fairytales via the Gothic novel to the modern tale of terror. I follow Lovecraft in asserting that supernatural horror fiction (even by another name, as for example dark fantasy or Gothic fiction) is not entirely a cultural construction or invention. As Edgar Allan Poe grumbled when faced with the accusation that his fiction was overly derivative of the German tradition: “If in many of my productions terror has been the thesis, I maintain that terror is not of Germany, but of the soul” (quoted in Symons viii).

That horror fiction springs from ancient forms of storytelling and survives (via folk- and fairytales) to its latest manifestation, the modern Gothic or horror tale as for instance many of Stephen King’s stories and the profusion of horror movies such as Friedkin’s *The Exorcist*, Kubrick’s *The Shining*, and Myrick & Sánchez’ *The Blair Witch Project* is hardly an original claim. As Zillmann and Gibson claim, echoing Lovecraft: “The telling of horrifying tales is as old as the human capacity to tell tales. The modern horror film is merely the latest form of such story telling” (15).

However, many contemporary historians and scholars of the genre implicitly or even explicitly place the birth of the genre on Christmas Day in 1764, with the publication of Horace Walpole’s *The Castle of Otranto*, the first “Gothic novel.” The birth of the horror story is thus often seen as a symptomatic by-product of the Enlightenment. The critic and historian Walter Kendrick follows other commentators in placing the genesis of the horror story in this particular period: “Scary entertainment, as we know it today, showed its first stirrings in the middle of the eighteenth century,” as he writes in his enjoyable history of the genre, *The Thrill of Fear* (xxii). Kendrick ridicules the Lovecraft thesis, noting that “scholars who write about horror fiction love to describe it in mythic, legendary terms, as if there were any plausible resemblance between a postindustrial American teenager screaming in delight at a
monster movie, and some medieval peasant who trembled in the dark for fear a ghost would get him” (xxii). I think Kendrick is wrong, and I will try to show why.\(^8\)

In criticizing one extreme, I will try to avoid going to another: denying the obvious variance within the genre would be insane. I acknowledge that individual works of horror should be seen in their historical, cultural context, since a work of horror is always, to an extent, a translation of locally and historically contingent, and usually salient, phenomena. However, I maintain that \textit{horror varies within a narrow range}; for all its variance, the genre displays a stunning uniformity, one which is easily and frequently overlooked by critics and commentators intent on unveiling the cultural fears and anxieties which have metamorphosed into supernatural monsters and occurrences. Perhaps this one-eyed focus on horror’s contextual, historically dependent nature comes about because some critics wish to bring to the fore the relevance of a genre which all too often is dismissed as idle escapism or “simple exercises in sadism.”

\subsection*{4.3 The Origin of Horror Stories}

Different schools of horror theory have different notions of the source of horror stories. Yet all seem to agree that the fantastic, monstrous contents of horror stories (those elements which define horror as a subgenre of fantasy) are transfigurations of “real” things:

- Historical or social incidents or anxieties (Jack Finney’s \textit{The Body Snatchers} [1955] can be read as an allegorical treatment of Communism),
- the individual author’s experience (supposedly, Cronenberg created \textit{The Fly} to deal with the rather horrible and disgusting cancer death of his father),\(^9\)
- earlier works in the same genre (Stephen King has noted that his \textit{‘Salem’s Lot} is a “literary homage” to Stoker’s \textit{Dracula} [\textit{Danse Macabre} 25]),
- or maybe repressed childhood complexes (Edgar Allan Poe’s “The Premature Burial” is a transformation of the infantile desire to return to mother’s womb).

\(^{8}\) I think Kendrick is right, however, to claim that “modern fright is a kind of connoisseurship” (xxiii), but the public display of postmodern detachment and connoisseurship is merely part of the genre’s appeal, and it only applies to “social” horror events, primarily cinematic horror. When the genre really works its dark magic, its audience is, indeed, reduced to trembling peasants.

\(^{9}\) Noël Carroll, among others, makes this assertion (222). However, Cronenberg recently dismissed the connection in an interview, saying that “I was writing about death and decay long before my parents were dying and decaying. Their deaths only confirmed that I was doing it right. Look, everyone’s parents eventually die but not everyone makes films like I do. I really think it’s cheap … It’s not even Freudian. I mean, just recently somebody writing about \textit{The Fly} asked me, “Would you confirm that your father died of cancer?” Well, actually, my father didn’t die of cancer so, jeez, sorry to have blown that connection” (in Graham).
4.3.1 Historicist Approaches

One influential school sees horror or Gothic fiction as the white underbelly of the Enlightenment, as a subversive venue of expression for all things repressed in the eighteenth century and henceforth. In this semi-Freudian conception, culture, like the mind, is a pneumatic machine with gauges, pipelines, and safety valves. If something like, say, sexuality or death in normal discourse is repressed, pressure builds until the repressed material is released, and suddenly there is an explosion of psychiatrists eagerly discussing deviant sexuality in jargon-laden textbooks, or a wealth of fictions dealing with death and depravation. The repressed will out, and horror stories are seen as a prime outlet for what is suppressed in bourgeois society.

One representative exposition of this Gothic-as-dark-side-of-Enlightenment thesis is Fred Botting's *Gothic*. This book is part of the Routledge series “The New Critical Idiom,” and as such is meant to represent the current state of scholarship in its field. In other words, Botting’s account of the Gothic is meant to be uncontroversial. In Botting’s eyes (and purple prose), the Gothic “appears in the awful obscurity that haunted eighteenth-century rationality and morality” (1). Further, “Gothic figures … shadow the progress of modernity with counter-narratives displaying the underside of enlightenment and humanist values” (2). In short, the figures of horror stories provide “embodiments and evocations of cultural anxieties” (ibid.).

A less radical, yet similar and more specific thesis is offered by Walter Kendrick: “We have been born into a late stage of a process, more than two centuries old, that has almost totally removed the after-effects of death from most Western experience, leaving them to cavort in the imagination” (xvi). That a “sanitizing” cultural process has dislocated death and demons to the arts is an interesting claim, and a scientific one in the sense that it generates testable hypothesis (none of which are addressed by Kendrick, however). It would follow, for example, that persons professionally concerned with death and its after-effects (ambulance drivers, doctors, forensic scientists, etc.) display a markedly lower interest in horror stories than the rest of the populace. It would also follow that cultures which to a higher extent than the Western one engage with death and its after-effects are altogether less interested in horror fictions. It would probably also follow that the older one gets, and consequently the more one is exposed to death, the lesser need one has for scary stories. I do not know whether any of these hypotheses bear out. The latter seems to be the case,
however, but there are competing hypotheses to account for the apparent lack of interest among elderly citizens in supernatural horror fiction (I return briefly to this in 4.12).

The historicist approach to horror appears to be the standard approach in popular histories and accounts of the genre. For example, Stephen King’s deservedly popular monograph *Danse Macabre* analyzes a number of horror fictions in their historical context. King discusses the idea of “phobic pressure points”: fears and anxieties which horror stories locate and play upon. He claims that the most successful works of horror “almost always seem to play upon and express fears which exist across a wide spectrum of people,” being concerned with what he calls “national phobic pressure points” (5). Likewise, a book like David J. Skal’s *The Monster Show* is firmly devoted to uncovering the cultural anxieties and historical incidents which have metamorphosed into specific works and subgenres of horror. As it says on the back flap: “Illuminating the dark side of the American century, *The Monster Show* uncovers the surprising links between horror entertainment and the great social crises of our time.”

10 However, the purely historicist approach fails to account for the fact that horror travels extremely well in time as well as space. Why, if horror fiction is merely a transfiguration of cultural anxieties, are we still enjoying the wave of wildly popular Asian horror movies such as *Ringu* and *Ju-on*, horror movies crafted in cultures which are still in many respects alien to our own? If, as David Skal claims, horror movies are somewhat delayed attempts to deal with large-scale cultural traumas (for example, wars, epidemics, and economic crises), why then do individual horror movies work in cultures and for generations utterly unaffected by the political happenings of three or four decades ago? Skal cites examples of movies which he sees as attempting to deal with the Vietnam War and includes Francis Ford Coppola’s *Dracula* from 1992. In a burst of wild speculation and an attempt to fit the facts to his theory, Skal justifies the inclusion by claiming that *Dracula* “depicted for the first time the vampire’s origins as a berserker-style warlord” (386). I fail to see how this makes Coppola’s movie a therapeutic take on the Vietnam War. (However, this example is not representative of *The Monster Show*, which is generally thoughtful and well-argued.)

To take another of Skal’s examples, William Friedkin’s cinematic adaptation of *The Exorcist* (1973) “became a highly publicized cultural ritual exorcising not the devil, but rather

---

10 However, as Skal observes, “[v]ery little about the underlying structure of horror images really changes, though our cultural uses for them are … shape-changing” (23). Unfortunately, he makes no attempt at explaining why there is an underlying structure in the first place, and roundly ignores the idea in his subsequent analyses.
the confused parental feelings of guilt and responsibility in the Vietnam era, when – at least from a certain conservative perspective – filthy-mouthed children were taking personality-transforming drugs, violently acting out, and generally making life unpleasant for their parents” (295). King makes a similar, yet more sustained argument in *Danse Macabre* (168-170); yet the director, William Friedkin, scoffs at the notion: “I don’t think the mood of the times had anything whatsoever to do with the success of *The Exorcist* … In fact, I’m not aware of any far-reaching social problems that [the film] dealt with” (quoted in Kermode 35). Skal’s is a smooth, even facile, explanation of the movie’s power, and I think it showcases the fallacy lurking in this sort of glib historicizing. It is all too easy to metaphorically connect a theme within a narrative to a contemporary cultural current. *The Exorcist* remains a radically horrible piece of fiction and retains its power to shock, scare, disturb, and disgust – and one does not need to be a parent (let alone a guilt-ridden, confused American one) to be profoundly moved by this film. Regan, the possessed child, does become foul-mouthed and violent, to be sure, but the movie works primarily on a literal, visual level, and it works for teenagers today as well as for parents of the “Vietnam era.”

Of course, some horror works lose most of their power and potency over time or across borders. Yet if horror can play on universal fears as well as local ones, this is to be expected; a work of horror which deals primarily, if not exclusively, with historically or culturally situated anxieties is bound to lose its powers when those anxieties atrophy or die, or if it is introduced in a culture which lacks those anxieties. Depending on which phobic pressure points a work attempts to push, it ages more or less well; while Walpole’s giant falling helmet probably seems lame or hilarious to readers of today, Matthew Lewis’s *The Monk* retains its power to disturb, as do Edgar Allan Poe and H. P. Lovecraft. And if *Frankenstein* or *Dracula* seem inefficiently old-fashioned to the postmodern reader, it is primarily due to their styles, not their contents.

---

11 Although King makes much of horror fiction as social commentary, stating, in fact, that the “redeeming social merit” of horror films is their ability to provide “culture-wide” subtexts (*Danse Macabre* 130-1), he writes that “horror movies don’t always wear a hat which identifies them as disguised comments on the social or political scene … More often the horror movie points even further inward, looking for those deep-seated personal fears – those pressure points – we all must cope with. This adds an element of universality to the proceedings, and may produce an even truer sort of art” (131). Interestingly, King remarks that “*The Exorcist* (a social horror film if there ever was one) did only so-so business when it was released in West Germany, a country which had an entirely different set of social fears at the time” (ibid.). Yet if the film worked only as a channeling of the specifically American *Zeitgeist*, then *The Exorcist* should not, in King’s analysis, have done “so-so business” in West Germany: it should have attracted no audience.
In conclusion, if horror were a purely cultural construction, an entirely fortuitous invention, it would follow that cultures without horror stories could (and more likely than not, do) exist. That does not seem to be the case. The various historicist approaches summarized above may each contain some truth, but they are inadequate all the same.

4.3.2 Freudian Approaches

The Freudian approach to horror, on the other hand, appears to me not only inadequate but false, simply because orthodox psychoanalytical theory has not been borne out by scientific investigation.\(^{12}\)

As the philosopher Noël Carroll noted in his influential monograph *The Philosophy of Horror* from 1990, psychoanalysis “is undoubtedly the most popular venue for explaining horror nowadays” (168). (Carroll himself has little patience for psychoanalysis but grants the theory some relevance to the genre, if only because in certain cases “specific examples of horror are inflected by psychoanalytic myths” [ibid.].) Or as another horror scholar put it (seven years later), the “most common attempts at general explanation [of horror’s appeal] are grounded in concepts drawn from psychoanalytic theory” (Tudor 443).

The classical loci for Freudian horror scholars are Freud’s “The Uncanny” (1919) and Ernest Jones’ *On the Nightmare* (1931). In his discussion of “the uncanny,” a category which encompasses horror stories, Freud claimed that the uncanny experience “arises either when repressed childhood complexes are revived by some impression, or when primitive beliefs that have been surmounted appear to be once again confirmed” (155). Thus, the Freudian approach to horror stories is to uncover the repressed elements, the infantile complexes, which are disguised as supernatural monsters. In this analysis, horror stories are not about supernatural monsters and ghosts at all. As the critic Mark Jancovich has noted, psychoanalysis is popular as an explanatory and hermeneutical tool because it “reinvenst[s] horror with seriousness. Through psychoanalysis, the fantastical nature of many horror plots can be read not as escapism, but as an attempt to deal with repressed materials” (21). In this

\(^{12}\) I realize that this is a very glib dismissal of a very influential thinker, but space does not permit me to enter into an exhaustive discussion of the veracity of psychoanalysis. I base my judgment on books like the Frederick Crews-edited anthology *The Unauthorized Freud* and Richard Webster’s *Why Freud Was Wrong*. Three decades of revisionist scholarship has painted a less-than-flattering image of Freud, his followers, and his theories. In his *A Final Accounting*, Edward Erwin notes that approximately 1,500 Freudian experiments have been conducted during the last sixty years: “Yet the amount of confirmation of distinctly Freudian hypotheses is close to zero” (294). For example, the Oedipal complex, arguably the cornerstone of psychoanalysis, has been discredited by the discovery of the Westermarck effect, that is, innate incest avoidance mechanisms. Family members do not secretly want to have sex with each other, for obvious genetic reasons.
manner, psychoanalysis becomes the tool which reveals supernatural horror stories as truly subversive, bringing to light all that our society represses.

Freud further wrote in “The Uncanny” that

[s]ome would award the crown of the uncanny to the idea of being buried alive, only apparently dead. However, psychoanalysis has taught us that this terrifying fantasy is merely a variant of another, which was originally not at all frightening, but relied on a certain lasciviousness; this was the fantasy of living in the womb (150).

I think Occam’s Razor applies here: a much more parsimonious explanation is called for, namely that the thought of being buried alive is horrible because one is stuck in an enclosed space with a very limited supply of oxygen and a slim prospect of escape. No normal person would want to die this way, and there is no need to decorate this simple fact with fantastic assumptions and theorems. The notion of a forbidden wish to return to the womb is simply untenable and backed by no evidence. (In fact, the fear of confinement and enclosed spaces may be evolutionarily hard-wired [Pinker, How the Mind Works 386].)

Freudian horror study claims a mostly unwarranted crypto-sexual dimension to the genre. The Freudian notion that the fear or anxiety elicited by horror fiction is the necessary price to pay for watching dramas of the repressed played out in disguise is misleading; it seems to me that the emotional and physiological response (“arousal”) engendered by fictional horror is a legitimate end in itself. Also, the Freudian view ultimately disengages “horror fear” from “real fear.” As the Danish critic Rikke Schubart asserts in her I lyst og død, “The sensual reaction of horror is not related to the anxiety we feel when faced with a real or imagined danger; on the contrary, it is an erotic anxiety connected with our forbidden fantasies” (74, my trans., emphases in original).

Schubart’s radical claim is a testable one, one which could be resolved with the aid of medical equipment such as brain scanners and machinery for measuring skin conductance response and stress hormone release. If the response elicited by horror fiction has the same physiological and neurological signature as the fear elicited by a “real” danger such as a predator in the wild, then Schubart is wrong. And conversely, if the neurological and physiological response engendered by horror fiction is qualitatively different from the response engendered by “a real or imagined danger,” then she could be right. Unfortunately, I know of no studies which explicitly test this hypothesis. There is, however, indirect evidence against Schubart’s claim. In an experiment presented at the HBES in 2006, Ryo Tamura and colleagues set out to investigate “fear contagion,” that is, the notion that we
have an adaptive propensity to react fearfully to expressions of fear: “Acquiring fear via observing another’s fearful expression … may be a useful psychological device to detect impending danger quickly.” The authors set up test subjects to view a scene from a horror movie\textsuperscript{13} and took photos of the subjects’ fearful facial expressions while they measured their skin conductance responses (SCR). These photos were then shown to other subjects whose SCR were measured, and it turned out that there was some transfer of emotion. However, the more interesting aspect in this context is that Tamura and Kameda’s study would make no sense if the emotion elicited by the fictional horror movie were not identical to real fear.

Freudian approaches, like the historicist ones, look behind the literal level of horror fictions to find the power of the work. Both approaches are involved in a process of discovery, of locating some meaning which, at first sight, is hidden to the uninitiated beholder; they both require some extraneous knowledge (the psychoanalytic approach is more esoteric in this way, requiring an altogether more arcane body of knowledge). However, whatever else is going on in a given work of horror, horror stories should also be taken at face value, since readers and viewers also (and probably foremost) experience scary stories on the literal plane. To reduce a work of horror to cultural undercurrents or a particular Zeitgeist, or to subconscious drives and repressed desires, is to miss a very important part of the picture. Stephen King claims that “the tale of horror … is allegorical by its very nature” (Danse Macabre 31), yet as his friend and collaborator Peter Straub says (and I’m sure King would agree), the cliché figures of horror (demons, vampires, mummies, etc.) are effective because of their “metaphoric juiciness,” but at the same time they demand to be taken literally (“Horror’s House” 66).

### 4.4 Evolutionary Studies of Horror Fiction

The evolutionary study of horror fiction is largely unexplored territory. I summarize the work already produced and then move on to sketching a map of this new land.

When I first started looking into the subject, I was surprised by the lack of Darwinian scholarship on horror fiction. Horror seemed (and seems) to me a very primal genre, one intimately concerned with life and death and the struggle for existence. It is a genre which reduces its audience to quivering hunter-gatherers in the twilight, anxiously monitoring a predator from behind an acacia tree. This lack of research in what appears to be a very fertile

---

13 Incidentally, the movie they used was Predator, the scene where the “beaten Predator revive[s] and attack[s] Arnold [Schwarzenegger] suddenly” (personal communication).
field could be the result of Snow’s gap and the absence of a pipeline of ideas from the sciences to the humanities and back. Maybe, as has been argued by several Darwinian literary scholars, any theory which invokes biology and an evolved human nature is still anathema to humanists, even as the social sciences are embracing the evolutionary perspective. Maybe literary scholars, satisfied with existing theoretical apparatuses (such as psychoanalysis), have felt no need to look for alternative and updated tools. And maybe the evolutionary study of horror fiction is simply a dead-end, an unproductive or even false approach – although obviously, I for one don’t think so.

In any case, some of the most interesting and sustained efforts in the evolutionary and cognitive approach to horror fiction – preliminary as these efforts are – emanate from social scientists. Hank Davis and Timothy Ketelaar are both psychologists, and Benson Saler and Charles A. Ziegler are anthropologists.

Timothy Ketelaar, in his 2004 one-page open peer commentary on Atran and Norenzayan’s “Religion’s evolutionary landscape,” speculates that the “ancient problem of predator detection may lie beneath the modern link between religion and horror,” and that a cognitive-evolutionary analysis of religion may extent to horror fiction (740). (I return to Atran and Norenzayan’s hypothesis of religion and belief in the supernatural as a by-product of the evolved mind, and I return to Ketelaar’s paper, as well.) Ketelaar has a more in-depth research project on evolutionary psychology and horror fiction underway, but at the time of writing, no material was yet available.

Hank Davis has likewise attempted to apply findings from the cognitive study of religion to horror films in the paper “Religion, Death and Horror Movies” co-authored with Andrea Javor; their findings (published in 2004) are also discussed later.

The Danish film scholar Torben Grodal has written an article about fantastic film in an evolutionary perspective called “Udøde ånder og levende bytte” (“Undead Spirits and Live Prey”). The article, published in Kosmorama in 2003, is a lucid and well-argued application of the anthropologist Pascal Boyer’s findings to fantastic fiction, including supernatural horror fiction.\(^\text{14}\)

In their 2005 paper “Dracula and Carmilla: Monsters and the Mind,” Benson Saler and Charles Ziegler set out to explain the success of Stoker’s Count Dracula as a kind of prototypical vampire. They also deal with horror stories in general, and like Grodal and

\(^{\text{14}}\) Grodal’s paper is forthcoming in English translation as part of a book from Oxford UP (personal communication).
Davis apply Boyer’s findings. They note that “since monsters, in one form or another, were an omnipresent feature of our evolutionary past, tales about slaying monsters … have a salience and relevance for us that represent a heritage from our Paleolithic ancestors” (224). Further, they make some brief comments about the possible linkage between horror stories and play behavior, a subject to which I return.

Although some areas of the evolutionary landscape of horror fiction are being charted, I do not know that the abovementioned research has had much, if any, impact outside the circles of evolutionary psychologists.

4.4.1 Lovecraft’s Instinctual Theory of Horror Fiction

A notable exception to the lack of evolutionarily grounded horror research is the American writer H. P. Lovecraft’s long essay *Supernatural Horror in Literature*, the bulk of which was composed from 1925 to 1927, and which saw publication in several different manifestations. Although his comments are mostly vague or very general, Lovecraft does invoke man’s biological inheritance in his explanation of horror fiction. Interestingly and in some respects, Lovecraft’s account anticipates the Carroll-Wilson hypothesis of art, according to which art is a sort of navigational or calibratory tool, a means of imposing order on the chaotic reality encountered by a highly intelligent species.¹⁵

In a famous sentence, Lovecraft asserts that the “oldest and strongest emotion of mankind is fear, and the oldest and strongest kind of fear is fear of the unknown.” This he sees as testimony to the “genuineness and dignity of the weirdly horrible tales as a literary form” (12). Even as he invokes primal emotion, Lovecraft points out that the “appeal of the spectrally macabre is generally narrow” (ibid.). However, he notes that

the sensitive are always with us, and sometimes a curious streak of fancy invades an obscure corner of the very hardest head; so that no amount of rationalization, reform, or Freudian analysis can quite annul the thrill of the chimney-corner whisper or the lonely wood. There is here involved a psychological pattern or tradition as real and as deeply grounded in mental experience as any other pattern or tradition of mankind; coeval with the religious feeling and closely related to many aspects of it, and too much a part of our innermost biological heritage to lose keen potency over a very important, though not numerically great, minority of our species (13).

¹⁵ “Man’s first instincts and emotions formed his response to the environment in which he found himself. Definite feelings based on pleasure and pain grew up around the phenomena whose causes and effects he understood, whilst around those which he did not understand – and the universe teemed with them in the early days – were naturally woven such personifications, marvelous interpretations, and sensations of awe and fear as would be hit upon by a race having few and simple ideas and limited experience” (Lovecraft 13).
The basic idea – that primeval fear of the unknown can be awakened in even the “very hardest head,” or that “man’s very hereditary essence has become saturated with religion and superstition” (13-14) – is, in fact, to some degree borne out by the cognitive study of religion, according to which our minds are constructed in such a way that they automatically fashion ghosts and gods out of innocuous cues in the environment.

Lovecraft argues that religion and superstition are “virtually permanent” features of our mental architecture (14); despite the advances made by science in understanding our world, “a vast residuum of powerful inherited associations cling round all the objects and processes that were once mysterious” (ibid.). Lovecraft does not specify what these objects and processes are, but presumably he is thinking of for example thunder, which still awakens a deep fear in many children (and makes many adults uneasy). He goes on to claim that “there is an actual physiological fixation of the old instincts in our nervous tissue” (ibid.), again presaging findings in cognitive and evolutionary science. For example, the neurological layout of our fear system has been charted, and scientists have shown that the system is evolutionarily rigged to react automatically to objects which posed a threat to our forebears, but which no longer play a significant role in human mortality in the Western world.

In short, Lovecraft argues for the universality of the genre, and he consequently claims that horror “has always existed, and always will exist” (15). And thus, his account clashes spectacularly with the purely historicist conception of scary stories, according to which, presumably, horror could vanish at any moment – as Kendrick wrote in 1991, horror fiction “seems about to emit its last gasp” (xxv). In the sixteen years hence, that has not happened, and I don’t think it is likely to happen ever. Certainly, the genre waxes and wanes like any other cultural phenomenon, but a particular aspect of human nature will always be receptive to a wholesome scare.

4.4.2 Sporadic Remarks on the Evolutionary Substrate of Horror Fiction

Although only a few scientists and critics have turned to biology in their attempts to understand supernatural horror fiction, a number of commentators have made evolutionary or sociobiological remarks in passing. For example, in his natural history book about predators in the wild, the science writer David Quammen quotes the ecologist and philosopher Paul Shepard:
Our fear of monsters in the night probably has its origins far back in the evolution of our primate ancestors, whose tribes were pruned by horrors whose shadows continue to elicit our monkey screams in dark theaters ... [Surely] the echoes of a million midnight shrieks of monkeys, whose last sight of the world was the eyes of a panther, have their traces in our nervous system (274).

Similarly, the anthropologist David D. Gilmore, in his book on worldwide monster lore, speculates: “Could it be that some of the power of this man-eating terror [the monster] derives not as a product of the individual’s experience, but as a collective memory from our own infancy as a species? Could the fear of being eaten by a huge and pitiless carnivore stem from our experience with predators in the infancy of human consciousness?” (187). He does not seem convinced, however, preferring psychoanalytical theory in his attempt to explain the universal attractive and repulsive force of monsters. Yet as Gilmore asserts: “Although this is pure speculation, it is certainly something to keep in mind when considering the deathless fascination of monsters” (ibid.).

Writing about fear and anxiety in an evolutionary perspective, the psychologist Arne Öhman notes that “reptiles provided an archaic prototype for threats emanating from predation pressure, and ... this may explain the human tendency to equip the embodiments of evil with bestial features” (587-8). Öhman’s thesis is easily extended to the “embodiments of evil” found in contemporary horror stories, as well as in religious depictions and ancient myths.

E. O. Wilson has also touched on horror fiction, particularly in his many musings on the cultural significance of the serpent. In brief, the apparently universal fear and fascination that people display toward snakes is a product of natural selection, since an innate tendency to pay close attention to snakes proved an adaptive strategy when snakes were a major cause of human mortality. Those humans who were genetically prepared to be cautious about snakes survived and passed on their snake-cautious genes at a higher rate than those who were indifferent toward snakes. In *Biophilia*, Wilson writes that the brain evolved into its present form over a period of about two million years ... during which people existed in hunter-gatherer bands in intimate contact with the natural environment. Snakes mattered ... The naturalist’s trance was adaptive: the glimpse of one small animal hidden in the grass could make the difference between eating and going hungry ... And a sweet sense of horror, the shivery fascination with monsters and creeping forms that so delights us today even in the sterile hearts of the cities, could see you through to the next morning. Organisms are the natural stuff of metaphor and ritual. Although the evidence is far from all in, the brain appears to have kept its old capacities, its channeled quickness. We stay alert and alive in the vanished forests of the world (101).
This is what Wilson calls “the biological approach to horror,” one which, he suggested to me in an e-mail, “is now widely accepted.” I doubt that this is the case, however; at least not among literary scholars studying horror fiction.

Interestingly (and sidetracking me a little), Wilson implies that the impulse that drives so many of us to consume horror stories is adaptive. While I agree, I rather think that most contemporary horror fiction is a useless pleasure technology which merely exploits cognitive and physiological adaptations. And while present-day horror stories seem to have little practical value, scary and maybe exaggerated stories about for example ferocious animals encountered during a hunt could be valuable to our ancestors. As Michelle Sugiyama has repeatedly stressed, the oral antecedents of literature, the tales told by stone-age peoples, are preoccupied with information – for example, information about food resources, social interaction, hunting strategies, and the behavior of animals. Narrative is an effective means of information transmission since it is cheap and safe. “The aggregate effect of oral narrative … is to provide a broad base of knowledge pertinent to the pursuit of fitness in the local environment,” as she says (“Narrative Theory and Function” 245). Even counter-factual kinds of storytelling, such as myths, can provide “accurate geographical, botanical, or psychological information” (239).

Specifically, Sugiyama has speculated that the universal presence of predators in folklore indicates the usefulness of oral narrative as an informational vehicle. She suggests that “narrative may function as a kind of cognitive ‘dress rehearsal’ – as practice for certain challenges and hazards of human existence” (“Lions and Tigers and Bears”). And thus, stories about dangerous animals (such as “Little Red Riding Hood”) purvey information crucial to predator detection and avoidance. “[In] the days before picture books, zoos, and National Geographic specials, a child’s first ‘glimpse’ of dangerous fauna might often have come via verbal description,” as she points out (ibid.). It is Sugiyama’s thesis, then, that stories about dangerous animals can – in a very literal manner – be adaptive. However, stories which faithfully describe the appearance and behavior of local predators are quite different from stories which feature deliberately unrealistic monsters, yet the attention that we afford stories featuring dangerous animals (and monsters) might have its wellspring in ancient times when such stories were adaptive.

Can horror stories be adaptive today, then? Can for example The Exorcist teach us anything of practical value (apart from the insight that if my daughter is possessed by a malicious demon, I would do well to call the local branch of the Catholic Church and to hell
with the medical establishment)? Can horror stories have the function of “scenario testing” that Steven Pinker assigns to some literature? Bluntly put, do horror fans leave more offspring than non-fans? Some stories might have the added benefit of being a kind of “dress rehearsal,” yet a genre which is by definition counter-empirical would appear to have no relevance to an audience living in the real world. However, even supernatural horror fiction is *predominantly* realistic (or ought to be so, at least), particularly in its portrayal of the behavior and interactions of its human characters. There is nothing quite as devastating to a horror story as a character who behaves in an unbelievable manner (barring a glimpse of the zipper in the monster’s back, perhaps). So some aspects of horror fiction might be useful to a modern audience, but learning how to negotiate supernatural monsters (or even natural predators) is not one of them.

### 4.5 Monsters and Dramatics

The monster is a defining feature of the horror story. This is the case even when we don’t know whether it exists only in a character’s head or is really out there, as in Henry James’ “The Turn of the Screw” or Shirley Jackson’s *The Haunting of Hill House*, or if it is merely the unfortunate combination of a case of bad nerves and an optical illusion, as in Poe’s “The Sphinx,” or if it turns out not to be a monster at all, as in Washington Irving’s “The Legend of Sleepy Hollow.” As Noël Carroll suggests, a “monster or a monstrous entity” is a necessary, though not sufficient, condition for horror (16). This monster needs to be threatening, of course, and is also usually impure or disgusting. Thus, John Clute notes that the “frisson of horror” is generated by “an overwhelming sense that the invaders are obscenely, transgressively impure” (478). This impurity is stressed by Noël Carroll as well, who writes that the monsters of horror are “physically (and perhaps morally and socially) threatening” as well as “impure” (27).

A monster alone does not make a horror story, of course. Narrative horror is all about monsters and *dramatics*. For example, the critic Mark Kermode shows how dramatic techniques are used to great effect in *The Exorcist* (film and novel), for instance by repeatedly showing (or describing) Regan’s mother’s reaction to the horrors of the story, prior to actually showing these horrors (42-44). As Noël Carroll argues, horror stories show not just scary things, but scared people, as well: “What appears to demarcate the horror story from mere stories with monsters ... is the attitude of characters in the story to the monsters they
encounter” (16). And further, the “emotional reactions of characters … provide a set of instructions or, rather, examples about the way in which the audience is to respond to the monsters in the fiction” (17). The notion of fear contagion described above explains why we react in kind to a fearful face, and why we are so often shown (or told of) facial and bodily expressions of fear in horror stories. Moreover, it explains why so many horror movie posters feature fearful faces.

The monster, then, is always embedded in a narrative. That might seem a trivial point, yet dramatics are crucial in building suspense and framing the monster (I return briefly to this point in my discussion of Dracula). A case in point is the intensely frightening The Blair Witch Project, wherein the monster of the title never actually appears on-screen. And a film like Final Destination relies almost solely on dramatic technique to build atmosphere and suspense; everyday objects such as cans and radios are made threatening and scary via the clever use of dramatic technique. However, dramatics don’t quite cut it on their own. In this film, the inherently un-spooky inanimate objects are augmented, as well as embedded in a fright-conducive dramatic context: cans, radios, etc. are given the extra unsettling feature of agency or (malicious) intent. The movie features no ordinary monster, although there are intimations of some malicious supernatural agency behind the spooky occurrences. Likewise, the cover blurb on Stephen King’s short-story collection Night Shift announces that the stories are about “the horror of ordinary people and everyday objects that become strangely altered.” For example, in “The Mangler” a laundry machine is involved in a series of peculiar and gruesome accidents, and it turns out that a demon has possessed it; the machine is endowed with homicidal agency.

Other aspects of dramatics aid in creating suspense and instilling feelings of fear in the audience. As Joanne Cantor and Mary Beth Oliver note, horror films “usually involve a variety of visual and auditory techniques, in addition to basic plot elements, to increase and maintain the viewer’s arousal response … Some of these techniques seem to be built on stimuli that humans are predisposed to fear spontaneously,” for example, “sudden loud noises and music that mimics the alarm signals of animals” (67). The authors (both of whom are researchers in communication and mass media) elaborate only slightly on this,
noting that horror films abound with “[d]arkness, obscured vision, and ominous shadows [which] are visual elements that we are predisposed to fear” (68).

So although the dramatic aspects of horror stories should not be ignored in an exhaustive account of the genre, they are not my main concern here. Yet as Cantor and Oliver intimate, an evolutionary understanding could be brought to bear on this issue, as well.

### 4.6 Universal Monster

In the section entitled “Universal Monster” on my HBES poster, I made a rather thin attempt at drawing up this hypothetical Universal Monster. My premise was that a quantitative, cross-cultural, and cross-temporal analysis of folktales featuring monsters would reveal some universal monster characteristics, which in turn would reveal something about the human minds that had produced them. This was, in fact, a last-minute addition designed to make the project interesting to the social scientists that I presumed were reviewing the abstract submissions: I wanted to show that not only could I use something from their field, but my project could contribute to theirs, too. As I wrote in my abstract: “Evolutionary psychology informs horror study, and conversely cross-cultural and cross-temporal analysis of horror literature may inform evolutionary psychology by providing catalogues of universal fears.”

However, I did not realize that the work had already been done, and that conclusions similar to the ones I had imagined had been reached. David D. Gilmore has undertaken a book-length study in which he reviews anthropological data on monsters from world-wide folklore since ancient times. The monster is, indeed, universal, and it does have a set of universal characteristics. As Gilmore writes, “people everywhere and at all times have been haunted by ogres, cannibal giants, metamorphs, werewolves, vampires, and so on.”

And as he notes, since these nightmarish beings are universal, “they must reveal something about the human mind” (ix).

---

17 Indeed, when a team of researchers from King’s College were hired by a British broadcasting company in 2004 to figure out a formula for measuring the scariness of horror films, they came up with the following equation: 

\[(es+u+cs+t)^2 + s + \left(\frac{tl+f}{2}\right) + \frac{(a+dr+fs)}{n} + \sin x - 1\]

where es = escalating music, u = the unknown, cs = chase scenes, t = sense of being trapped, s = shock, tl = true life, f = fantasy, a = character is alone, dr = in the dark, fs = film setting, n = number of people, sin = blood and guts, 1 = stereotypes (“Shining Named Perfect Scary Movie”). A limited cast of people being each alone in the dark is a powerful predictor of the scariness of a movie, it seems.

18 The abstract is available in the conference program, which can be downloaded at http://www.hbes.com/HBES/abst2006.pdf.
As for Gilmore’s universal characteristics of monsters, they are succinctly summed up by Benson Saler and Charles Ziegler (from whose article I first learned of Gilmore’s book):

[G]reat size and/or remarkable strength; a prominent mouth with fangs or some other means of facilitating predation on humans; an urge to consume human flesh and/or blood; and hybridism, for they often combine human and animal features, or mix living and dead tissue, or manifest amalgams of discordant parts of various organisms [culled from Gilmore 174-89] (220).

Regarding the latter characteristic, the hybrid nature of monsters, Gilmore relies in his theoretical explanation, like Noël Carroll, on classical work done by the late anthropologist Mary Douglas in her *Purity and Danger* from 1966. Douglas noted that “interstitial” entities, that is, entities which combine or violate established cultural categories, command great attention and can be experienced as threatening or frightening. As Gilmore notes, paraphrasing Douglas,

conceptually anomalous constructs like monsters, as well as anomalous but harmless animal species, hermaphrodites, or organic deformities, are ‘interstitial’ … Because they conflate or collapse cognitive boundaries recognized as the foundations of order, such deviations are frightening [partly since] they challenge the moral and cosmological order of the universe (18-19).

The boundary-crossing quality of the monsters of horror fiction goes, in Noël Carroll’s eyes, a long way toward explaining why we enjoy horror. As he writes, “horror attracts because anomalies command attention and elicit curiosity” (195).

Recent research in cognitive psychology has, in fact, corroborated some aspects of Douglas’s work on an evolutionary foundation. It has been shown that concepts (and especially agents) which are “minimally counterintuitive,” that is, entities which have one or a few salient category-transgressing features are particularly interesting and memorable to the human mind; I return to this aspect.

David Gilmore relies on psychoanalytical theory in explaining the fascination and fear that monsters engender universally. For example, he notes that monsters almost always come with a mouthful of horrible teeth: “However else they are rendered in anatomical terms, monsters are depicted has [sic] having yawning, cavernous mouths brimming with fearsome teeth, fangs, or other means of predation” (176). This “obsession with oral aggression” (178) is explained by Gilmore as a variant of the “oral-aggressive stage” in psychosexual development and the Freudian wish to eat the mother (180-1). However, the many teeth of monsters, as well as the other universal characteristics listed by Gilmore, makes me think of what David Quammen calls “alpha predators” (5) rather than repressed infantile complexes and matrivorous babies.
In Quammen’s terminology, alpha predators encompass a variety of animals from different species; animals such as the tiger, the brown bear, the great white shark, crocodiles, the lion, the leopard, the python, the anaconda, the jaguar, and others. This grouping of diverse animals, he writes, has “no taxonomic or ecological basis.” Rather, its “reality is psychological, as registered in the human mind” (5). In fact, Quammen asserts that having lived with alpha predators throughout virtually the whole of human evolutionary history has left a mark on our psyches. As he writes, the “alpha predators, and the responses they evoke, have transcended the physical dimension of sheer mortal struggle, finding their way also into mythology, art, epic literature [for example Beowulf], and religion” (6) – and horror stories, I might add.

As Quammen writes:

Great and terrible flesh-eating beasts have always shared landscape with humans. They were part of the ecological matrix within which Homo sapiens evolved. They were part of the psychological context in which our sense of identity as a species arose … The teeth of big predators, their claws, their ferocity and their hunger, were grim realities that could be eluded but not forgotten (3).

In prehistory, every once in a while, a “monstrous carnivore” would emerge and kill and eat somebody. The ever-present awareness of this danger “conveyed a certain message,” as Quammen remarks: “Among the earliest forms of human self-awareness was the awareness of being meat” (ibid.). This awareness has stayed with us, even though today and in our part of the world, people are very seldom meat for anything but the “Conqueror Worm,” in Poe’s memorable phrase. And this “racial memory,” to use an outdated term, gives rise to a myriad of horror stories which present their human protagonists as prey involved in a primeval struggle for existence – and more often than not, it seems, the predators that hunt our conspecifics on the page and the silver screen are more or less modified versions of “alpha predators.” What hunted our ancestors on the savannah continues to hunt us, safely but thrillingly, in fiction.

One of horror fiction’s most persistent archetypes, and a true universal (Atran & Norenzayan 713), the ghost, seems to fall outside this category of “alpha predators,” although ghosts are in many respects human predators with a few salient modifications. The zombie, another mainstay of the genre, is also usually depicted as a person with unusual characteristics (crossing the boundary between living and dead, as in George A. Romero’s Land of the Dead, or else as a ferocious animal with human morphology, as in Danny Boyle’s 28 Days Later or Stephen King’s Cell). The repulsion that zombies and not-quite-human
monsters such as Frankenstein’s cause can be explained with reference to the “uncanny valley,” which in turn can be given an evolutionary explanation.

Illustration 1: Uncanny zombies from George A. Romero’s Land of the Dead.

The uncanny valley is a concept developed by the Japanese roboticist Masahiro Mori in 1970. Mori was concerned that past a certain point of likeness to humans, robots were perceived as repulsive. Mori’s hypothesis is that the more humanlike a robot becomes in appearance and movement, the more positive response it engenders in humans. However, when it reaches a certain human likeness, the reaction toward the robot will be one of repulsion – it becomes uncannily like a human being. Yet when the appearance and movements of the robot near 100% fidelity to human morphology and locomotion, the emotional response rises again and peaks (see fig. 1). Although developed within industrial design, the uncanny valley-effect has bearings on other aspects of culture, such as horror fiction. We see that many monsters are almost like “normal” humans, but not quite. Likewise, lifelike wax dolls may appear uncanny, since they lack that extra something to make them appear entirely human.
An explanation of the uncanny valley was offered by the cognitive scientist Nina Strohminger at the 2004 HBES meeting. She argues for an evolutionary rationale, positing that since “beauty has been shown to be a reliable measure of phenotypic and genotypic fitness,” the opposite is also true: we might find some kinds of “ugly” people repulsive, since their ugliness is subconsciously taken to indicate genetic unfitness, and we might be “hard-wired” to do so, since avoiding for example the sick and disfigured might have been an evolutionarily sensible strategy (which does emphatically not mean that it is morally sensible strategy, of course). Thus, the uncanny valley might reflect an adaptive psychological mechanism used in social decision making, for instance mate selection. It would appear, then, that many horror creators tap into this mechanism to create repulsive or uncanny monsters, and it goes some way toward explaining why some kinds of monsters are uncanny or repulsive: it may be that they activate a kind of intuitive eugenics (they make poor mates!). I mentioned zombies and Frankenstein’s hapless monster; other examples include the alien invaders with humanlike morphology in Dennis Jürgensen’s *Dæmonen i hælene* (their faces are “pale and oddly characterless … like a robot or a wax doll …” [118, my trans.]),

---

19 I was not present at the talk, entitled “Uncanny Valley and the Psychology of Desire,” but Ms. Strohminger has kindly made her talk notes available to me.
the slightly disturbing (robotic) Stepford Wives in Ira Levin’s novel of the same name, and the alien look-alikes in Jack Finney’s The Body Snatchers.

Not all monsters are recognizable reflections of evolutionary threats, or so it would appear. For example the figure of the clown, which appears in horror stories every now and then (in Stephen King’s It in the figure of Pennywise the Dancing Clown, for instance) – by no accounts were there any clowns on the East African savannah. Clowns can be very spooky, though; as the horror actor Lon Chaney reportedly said, “[t]here’s nothing funny about a clown in the moonlight” (quoted in Skal 364). Chaney’s insight points to the importance of dramatics in making scary stories: although some things are more easily “made scary” than others, pretty much anything can be made to appear threatening or scary if it is embedded in the right narrative structure and given appropriate properties, as I have suggested. And further, although we are hardly biologically prepared to fear clowns, clowns might nevertheless embody traits of which we are instinctively wary, such as unaccountability, inscrutability, mendacity, and madness. As the British scientist Robert Winston remarks, “clowns obscure their face with paint, thus covering their features and true emotions; they confuse our ability to judge their mood” (37).

4.6.1 Biophilia

As noted, one prominent feature of horror stories is that they brim with animals and animal-like monsters. Why should that be so? Inner-city teenagers – the main consumers of horror fiction – face many threats, but animals certainly play a negligible role in the mortality of urban dwellers. Following Quammen and others, I have pointed to the importance of predators in our evolutionary past, an importance that appears to have left a lasting tendency to pay close attention to predators even though they no longer pose a real threat to us.

Monsters appear to be distributed non-randomly; as suggested, they often resemble or incorporate the features of ancestral threats, notably animal predators. As Timothy Ketelaar succinctly puts it: “Often [the] supernatural monsters [of horror movies] are depicted as little more than solitary ambush predators dressed up in culturally contrived monster attire” (740). Of course, detecting a pattern in the gestalt of the monsters of fiction might simply imply cultural perpetuation, but the ubiquity of ancestral monsters (or monsters with
ancestral qualities) and their very universality belie that hypothesis. (In discussing the globally distributed water monster, David Gilmore notes that “[w]ithout the slightest possibility of cultural diffusion, it is obvious that we are dealing with almost identical ideas among disconnected peoples, revealing some deep human thread” [2].) If it were the case that any old thing could be made scary if only culture taught us that it were so, then the monsters of horror stories might be perfect squares, or electrical, or performing “Cosi fan tutte” on ukulele. They are not, and they do not.

Excepting the ghost, the archetypes of horror are, indeed, animals or animal-like beings. The werewolf, for example – whether it be the creepy creatures of Neil Marshall’s *Dog Soldiers*, or the overgrown canine in John Fawcett’s clever *Ginger Snaps*, or most of the countless other cinematic or literary versions – is clearly a predator modified for attention-grabbing oomph. And the vampire (as we shall see in the case of Count Dracula) is also part animal, featuring predatory fangs and animal behavior.

Illustration 2: Werewolves in *Ginger Snaps* and *Dog Soldiers*.

Similarly, one can pick a horror story almost at random and note how the monster is portrayed as an animal or described in animal terms (again, excepting ghost stories). For example, in the very beginning of King’s *It* where the monster has not even entered the scene, the author is establishing an atmosphere of dread and impending disaster. The short-lived six-year-old George Denbrough is entering the basement in his home to fetch a candle. He is loath to enter the basement and turn on the light as he fears that “while he was feeling for the light switch, some horrible clawed paw would settle lightly over his wrist,” a paw belonging to a thing “all hairy and full of killing spite” (18). And when the monster of the

---

20 R. L. Stevenson’s Mr. Hyde appears to be an exception. But although described as the “brute that slept within [Dr. Jekyll]” (85) and having undeniable affinities with the wereanimals of lore and pop fiction (the protagonist Jekyll metamorphoses into the antagonistic Hyde), calling Hyde a werewolf is rather a stretch of the concept.
book’s title is glimpsed for the first time through a storm drain in the curb, George sees “yellow eyes … the sort of eyes he had always imagined … down in the basement. It’s an animal, he thought incoherently” (24). Similarly, in Clive Barker’s short story “Coming to Grief,” which for an author known for excess and violent depiction is uncharacteristically low-key, a monster figures in the periphery. The only description offered is that the monster has “clawed hand[s]” (103), obviously an attribute of animal predators.

The many animals in fiction might reflect an evolved propensity for finding animals interesting. In his 1984 book of the same title, E. O. Wilson introduced the notion of “biophilia,” a hypothesis according to which we have an “innate tendency to focus on life and lifelike processes” (1), or an “urge to affiliate with other forms of life” (85). According to Wilson, in our evolutionary past it paid off to pay special attention to the environment and all that it contained. We have an innate emotional connection to other living things, which partly explains why many of us spend so much time walking in the woods, digging in the garden, and consorting with various pets.

In an interview, Wilson invokes biophilia to explain why most science fiction entails life … Very little sci-fi entails the real substance of physics and chemistry. How compelling is it in the end to know what lies one kilometer below the surface of Jupiter? But people become truly excited when writers start talking about the prospect of making contact with extraterrestrial life (quoted in Cooke & Turner 94).

Likewise, the pioneer literary Darwinian Brett Cooke has argued that science fiction “probes the limits of human interest” since it “so readily outruns our normal experience” (18). Some topics are more interesting to humans than others, and biophilia is one such apparently innate bias in attention and interest. The psychologist Hank Davis has analyzed 736 sensational newspaper stories published between 1700 and 2001 in various cultures, exploring the claim that “like gossip, sensational news stories may trigger an evolved tendency to attend to categories of information that increased reproductive fitness in the Environment of Evolutionary Adaptedness” (“Why Humans” 208). The topics of sensational news items are distributed non-randomly, Davis found, and often fall into categories that were vital in our evolutionary past, for example “altruism, reputation, cheater detection, violence, reproductive strategies, and the treatment of offspring” (214). As he notes, “stories about animal attacks, deadly parasites and tainted food sources remain salient topics, even millions of years after their likelihood of occurrence has become marginal in industrialized nations” (ibid.).
Thus, what appears to be an evolved propensity to pay special attention to for example dangerous animals survives anachronistically and is capitalized upon by horror stories which feature such animals.

4.7 Fear and Phobias

In his 1872 book on *The Expression of the Emotions in Man and Animals*, Darwin relates a personal story of a visit to the zoo:

I put my face close to the thick glass-plate in front of a puff-adder in the Zoological Gardens, with the firm determination of not starting back if the snake struck at me; but, as soon as the blow was struck, my resolution went for nothing, and I jumped a yard or two backwards with astonishing rapidity. My will and reason were powerless against the imagination of a danger which had never been experienced (43-4).

Fear is a human universal (Brown 135). And the facial expression of fear is universally recognized, as the famous psychologist Paul Ekman has showed. Beginning his work in the 1960’s, Ekman went against the intellectual climate in positing that the facial expressions of the basic emotions are universally recognized, and not, as for example the anthropologist Margaret Mead had claimed, culturally determined. Working with cross-cultural data, Ekman has found seven basic emotions (happiness, sadness, fear, surprise, disgust, anger, and contempt [Ekman 550]) and suggested an evolutionary underpinning for emotion and emotional expressions.

The view of fear as the product of natural selection is now generally accepted in the scientific community. As one of the world’s leading fear experts, Arne Öhman, has put it, “responses of fear and anxiety originate in an alarm system shaped by evolution to protect creatures from impending danger. This system is biased to discover threat, and it results in a sympathetically dominated response as a support of potential flight or fight” (“Fear and Anxiety” 587). The “sympathetically dominated response” (the response is controlled by the autonomic nervous system) points to the fact that the fear response is largely immune to higher-order cognitive control (Öhman & Mineka 485-6), as Darwin’s anecdote so nicely illustrates, and that the system is “biased” means that we are prone to over-reacting and perceiving threats where none exist. We tend to react strongly and fearfully to even minimal cues of danger, since a false positive is less costly than a false negative (Marks & Nesse 254).

Further, the fear response is a quick-and-dirty one. For example, if a walker perceives a snake-like shape in a forest, a signal is sent directly to the central alarm system in the brain, bypassing the “higher” cognitive faculties. If the cerebral 911 operator decides that the visual
stimulus represents a threat, instructions are sent to the muscles and blood circuit to enter a state of emergency (the physiological fight-or-flight response). Thus, the fight-or-flight response is activated without conscious control. This “shortcut of fear” was discovered by the psychologist Joseph LeDoux, from whose article “Emotion, Memory, and the Brain” I have reprinted an illustration:

Illustration 3: The shortcut of fear (from LeDoux 63).

That feelings of fear and anxiety can “bypass” our cognitive selves goes some way toward explaining why we sometimes react to monsters on the screen (and, if less strongly, on the page) much as Darwin reacted to the puff-adder. And while reducing a horror story to fear is like reducing chili con carne to capsaicin, the generation of fear is after all the defining feature of the genre.

“Fears and phobias fall into a short and universal list,” as Steven Pinker notes (How the Mind Works 386). The explanation for why a few fears and phobias are very widespread is to be found in the theory of “prepared learning,” espoused by the psychologist Martin Seligman in 1971. Prepared learning implies that “people ... are so equipped that they find some things easier to learn than others” (Ridley 192). This is a result of evolution by natural selection: we
are evolutionarily prepared to deal with tasks that mattered to survival and reproduction in the environment of evolutionary adaptedness, and so, due to our genetic make-up, learn to fear some things much more easily than others. This gives a “non-random distribution of fears,” as the psychiatrist Isaac Marks and the biologist Randolph Nesse write in their paper “Fear and Fitness” (255).

The fears and phobias on Pinker’s list are fear of snakes, spiders, “heights, storms, large carnivores, darkness, blood, strangers, confinement, deep water, social scrutiny, and leaving home alone” (How the Mind Works 286). Some of these entries are strikingly reflected in a list of Stephen King’s “personal terrors,” published in 1973 (Spignesi 4):

1. Fear of the dark
2. Fear of squishy things
3. Fear of deformity
4. Fear of snakes
5. Fear of rats
6. Fear of closed-in spaces
7. Fear of insects (especially spiders, flies, and beetles)
8. Fear of death
9. Fear of others (paranoia)
10. Fear for someone else.

As Pinker writes of his list of fears, the “common thread is obvious. These are the situations that put our evolutionary ancestors in danger” (How the Mind Works 386). And what’s more, many of the items on Pinker’s list pose no threat to modern humans: “Fears in modern city-dwellers protect us from dangers that no longer exist, and fail to protect us from dangers in the world around us” (387). The zoologist Matt Ridley puts it bluntly: “It defies common sense not to see the handiwork of evolution here: the human brain is pre-wired to learn fears that were of relevance in the Stone Age” (194). We ought to be instinctively afraid of electrical wires, cars, and cigarettes, but we are not. Any parent knows how difficult it is to teach children to keep knitting needles away from electric sockets or stay on the goddamn sidewalk, but to make them stay away from a big spider or a large animal requires little pedagogical skill.

We are not, then, born to blindly fear snakes and spiders, but learning to fear them comes easily and naturally to us – much easier than learning to fear for example guns, research has shown (Ridley 195). As E. O. Wilson notes, “[h]uman beings have an innate fear of snakes or, more precisely, they have an innate propensity to learn such fear quickly and easily past the age of five” (Biophilia 84). Yet many people find snakes fascinating, as well,
and the monsters of horror stories evoke not just fear and loathing, but more often than not fascination, too. However, this might also have an evolutionary rationale. As Wilson argues, it “pays in elementary survival to be interested in snakes and to respond emotionally to their generalized image, to go beyond ordinary caution and fear. The rule built into the brain in the form of a learning bias is: become quickly alert to any object with the serpentine gestalt. Overlearn this particular response in order to keep safe” (*Biophilia* 93).

Some fears are obviously “social constructions” (for example the fear of nuclear holocaust), while other fears are obviously products of evolution. At the same time, the socially constructed fears are dependent on adaptive mental dispositions; probably all common anxieties rest on a few “basic,” hard-wired fears, the most obvious of which being the fear of death. And it is obvious from an evolutionary perspective why we should fear death: for organisms whose sole *evolutionary* purpose is the perpetuation of its genes, being alive is an infinitely more desirable state than being dead.

Why, then, if we are hard-wired to easily acquire fear of snakes and spiders is horror not “peopled” with them? There seem to be three reasons for this. One, there is a strong cultural component to actual works of horror. Anxieties do change and they are dependent on cultural conditions or currents, even as ancestral threats seem to be the substrate of most portrayals of monsters. Two, Justin Barrett’s theory of minimally counterintuitive agents as particularly successful units of cultural replication (to be discussed) predicts that “tweaked” phobic objects are more interesting, memorable, and salient than mere phobias. And three, there is a large category of unspecified predators – Quammen’s alpha predators – which may not be “stored” as images in our brains, as the spider and snake shapes seem to be.\(^{21}\)

Although as the psychologist H. Clark Barrett has noted, “no evidence for evolved templates for true predators on humans have been found” (207),\(^{22}\) we may still be born with a generalized, more or less dormant fear of large predators, as Pinker and others suggest. As

\(^{21}\) However, John Tooby and Leda Cosmides think we might be born with *abstract* predator concepts. They argue that humans come equipped with various abstract ideas, including the concept of predators, which are fleshed out either by experience or vicariously. And since learning about predators from first-hand experience is rarely an advisable strategy, we are “designed” to value experiences which “flesh out” our innate, abstract concepts (as fiction may do). Humans are not “limited by the slow and unreliable flow of actual experience,” but rather are able to “immerse ourselves in the comparatively rapid flow of vicarious, orchestrated, imagined, or fictional experience” (“Does Beauty Build Adapted Minds?” 23) – this, they think, is a reason why our appetite for fiction is adaptive.

\(^{22}\) “This might mean that the array of predators on humans over space and time was diverse enough to prevent selection for distinct templates, or it might mean that such templates have yet to be found (felids would be a likely candidate)” (ibid.).
Clark Barrett said in his 2006 HBES talk “Prepared Learning About Danger in Humans,” “natural selection doesn’t necessarily ‘hard-wire’ specific [mental] content, but it can say what kind of content to acquire.” And in a comment on my HBES poster, Brian Boyd insightfully suggested that “the reason we have no clearly defined fear animal is simple, I think: size much bigger than oneself is a danger cue, for any animal, and is built into all (a conspecific bigger than oneself is dangerous, and an elephant or a hippo fatal for a lion or a tiger); it doesn’t need to be a very specific cue; and a sharp muzzle is another danger cue, even for an animal slightly smaller than oneself, and again is recognized across the animal kingdom. It’s only for dangerous animals that don’t fit either of these two cues that we need specific fears: snakes and spiders.”

Of course, sometimes snakes and spiders do appear in horror stories; for example, the shape-shifting “It” of Stephen King’s eponymous novel finally takes the shape of a giant spider “perhaps fifteen feet high” (1029). And sometimes the monsters of horror stories, although not snakes or spiders proper, are given arachnid or serpentine qualities, like the hellish dog Tarzan in Dennis Jürgensen’s Uhyret i stranden, which in a very unsettling scene is seen scurrying like a spider across the façade of a house (perhaps an homage to the episode in Dracula where the count descends the castle wall in lizard fashion). In another example, from the infamous and spine-chilling “spider-walk” scene in The Exorcist (a scene cut from the original 1973 release and restored in the 2000 director’s cut), Regan rapidly descends a staircase in spider fashion. The scene is described as follows in the novel, invoking both snakes and spiders: “Gliding spiderlike, rapidly, close behind [her mother], her body arched backward in a bow with her head almost touching her feet, was Regan, her tongue flicking quickly in and out of her mouth while she hissed sibilantly like a serpent” (135).

It seems fair to suggest, then, that the creators of horror stories more or less unconsciously tap into our pan-human, genetically modulated reservoir of fears. As the accomplished horror director John Carpenter has noted: “What scares me is what scares you. We’re all afraid of the same things. That’s why horror is such a powerful genre” (in McCarty & McLaughlin).
4.8 The Physiology of Fear

Part of the attraction of horror fiction is likely physiological. Horror fiction is often likened to other pursuits which presumably elicit an “adrenalin kick” or a “rush” such as extreme sports or rollercoaster riding. And so horror fiction might be a way to procure a natural “high” without the dangers normally required. This is a testable claim: a simple mouth swab could be used for tracing the discharge of stress hormones such as cortisol, and a PET scanner could tell us whether the “reward chemical” dopamine is released by fictional horror. This has not, to my knowledge, been done, although some researchers have measured skin conductance levels as an indicator of arousal in response to horror films (for example Zuckerman, “Sensation Seeking”).

The detection of a threat prompts a distinct physiological response. Depending on the nature of the threat, an organism may fight, run away, or freeze in response. The release of epinephrine (also known as adrenaline), a stress hormone similar to amphetamine, sets the body in a state of emergency, prioritizing some biological functions over other. As Marks and Nesse write, many “components of the anxiety and panic response are those which ... [are] useful in situations in which ‘fight or flight’ are the adaptive responses” (250-1). They list some of the key physiological features of the fight or flight response: the discharge of epinephrine causes the blood to clot (inhibiting blood loss in the case of injury) and the liver to release glucose (providing a jolt of energy). Blood circulation goes up and blood is directed away from the skin and gut and sent instead to the muscles (digestion is irrelevant in the case of an attack, whereas the muscles are likely to be required). Increased secretion of sweat cools the body and makes it slippery, and a “sense of imminent doom galvanizes preventive action and forestalls dawdling” (251). Interestingly, this complex physiological response is triggered by a diverse range of threats, such as “heights, animals, thunderstorms, darkness, public places, separation, or social scrutiny” (ibid.) – in this sense, the adaptive fear system is generalized, and it seems that the fictional threats portrayed in horror fictions tap into the same system. For instance, every horror fan knows than well-wrought stories can cause a quickened heartbeat and sweaty palms.

It should be noted, however, that there is an important cognitive dimension, a meta-dimension, to horror enjoyment. Horror audiences are not mindless bundles of adaptive

Incidentally, recent research suggests that the judicious “intake of ... cortisol, given near in time to a physical or psychological stress, may lessen the stressor’s emotional impact” (Grohol) – maybe a good horror story should be prescribed as an antidote to exam anxiety?
defense mechanisms and predator avoidance machinery being activated by fictional events; a large part of the attraction of the genre lies in monitoring one’s own response to a horror fiction and finding pleasure in this response. One might enjoy watching one’s body react to fictional events, taking pleasure in “controlling” the body (a kind of mind over matter), or one might enjoy the sheer craftsmanship evident in the author’s or director’s ability to make one jump and squirm and look away. Also, there is the ever-present challenge of seeing how far one can “push the outside of the envelope,” to borrow Tom Wolfe’s term from *The Right Stuff*. As Steven Pinker notes, “[p]ushing the envelope is a powerful motive. Recreation, and the emotion called ‘exhilaration,’ come from enduring relatively safe events that look and feel like ancestral dangers” (*How the Mind Works* 389).

Pinker links pushing the envelope to the psychologist Paul Rozin’s concept of “benign masochism” (540), a motive for riding roller coasters and sweating in a sauna. Benign masochism is also proposed by Rozin as one of several motives for eating burning chili peppers (“Getting to Like” 262-3). Rozin has researched the psychology of chili consumption since the 1970s, and he proposes another motive for chili ingestion, namely the “opponent-endorphin response” (259-262). As he writes: “So far as we know, the capsaicin [the active, “burning” chemical in chili peppers] acts as a mimic in the sense that it does not directly produce harm; the body responds to it as if it were a harmful agent” (234). Thus, the body reacts to capsaicin by releasing endorphins, a naturally occurring biochemical which “resemble[s] the opiates in [its ability] to produce analgesia and a sense of well-being” (“Endorphin”). Likewise, we react emotionally to horror fiction as though it were reality, and conceivably, horror fiction causes a release of biochemicals with pleasant effects – with the right equipment, this would be easy to examine. It seems, then, that similar or identical psychological (and maybe physiological) mechanisms are at play in the consumption of chilies and horror fictions.

Physiological arousal appears to be an important component of the attraction of scary fiction (cf. Zuckerman). As Joseph LeDoux wrote to me in an e-mail,

---

24 It is not just the case that some visual stimulus (a monster) is perceived and subconsciously matched against a collection of inherited mental templates or archetypes, although that seems to happen also. What generates horror and terror in the reader or viewer is very often a cognitive component; it is a knowledge of the entities portrayed which makes them horrible and fearsome. For example, in a deeply unsettling scene in *The Sixth Sense*, Cole Sear (who “see[s] dead people”) is surprised by the sudden appearance of a very pale girl. It is the viewer’s knowledge that the girl is dead and not, say, suffering from anemia or acute nausea which makes the scene so disturbing.
I think that intense emotional arousal of the body is a desirable state for many people and that the horror genre can allow that state to occur in a relatively safe context. Usually the arousal is greater for negative emotion than positive, and it’s easier to artificially get the system going with negative emotion. So that’s why horror works.

In a sense, then, horror audiences seek out being scared, yet prefer to avoid the real-life circumstances which usually evoke fear: we like to be hunted and threatened by a horrible monster, but preferably at no risk to ourselves. This is a bit like the V.P.S. treatment in Aldous Huxley’s *Brave New World*, where strong feelings such as love, fear, and jealousy have been all but eradicated – therefore, the citizens must as a matter of biological necessity be purged regularly of these violent passions:

“Isn’t there something in living dangerously?” [asks John “The Savage,” an outsider to the brave new system]

“There’s a great deal in it,” the Controller replied. “Men and women must have their adrenals stimulated from time to time.”

“What?” questioned the Savage, uncomprehending.

“It’s one of the conditions of perfect health. That’s why we’ve made the V.P.S. treatment compulsory.”

“V.P.S.?”

“Violent Passion Surrogate. Regularly once a month. We flood the whole system with adrenin [sic]. It’s the complete physiological equivalent of fear and rage. All the tonic effects of murdering Desdemona and being murdered by Othello, without any of the inconveniences.”

“But I like the inconveniences.”

“We don’t,” said the Controller. “We prefer to do things comfortably.” (218-19).

So, it seems, do we.

4.9 Disgust

Is the possessed Regan McNeil of *The Exorcist* a monster? Certainly. Would anything like the possessed Regan McNeil stalk our evolutionary ancestors on the savannah? Well … maybe. The possessed girl is very obviously very disgusting. She looks like she is afflicted with a serious, possibly contagious disease (cf. ill. 4), and there is some evidence that the pan-human emotion of disgust is an adaptation that protects us from pathogens. And thus, since Regan appears to be sick, the sight of the girl engenders emotions of disgust and an aversive reaction. Further, the demon possessing Regan – Pazuzu – appears angry, hostile, and highly aggressive. (In a decidedly unfriendly greeting to Father Karras, one of the exorcists, Pazuzu suggests that Karras’s deceased mother “sucks cocks in hell.”) And although the demon’s voice is supplied by a woman (Mercedes McCambridge), it sounds rather male; in ancestral conditions, as well as modern ones, hostile males should make one cautious. Thus, the
Regan/Pazuzu-monster is highly agonistic, and would probably make even a hunter-gatherer from the Stone Age back off.

As already suggested, the monsters of horror fiction are very often disgusting. In fact, they need to be perceived as “impure” as well as threatening in order to qualify for inclusion in what Noël Carroll calls “art-horror,” that is, fictional horror stories and the emotional reaction caused in the audience by these (Carroll 28). He qualifies his insistence on the impurity of horror monsters with reference to the fact that “horrible beings are often associated with contamination – sickness, disease, and plague – and often accompanied by infectious vermin – rats, insects, and the like” (ibid.) It makes one think of Count Dracula, who is highly contagious and who has a peculiar affinity with rats (which affinity was amplified by Max Schreck in his rodent portrayal of the count in Murnau’s Nosferatu). Carroll relies on Mary Douglas’s work in his explanation of disgust, treating it as a cultural construction which is engendered by “the transgression or violation of schemes of cultural categorization” (31). Feces, for example, are impure in that they “figure ambiguously in terms of categorical oppositions such as me/not me, inside/outside, and living/dead” (32).

However, recent research suggests that disgust is universal and that it is an adaptive defense mechanism. As Pinker suggests, disgust may be a kind of “intuitive microbiology” (How the Mind Works 383), that is, an intuitive understanding that some things are contagious. According to this theory, disgust is “designed” by natural selection to protect us from infectious diseases. The British scientist Valerie Curtis has found the following items to elicit disgust: “faeces, vomit, sweat, spit, blood, pus, sexual fluids, wounds, corpses, toenail clippings, rotting meat, slime, maggots, lice, worms, rats and people who are ill; and events
such as theft, tyranny and incest” (“Evidence” 131). This is in keeping with the findings of the leading disgust scholar Paul Rozin, who has identified seven major categories of disgust elicitors (from Rozin, Haidt & McCauley, “Disgust”):

- Animals (e.g. rats, spiders, cockroaches, and maggots)
- Food (e.g. monkey meat)
- Bodily products (e.g. feces, vomit, and saliva)
- Bad hygiene
- Inappropriate sex (e.g. with animals or siblings)
- Violations to the body envelope (e.g. open wounds or amputated limbs)
- Death (e.g. touching a corpse)

However, Rozin and his colleagues argue that disgust is a culturally modulated defense mechanism, and that the emotion of disgust is elicited by anything which reminds us of our animal nature: “An examination of the seven domains of disgust elicitors ... suggests that disgust serves to ‘humanize’ our animal bodies” (642). This semi-Freudian view is challenged by Curtis, who suggests that “the human disgust emotion may be an evolved response to objects in the environment that represent threats of infectious disease” (“Evidence” 131). Regarding feces, the “prime objects of disgust,” Curtis notes that they are universally found disgusting, which is unsurprising in an evolutionary view since feces are “the source of over 20 known bacterial, viral, and protozoan causes of intestinal tract infection” (Curtis & Biran 23).

It is obvious that the monsters of horror fiction often elicit disgust in one or more of the categories listed by Rozin, particularly those dealing with animals, the body, and death. I do not think that to be disgusting is a necessary or even defining feature of the monsters of horror stories, however. Rather, it seems to be an optional feature, one that the creators of horror stories can add to their monsters to make them even more aversive (Béla Lugosi’s Dracula [dir. Browning] is not disgusting, for example). Also, the inclusion of disgusting qualities seems to have been accelerating historically; modern supernatural horror fiction (beginning, say, with Shelley’s Frankenstein from 1818) almost invariably displays monsters which are dangerous and disgusting, whereas the fearful creatures of folk and fairytales, as well as many of the revenants of the original Gothic novels, seldom appear to evoke disgust in the protagonists (and by extension, the audience). To make monsters disgusting, then, becomes an additional tool in the scaremonger’s belt, and one which seems to have been
increasingly used, since it has proven an effective way of augmenting the effect that fictitious monsters have on their audiences.

While there is disagreement about the function and nature of disgust, there is little doubt that many monsters of horror fiction are disgusting. And following the evolutionary view of disgust as an adaptive defense mechanism, I think that the disgusting features that so many monsters of horror fiction exhibit is yet another way in which horror stories can capitalize upon an adaptive system.

4.10 Horror and Play

Is the enjoyment of horror fiction an acquired taste like chili, coffee, or modernist poetry, an essentially unnatural behavior which, once a “hedonic reversal” (Rozin, “Getting to Like” 245) has taken place (with maturity or experience) is found to have a range of pleasant effects? Or is it, rather, an extension of or variation on a natural, adaptive behavior, namely play?

In their paper “Mammalian Play,” Marek Špinka, Ruth Newberry, and Marc Bekoff, all scientists studying animal behavior, propose an adaptive function for play behavior. Play, they note, is “nearly ubiquitous in all mammalian orders” (142), which suggests that play has a common adaptive function. Although children’s play may at the face of it seem utterly useless, these authors put forth the hypothesis that play, as well as its “serious counterpart” exploration (144), is “training for the unexpected” (141). Play is a way in which mammals rehearse real-life dangers without any serious risk; it is a way to gain locomotor versatility and emotional flexibility, the authors posit.

I have already suggested that horror fiction may be a forum for investigating real-life dangers without risk. And while motor systems are (usually) disengaged when we read, watch, or listen to horror stories, we are ideally emotionally involved and may thus practice and fine-tune our emotional responses (and maybe perceptual skills). It seems that we have an innate urge to seek out strong emotions in safe contexts, and horror fiction (as well as other kinds of fiction with a strong emotional component) may be one venue for such exploration. The link between play and horror was suggested by Marks and Nesse in their 1994 paper on fear and anxiety: “Millions flock to be thrilled by horror movies, the big wheel, tightrope walkers, and the like. Perhaps this is a form of play behavior, like so many other enjoyable games that help us deal better with real problems when the time comes” (259).
I think that this functional hypothesis on the adaptive function of horror has some merit. And while I maintain that most horror fiction exploits the way we are designed, a well-composed story might still provide a useful testing grounds, a way to calibrate our emotional responses. No normal human being goes through life without fear, and it is conceivable that horror stories provide safe contexts in which we can exercise (if not exorcise) fear – and so horror may teach us how to deal with fear; it may demystify fear by showing us that it can be managed and manageable. As the Danish writer Peter Mouritzen has argued, by “exposing yourself to anxiety [caused by a horror story] you ‘consume’ it – discover that yes, it was nasty, but you made it, saw the worst, read the worst, without dying or being eaten alive yourself” (57, my trans.).

Horror stories do seem to be an outgrowth of thrilling childhood games; as any parent knows, toddlers love games that are just a little bit scary. And take a look at any children’s playground – what one finds is an assortment of low-grade thrill rides. It would appear, then, that our love of safe thrills is a natural instinct, a way to practice for the exigencies of existence. This instinct may be satisfied in a number of ways and media; the horror story is merely one such form, yet one that has proved eminently efficient.

4.10.1 Horror and Nightmares

The bad dream is an old companion of horror stories, but which came first? Horror often causes bad dreams (a claim which requires no substantiation, I think), and supposedly, nightmares can inspire horror stories. For example, Walpole claimed to have culled the premise of The Castle of Otranto from a nightmare (quoted in Clery vii); the artist Fuseli allegedly ate raw pork chops before going to bed in order to stimulate his dark dreams, upon which he based paintings such as The Nightmare (“Tate Britain | Gothic Nightmares”), and The Strange Case of Dr Jekyll and Mr Hyde reportedly came to Stevenson whilst sleeping (Davenport-Hines 310). It might appear, then, that fiction feeds into nightmares and nightmares into fiction in an endless loop. However, there is a surprising amount of evidence to suggest that nightmares serve (or used to serve) an adaptive purpose, one akin to the purpose served by play, and that many nightmarish monsters hark from a collective unconscious in the manner of Jung.

The Finnish psychologist Antti Revonsuo has proposed an evolutionary theory of dreams, claiming that the “biological function of dreaming is to simulate threatening events, and to rehearse threat perception and threat avoidance” (877). Threatening animals play a
very large part in dreams, and particularly in children’s dreams (884-5). Perhaps our dreams reinforce our innate aversive or cautious reaction to (or conception of) predators, and nightmares do, in fact, shape our culturally shared horror stories. In this analysis, the ancestral monsters of horror are not merely vague “racial memories” but regularly visiting nightly guests from the East African savannah. Horror fiction, then, becomes an extension of nightmares, a conscious attempt to deal with the “dream enemies” that we face again and again – which enemies being predominantly “animals and male strangers” (884); incidentally, the antagonists of the huge majority of horror fictions. This is a line of enquiry that has not, to my knowledge, been developed at all.

4.11 Horror and the Cognitive Science of Religion and the Supernatural

In recent years, a rapidly increasing interest in understanding religious belief with the aid of cognitive and evolutionary science has yielded surprising results. Rather than being entirely irrational and headed for extinction in the face of scientific progress and enlightenment, belief in the supernatural is a natural by-product of the adapted mind. The work of the anthropologists Pascal Boyer and Scott Atran and the psychologists Justin L. Barrett and Ara Norenzayan points to the structure of our evolved minds as the source of supernatural beliefs; they ask, what is it about specific beliefs that make them widespread and likely to be entertained, and why, in extension, is the catalogue of “popular” beliefs rather limited? Why is it that not any old supernatural agent (say, an invisible, all-knowing teapot with the power to suspend gravity) is likely to catch on and become a popular deity?

In this emerging view, religion is a kind of parasite which exploits our innate cognitive architecture. This cognitive architecture, which evolved to deal with other aspects of existence (such as predator detection and a capacity to infer other people’s motives and intentions, known as intuitive psychology or Theory of Mind), includes a range of innate intuitions about the physical world.

Normal humans come factory-equipped with certain intuitive beliefs or theories about the natural world. We have a range of innate mental categories – people, plants, animals, natural objects, and maybe tools (Boyer 90) – which we expect to have certain properties and to hold objects that behave in certain ways. Conspicuously, these are categories that played a vital part in our evolutionary past; we have no dedicated mental machinery for “multiply[ing] six-digit numbers in [our] heads” (Pinker, Blank Slate 219) or understanding
nuclear physics. (That does not mean that we cannot multiply large numbers in our heads or understand quantum mechanics; it merely implies the aforementioned “prepared learning,” or the fact that we are made in such a way that some things come easier to us than others).

These intuitive, innate theories, which comprise what Brian Boyd calls our “event comprehension system” (“The Origin of Stories” 200), include an intuitive psychology, an intuitive biology, and an intuitive physics (Pinker, Blank Slate 220). Once we perceive some object to belong to a certain ontological category, our specialized cognitive hardware infers (subconsciously) that the object is likely to have a range of characteristics common to that category, and that it is likely to behave in a certain way. Stones, if unsupported, fall down; they do not disappear, hold no beliefs, pose no threat, do not become hungry, and do not die. Thus, Boyer describes the mind as a “bundle of inference systems, differently activated by different objects” (116).

An intriguing finding in the cognitive science of religion is that entities (particularly agents) which violate our intuitive taxonomy — entities which combine features from two or more of the natural categories — are likely to command attention, be vividly remembered, and be extensively transmitted.

Justin Barrett has introduced two concepts which he uses in his explanation of our propensity to entertain and produce supernatural beliefs, as well as the success of some religious or supernatural concepts relative to others. Although his account is primarily geared toward explaining traditional religious concepts, it can be used to analyze and explain other kinds of “gods,” such as demons, ghosts, and even “space aliens” (21).

Barrett has proposed the existence of what he calls an “agency detection device,” or ADD, which “encourages the generation and spread of god concepts and other religious concepts” (31). The ADD is a universal, innate “mental tool responsible for the nonreflective detection of agency in the environment” (ibid.). We have a bias for interpreting ambiguous clues as being the result of some kind of human or animal agency; as Barrett writes, when “hearing a bump in the night, our first impulse is to wonder who caused the noise” (ibid.). Thus, the ADD is hyperactive (prompting Barrett to re-label it HADD), and for good evolutionary reasons. In the environment of evolutionary adaptedness, “detecting predators and other dangerous agents” was a “signal-detection problem … in which a miss would have been far more costly than a false alarm,” as Timothy Ketelaar writes in his summary of Atran and Norenzayan’s similar account of religion. Thus, “hominids evolved an agency-detection
system biased in favor of producing false alarms”, and “religion is essentially a by-product of an evolved bias towards over-attributing agency as the source of unexplained events” (740).

Barrett, who seems to have an unusual fondness for acronyms, has also introduced the idea of MCI, or “minimally counterintuitive” concepts as a standard for culturally successful supernatural units. He characterizes the MCIs as “meeting most of the assumptions that [our inference systems automatically make about that particular kind of object] – thus being easy to understand, remember, and believe – but as violating just enough of these assumptions to be attention demanding and to have an unusually captivating ability to assist in the explanation of certain experiences” (22). As he notes, “MCIs commonly occupy important roles in mythologies, legends, folktales, religious writings, and stories of people all over the world” (ibid.). Thus, MCIs are a group of concepts that “largely match intuitive assumptions about their own group of things but have a small number of tweaks that make them particularly interesting and memorable” (23). In a series of experiments, Boyer and Barrett have shown that stories featuring MCI objects were better recalled by test persons than stories which featured standard items (Boyer 92) or stories which featured “bizarre ones” (Barrett 24). Also showing that this analysis pertains to cultural units of transmission other than religious agents, Ara Norenzayan and colleagues have conducted a series of experiments involving a selection of folktales by the Brothers Grimm, showing that MCI folktales are likely to be more culturally successful or popular than non-MCI ones.

Thus, the most successful MCIs are intentional agents and have good inferential potential: intentional agents always played a very important role in human existence, so we evolved a tendency to be particularly interested in and ever on the lookout for such agents, and MCIs which explain otherwise baffling events are more “useful” to us, and thus more likely to be preserved.

These concepts are pertinent to a theory of horror fiction. The hyperactive agency detection device explains why the monsters of horror stories are so often seen merely in glimpses or perhaps only intimated; the scenery of horror is often more or less obscured (taking place, for example, at night), which sets our threat detection systems on high alert, keeping us on the edge of the seat while we scan the fictional environment for predatory monsters. As Öhman notes, “anxiety causes heightened attention to threats in the environment” (“Fear and Anxiety” 581). And since the agency detection device is automatic and subconscious, it
explains why the well-told horror story can make even the most hard-headed skeptic break a sweat. Ketelaar goes further, arguing that the HADD explains the superabundance of animal predators (or predators with animal features) in horror movies: “it is not hard to see how a predisposition toward inferring the presence of dangerous animate agents could result in a preponderance of solitary ambush predators as culturally shared fear stimuli” (740).

Also, and perhaps more pertinently, the monsters of horror stories are almost always MCI agents, or what Atran and Norenzayan call “taxonomic anomalies” (715). In fact, as an example of taxonomic anomalies they mention monsters, which become “socially relevant and evocative because they are purposely divorced from the default state of ‘automatic’ human cognition … that is, ‘intuitive ontology’” (ibid.).

As Brian Boyd points out: “Works of art die without attention” (“The Origin of Stories” 197), and one way for a horror story to attract attention is to feature an interesting monster, an MCI monster. Another is the well-developed and oft-used strategy of priming the HADD by making the monster’s ontological status ambiguous – is there really a harmful agent out there? And yet another is to place the monster and the human protagonists in a confusing or obfuscated setting, which also, presumably, pumps the HADD.

The monsters of horror are extremely often made interesting with added “tweaks”: much like some people “pimp” their vehicles to make them more attention-grabbing, the creators of horror stories know to modify monsters to make them more interesting and/or scary and dangerous. The spider in King’s It, as we saw, was fifteen feet high. Standard ghosts are human predators with a range of unusual abilities, or “person[s] with counter-intuitive physical properties,” as Boyer puts it (84). The car in King’s Christine has a malicious will of its own (and strikingly augments the “object” category by borrowing an item from the “person” category), the character sometimes known as Eva Galli in Peter Straub’s Ghost Story can change its shape (running counter to what we intuitively expect of human morphology), and the zombies of George A. Romero’s Night of the Living Dead have traded all cognitive functioning for a firm determination to ingest human flesh (thus eliminating cognition from the “person” category and borrowing “predation” from an “animal” subcategory).

In their pioneering paper “Religion, Death and Horror Movies” Hank Davis and Andrea Javor attempt to apply some of Boyer’s insights to horror movies. In particular, they make note of Boyer’s claims that “the violation of ontological categories (such as Person) by
one or more features makes entities both salient and memorable” (1) and that, notably, dead bodies trigger a range of powerful responses:

- Dead bodies seem to imply predation (and the possible presence of a predator).
- Being in a state of decomposition, dead bodies activate “strong unconditioned disgust reactions.”
- A dead body violates the Person category by looking like a person but failing to behave as one (2).

Thus, dead bodies can cause fear, disgust, and confusion (ibid.) – and fascination (Boyer 259). It is not simply the case that culture teaches us to fear dead bodies, and nor are we born with an algorithm specifying an automatic response (fear) to a particular visual cue (a corpse). Rather, our evolved minds are quite uneasy and alert around dead bodies since they trigger contradictory inferences and are counter-intuitive (254). As Boyer notes, “[o]nce a particular theme or object triggers rich inferences in a variety of different mental systems, it is more likely to be the object of great cultural attention and elaboration. This certainly seems to be the case for dead bodies” (259).

The raw power of dead bodies to evoke strong emotional responses is showcased perfectly, I think, in an episode of Buffy the Vampire Slayer, tellingly entitled “The Body.” In this episode, Buffy comes home in the middle of the day to find her mother dead on the couch, apparently of entirely un-supernatural causes: an aneurism. Soft sunlight floods the scene, and the lack of non-diegetic sound is conspicuous. Buffy’s mother looks remarkably peaceful and only slightly pale; the corpse is not at all gory (cf. ill. 4). The whole setting is starkly naturalistic. We follow Buffy’s futile efforts to resuscitate her mother, her confused 911 call, her calm walk through the house, her vomiting on the carpet, her returning to look at the corpse, and the arrival of the paramedics. Apart from the repeated and sustained focus on Buffy’s facial expressions (cf. Noël Carroll’s emotional viewer instruction) and the occasional glimpses of the corpse, the usual dramatic strategies of horror fiction are absent. No dark and stormy night, no screeching violins, no shocks – and still the episode is extremely unsettling. I was remarkably uncomfortable re-watching it (even scanning it for an appropriate screenshot on a 14” computer screen in daylight made me queasy), and I think it shows quite well the powerful emotional response a corpse can evoke – even one portrayed

---

25 Cf. Kendrick: “In the Middle Ages, the dead weren’t scary” (2; cf. also 260-1).
by an actor in a piece of fiction. The sheer thought of being alone with a dead body is utterly horrible.

Illustration 5: Buffy's dead mom.

It is Davis and Javor’s thesis that horror movies which adhere to Boyer’s formula for successful cultural constructs (those that “[trigger] multiple inference systems” [2]) are more successful than those that do not. They examined a sample of 40 horror films, looking for the degree to which each film successfully triggered inferences pertaining to predation or contagion, or violated the ontological “person” category. They found a “strong relationship between each film’s rating on the IMDB [the Internet Movie Database, which features user-ratings on virtually all films] and the degree to which the film triggered death-related inference systems or violated the Person ontological category” (5). Perhaps not surprisingly, they found a very strong correlation between a film’s score on the predation scale and its user rating. The better a film conveyed the sense that “someone or something is out to get a character in the movie,” the higher it was rated.

Thus, Davis and Javor explain why certain themes are prevalent in horror films. It is not only the case that certain tropes “accidentally” become part of a cultural tradition: the prevalent themes of popular horror films have a peculiar resonance with our Stone Age minds.

Boyer and Barrett’s finding that MCI agents make successful cultural units (or “memes,” in Richard Dawkins’s terminology [The Selfish Gene]) is, perhaps, stating the obvious, but their work suggests an evolutionary foundation for why it should be so, and it is backed by robust evidence. So while others have arrived at the insight that boundary-crossing (“interstitial”), counter-intuitive creatures make for good dramatic material, we now have the reason for why it is so. It all depends on evolved properties of the human mind.
4.12 Concluding Remarks

Horror fiction appears to be a pleasure-via-revulsion technology, one that activates or exploits our adaptive threat-avoidance mechanisms (notably fear and often disgust). At the same time, the urge to seek out horror stories may be an outgrowth of an adaptive instinct to engage in imaginative play and exploration, mapping the topography and boundaries of our emotional landscape. Horror stories simulate dangerous situations and give us a vicarious taste of being hunted prey without the danger that is normally the cause of fear.

Thus, horror fiction may be a kind of “pleasure technology,” akin to protected sex or Big Macs. On the other hand, horror may be a kind of scenario testing, a way to imaginatively and vicariously try out various strategies for dealing with possible futures. The curious thing is that the scenarios we vicariously test in most supernatural horror fiction are by their very nature scenarios which we are unlikely ever to encounter. The idea of scenario testing should not be taken too literally, though. For example, fantasy – being by definition counter-empirical – seems to fall squarely outside Pinker’s description of narrative as analogous to books of possible chess moves. All the same there are real-world lessons to be gleaned from for example J. K. Rowling’s fantasies about Harry Potter. Nobody reads the books with the intent of becoming expert Abyssinian shrivelfig farmers or learning how to conjure up a good Patronus, to be sure, but the novels are rich sources of information about social strategies and behaviors, about how to negotiate the jungle that is teenage life, for example.

I have argued that horror stories vary within a narrow range because they are designed to target the human mind in specific ways. The human mind, in turn, appears to be constructed in a specific, species-typical way (as a product of evolution by natural selection), and so there are only so many effective strategies and monsters available to the “professors of the flesh-creeping school”. Some things are inherently more scary, threatening, or disgusting to humans than other things. Yet no more than horror authors and directors are blind and unreflecting channels of the Zeitgeist are they blind and unreflecting channels of primal impulses and ancestral images. A horror author presumably searches within him- or herself in order to find “phobic pressure points” than can be played upon in a story, yet the very universality of so many pressure points or fears means that the story, if well told, is likely to

\[\text{In the phrase of an anonymous reviewer of } \textit{Dracula} (Spectator 365).\]
succeed with other people as well. The scary horror story taps into a reservoir of pan-human fears – a reservoir which is founded on a rich substrate of evolutionarily salient concerns and fears, the most salient of which being the ultimate loss of genetic fitness: death.

To be sure, a horror author might deliberately set out to channel the *Zeitgeist* or create a cultural metaphor in monster dress, and some stories appear to be more dependent on historically located anxieties than hard-wired phobias. For example, Richard Matheson’s short story “Through Channels” from 1951 features monsters emerging from a TV to feed on a small party. This would appear to be a metaphorical treatment of a very specific, culturally contingent anxiety, namely the sudden explosion in communication technology and the epidemic spread of TV sets in mid-century USA. And yet, a closer analysis of the monsters from the TV suggests that Matheson’s story is not just an interpretation of the possible effect of the developments in mass communication. Description is scant, but the monsters “was [sic] like … bugs, maybe, or maybe … w-worms. Big ones. All mouths. Wide open,” according to a witness (57). Conspicuously, then, Matheson is manipulating a context-dependent anxiety, but he chooses to do so metaphorically, by presenting an abstract threat as a supernatural horde of “bugs” or “w-worms.” This, presumably, makes the story more inherently interesting (and its message more edible), and it showcases the potential of fantastic fiction as a kind of double text, one which can be read and enjoyed metaphorically as well as literally. And the fact that Matheson chooses murderous bugs or giant worms as embodiments of this particular evil is testament, again, to the ubiquity of dangerous and tweaked animals in horror fiction, as well as an innate fear of predation which is capitalized upon by scary stories.

One salient aspect of horror consumption that I have ignored is the fact that not everybody enjoys horror fiction. Lacking hard numbers, I would hazard the guess that most people do not, in fact, seek out horror (although most people probably enjoy the related genre of “thrillers”). Presumably, it comes down to individual differences in personality and life history. Some personality kinds are more attracted to horror than others, as for example the category of people known as “sensation seekers” (cf. Zuckerman). Also, the prime audience for horror fiction seems to be teenagers (16 to 25-years-olds, according to Le Blanc and Odell [41]). As Stephen King astutely observed in a talk, “[y]ou very rarely see old people on their

---

27 According to one historian, the number of TV sets in North America rose from 500,000 in 1948 to 19,000,000 in 1952 (Halberstam 185, 195).
golden-agers passes lurching out of theaters playing *Zombie* or *I Eat Your Skin* (“An Evening” 11). Possibly this has to do with the urge to explore, to test one’s own limits, to push the outside of the envelope, which is by far stronger in adolescence.

The part of my theoretical apparatus which is predicated upon an innate fear of alpha predators may seem unable to account for a lot of stories that are usually characterized as supernatural horror. For example, the kind of horror that relies on atmosphere rather than fangs, blood, and clanking chains (the monster-less stories that Noël Carroll calls “tales of dread” [42]); many of the stories written by the late Charles L. Grant, for example, or some of Lovecraft’s “weird tales,” or the more subdued Gothic romances are all cases in point. Yet while such stories may not feature “ambush predators dressed up in culturally contrived monster attire,” in Ketelaar’s apt phrase, they still employ predictable strategies for building suspense or an atmosphere of anxiety and apprehension, and they may still activate evolved hardware in their intimations of supernatural agency and predatory presences.

My claim that most or all (effective) monsters of horror fiction are more or less “tweaked” versions of ancestral animals is at present supported only by scattered and anecdotal evidence. To make my argument stronger, I would need to undertake a careful analysis of a large number of horror monsters. And finally, my claim that modern horror fiction belongs in a lineage of scary stories which is “as old as human thought and speech themselves,” in Lovecraft’s words, requires substantial historical, literary, and archaeological research.
5 A Darwinian Perspective on *Dracula*

5.1 Darwinism in Literature

Darwin's powerful and controversial theory reverberated throughout the scientific community as well as the educated population upon the publication of the *Origin*, and unsurprisingly so, as issues of evolution versus creation give rise to vastly different conceptions of man. Are we unique and *sui generis*, created in God's image and perhaps endowed with an immortal soul, or are we merely “naked apes,” in Desmond Morris's phrase, descended from lowly animals by a seemingly arbitrary and entirely brutal process of natural selection, as much a part of nature as beetles and bacteria? As Darwin wrote in *The Descent of Man*, “the mental faculties of man and the lower animals do not differ in kind, although immensely in degree. A difference in degree, however great, does not justify us in placing man in a distinct kingdom” (147).

As the historian Peter Bowler notes, “[t]hemes of evolution, progress, and struggle permeated even the literature of [the last quarter of the nineteenth century], although most writers had only the vaguest understanding of Darwinian theory” (274). Presumably, most writers are interested in human nature, and Darwinism offers a distinct account of human nature. Another reason for this flow of scientific thought into literary minds is that in the late Victorian period, “the life sciences were unusually accessible to the literary mind,” according to the critic Peter Morton (47). In this pre-Snow period, popular journals engaged unblinkingly with technical scientific issues, and the language of scientific discourse itself was familiar to the educated layman: “even the most complex debates were conducted in a language which was a shared heritage” (48).

Yet another reason is the sheer dramatic potential of biology in general and evolution in particular. Darwinism entails a dynamic universe as opposed to the static one envisioned by creationism, according to which everything was created as it is some 6,000 years ago, and thus Darwinism is thought-provoking in that it makes one imagine a radically different world, past or future. The dramatic potential of biology and evolution was recognized by H. G. Wells, who used evolution as an integral dramatic device in his supremely pessimistic early “scientific romances” from the last decade of the century. As Wells wrote: “In the book of nature there are written ... the triumphs of survival, the tragedy of death and extinction, the tragic-comedy of degradation and inheritance, the gruesome lesson of parasitism, the
political satire of colonial organisms. Zoology is, indeed, a philosophy and a literature to those who can read its symbols” (quoted in Glendening 592, n1).

Wells studied under T. H. Huxley, one of the most vocal proponents of evolutionary theory (and nicknamed “Darwin’s bulldog”), and unlike many other writers of the time, Wells had a thorough understanding of the science involved. He wanted to startle Victorian man out of his dangerously complacent belief in assured progress, and he used evolutionary theory (particularly the pessimistic version espoused by Huxley) as the engine of several of his stories. According to the critic Mark Hillegas, Huxley’s philosophy of evolution contained “an element of grave doubt about the outcome of the cosmic or evolutionary process – his ‘cosmic pessimism’” (19), and it was exactly this pessimism which Wells powerfully dramatized in The Time Machine (1895), in which the human race has degenerated into two distinct species, the effete Eloi and the brutal Morlocks.28

Another fin de siècle writer who engaged with evolutionary thought is Robert Louis Stevenson. Indeed, as the science fiction author and critic Brian Aldiss notes, The Strange Case of Dr Jekyll and Mr Hyde (1886) can be read as a “mythical reinterpretation of the Descent of Man” (110). Arguably, the transformation from the civilized Jekyll to the brutish Hyde is an image of atavism, of the beast resurfacing in man; this notion was apparently validated by evolutionary biology, since man carries with him still his evolutionary inheritance, and since the evolutionary train runs on two-way tracks. A similar motif is found in Wells’s The Island of Doctor Moreau, and Count Dracula can also be interpreted in terms of atavism and animalistic urges lurking under the veneer of civilization. I am unaware of the extent to which Bram Stoker stayed abreast of developments within science, but Dracula (1897) appeared at a time when evolution was very much in the air, debated by scientists and laypersons alike. It is almost certain that some salient aspects of this particular cultural ecology found their way into Stoker’s story.

28 This kind of Darwinian reading – where one tries to ascertain the nature and extent of the influence of evolutionary theory on a particular writer or work – is obviously distinct from (though no less interesting than) the Darwinian readings produced by adaptationist literary scholars, as it requires no commitment to evolutionary psychology and as it pertains solely to literary works produced post-Origin. However, both approaches are ways of taking science seriously.
5.2 The *Fin de Siècle*: The Cultural Ecology of *Dracula*

One of the most fascinating aspects of late Victorian *fin de siècle* culture (circa 1880-1900) is the clash between unchecked optimism and free-wheeling anxieties. According to the editors of the cultural reader *The Fin de Siècle*, Sally Ledger and Roger Luckhurst, Britain experienced at this time the “*ambivalence of modernity*” (xiii). The faltering empire was being “haunted by fantasies of decay and degeneration” (ibid.), perhaps most spectacularly articulated by Max Nordau in his *Degeneration* (1892). The feeling that things were falling apart and that a golden age of progress, innovation, and grounded optimism was fading and fading fast seemed to receive analogous corroboration from the scientific realm. Some scientists began to challenge notions of evolutionary progress and emphasized, instead, biological degeneration or retrogression in animal (and potentially the human) species. Although mid-Victorian “social and economic confidence” and notions of progress were “bolstered by Darwin’s theory of evolution” (Ledger & Luckhurst 1), some of the heaviest blows to this optimism came from within biology.

T. H. Huxley, as mentioned, disbelieved in assured evolutionary progress. Contrary to popular (albeit scientifically wrong) progressionist theories of evolution, according to which the evolutionary process worked teleologically towards perfection and which placed mankind at the apex of the “ladder of life,” Huxley asserted that evolution did not automatically lead to progress and “better” organisms. As he wrote in “The Struggle for Existence in Human Society” (1888), “it is an error to imagine that evolution signifies a constant tendency to increased perfection … Retrogressive is as practicable as progressive metamorphosis” (199). He elaborated on this idea in his famous 1893 Romanes lecture, “Evolution and Ethics,” in which he pitted “ethical man” against the unethical cosmos. As he wrote, “the ape and tiger methods of the struggle for existence are not reconcilable with sound ethical principles” (52-3). Providing a sound rebuttal both to social Darwinism and the naturalistic fallacy mentioned earlier, Huxley noted that “evolution may teach us how the good and evil tendencies of man may have come about; but, in itself, it is incompetent to furnish any better reason why what we call good is preferable to what we call evil than we had before” (80).

29 “[E]volutionism become popular because it was perceived as a scientific expression of [the] broader principle of progress” (Bowler 275).

30 Wells challenged this notion of man as evolution’s finest accomplishment with the introduction of the superior Martians of *The War of the Worlds*, whose “minds … are to ours as ours are to those of the beasts that perish” (1) and who have evolved to “become practically brains” (104).
Perhaps the most well-known popular account of zoological degeneration was Edwin Ray Lankester’s *Degeneration* (1880). Lankester noted that evolution could produce balance, elaboration, or degeneration, the latter defined as a “gradual change in the structure in which the organism becomes adapted to less varied and less complex conditions of life” (3). This pertained not just to the “lower” animals, but to humans and civilization itself, as well: “we are as likely to degenerate as to progress … Possibly we are all drifting, tending to the condition of intellectual Barnacles or Ascidians” (4).

These debates and anxieties apparently became woven into *Dracula*. According to the critic Ed Block, Jr., there are “clear indications that Stoker … was moved by contemporary thought to cast his story in evolutionist terms” (462). As he writes, “Stoker’s scientific references [to for example the “evolutionary” criminologist Lombroso] are … examples of how evolutionist psychology and evolutionist theory generally legitimated traditional Gothic tropes like madness and bestiality” (463).

As mentioned and as noted by the editors of the Norton edition, Nina Auerbach and David Skal (ix-x), the Count himself is easily glossed as some kind of evolutionary throwback or relic – Van Helsing delivers a long lecture on Dracula’s inferior “child-brain” (263-4) – harking from the uncivilized wilderness of the Carpathians. This part of Transylvania is described as a kind of European heart of darkness, “one of the wildest and least known portions of Europe” and the center of an “imaginative whirlpool” (10) fraught with superstition. Nearing Dracula’s castle at the end of the novel, Van Helsing describes the scenery as “oh! so wild and rocky, as though it were the end of the world” (315). In contrast to Dracula’s primitive attributes and homeland, the “human characters … surround themselves with modern gadgets and skills – shorthand, typewriters, dictating machines, cameras,” as Auerbach and Skal note (x), and as Van Helsing says, the Count may be strong but they have at their disposal “the resources of science” (210).31

Of course, other strands of the *Zeitgeist* found their way into the fabric of the novel. The novel’s preoccupation with fringe science and supernatural phenomena was probably inspired by the newly-founded societies of psychic research as well as a growing public interest in such phenomena, and the new sex sciences, as well as the discourse surrounding the “new woman,” are, indubitably, integral to the novel and a very prominent feature of

31 The message of the novel is of course not simply that science will prevail over superstition; Dracula is kept at bay and defeated by supernatural and religious means (crosses, holy wafer, magic flowers, etc.). Yet in what is essentially an informational problem – keeping track of Dracula and locating the dirt-filled caskets so vital to him – our heroes rely on their “modern gadgets and skills.”
Stoker’s cultural ecology, but they do not concern me much here. The engine of the novel *qua* horror is the vampire, and although a comprehensive understanding of its cultural context is crucial to a full understanding of the novel, it is as a work horror that I wish to understand *Dracula*.

**5.3 The Origin of Vampires**

Stoker’s vampire is not an entirely original conception. *Dracula* is inspired in part by literary predecessors such as John Polidori’s “The Vampyre” (1820) and J. Sheridan Le Fanu’s *Carmilla* (1872) and in part by the vampires of folklore (Stoker 331). The vampire appears to be universal: indeed, the vampire of European folklore is, in the words of historian Paul Barber, “only a local manifestation … of a worldwide phenomenon” (1). Or as the vampire expert Rosemary Guiley claims, “[v]ampires, or creatures like them, exist in every culture around the world” (xiii).

However, there are vast differences between the vampires of folklore and the vampires of recent popular fiction, as Barber notes in his scientific investigation of the vampire myth, *Vampires, Burial, and Death*:

> If a typical vampire of folklore, not fiction, were to come to your house this Halloween, you might open the door to encounter a plump Slavic fellow with long fingernails and a stubby beard, his mouth and left eye open, his face ruddy and swollen. He wears informal attire – in fact, a linen shroud – and he looks for all the world like a disheveled peasant (2).

It is Barber’s well-supported thesis that the idea of vampires – broadly defined as blood-sucking revenants – is basically the result of a misunderstanding by pre-scientific observers of dead bodies. Corpses do all sorts of interesting and unexpected things, such as emerge from the earth, groan when staked, bleed at the mouth, and move about. In this sense, the vampire concept is an MCI agent with good inferential potential: it appears to have a will and malicious intent of its own, it is an ontological bastard (appropriating features from distinct ontological categories such as human/animal and animate/inanimate), and it successfully explains a lot of baffling events – all of which are, however, perfectly natural, as Barber shows. Further, we see the HADD at work: the widespread vampire myth showcases the tendency of people to ascribe agency to natural processes or events which are poorly understood or imperfectly perceived.

---

32 As one commentator notes, the “cannibalistically inclined reanimated corpses” of “various Eastern European traditions” resemble the “revenants of George Romero’s *Night of the Living Dead* (1968) far more than the aristocratic Dracula of Bram Stoker’s *Dracula*” (Stableford 980).
Where does the belief that vampires suck blood from the living come from? The psychoanalyst Ernest Jones, in an essay on vampires in his *On the Nightmare*, proposed that it was an entirely symbolic attribution to a product of the imagination, one which was the consequence of guilt and incestuous desires. He thought that the belief that vampires drink blood had a “sexual origin” (116), building on his dubious claim that in the “unconscious mind blood is commonly an equivalent for semen” (119). However, Paul Barber has provided a natural and far more parsimonious explanation, noting that exhumed corpses from time to time and as a result of decomposition are seen to bleed or to have bled from the mouth. Among pre-scientific observers, this “unnatural” phenomenon is easily interpreted as the result of the presumed vampire having acquired the blood from someone else (120-1).

It also sometimes happens that corpses bloat as a result of methane trapped within the body (another natural result of decomposition), and since this is often viewed as proof that the corpse is a bloodsucking vampire (195-3), an obvious remedy is to drive a stake into it, releasing the gas (158). (There may be other reasons for staking the supposed undead, however, such as rendering the apparently mobile body inert [175].)

If, then, the vampire truly is a universally found phenomenon, it is because it is an apt MCI agent, one which (albeit erroneously) explains natural, mostly chemical processes observed in decaying bodies. The vampire is easily over-interpreted, however, as I think Jones’s claims make clear, and Count Dracula and his blood-sucking minions have very often been read in a purely metaphorical light, which I thinks is missing an important point: the imposing Count **demands** to be taken literally.

5.4 Dracula the Monster

As Guiley points out, “Count Dracula has been analyzed extensively from perspectives of Victorian mores, Freudian psychology, Jungian psychology, and the feminist movement. He is seen as a symbol of humanity’s greatest fears.” Although a true shape-shifter, the count is “[m]ost often … interpreted in terms of sexual desire” (84). However, although undeniably there, the point of Dracula’s sexual undercurrents has been vastly overstated in the criticism

---

33 By all accounts is the odor of a decomposing corpse vile. This is only natural, yet Jones provided another mysterious explanation for the foul smell often attributed to vampires in folklore: “Bearing in mind the anal-erotic origin of necrophilia … we are not surprised to observe what stress many writers on the subject lay on the horrible stink that invests the Vampire” (122). (In Richard Matheson’s scientific take on the vampire myth, *I Am Legend* from 1954, the smell is explained as a result of the “considerable amount of waste products … left in the vampire’s [body]” due to a characteristic deficiency in the blood-suckers’ lymphatic system [80-81].)
(for example Roth; Moretti; Craft). As an example, Maurice Richardson characterizes *Dracula* as a “quite blatant demonstration of the Oedipus complex … a kind of incestuous, necrophilous, oral-anal-sadistic all-in-wrestling match” (quoted with approval by Roth 411) and a “vast polymorph perverse bisexual oral-anal-genital sadomasochistic timeless orgy” (quoted in Senf 428).

I think it fair to say, however, that Dracula is first and foremost a *predator*. “Our enemy is not merely spiritual,” as Van Helsing says (219); nor is he merely metaphorical. Partly human, partly animal, and partly supernatural being, Dracula is essentially a “solitary ambush predator” with a range of unusual qualities and capabilities.

Most obviously, Dracula has certain animal characteristics. His superhuman strength is emphasized (209; 211; 219), and very frequent mention is made of his long, sharp canine teeth, his primary weapon (and one of Gilmore’s universal monster characteristics). Likewise, his red eyes are often mentioned; this too may be indicative of his bestiality. He occasionally displays an exceptionally fierce temper, for example when discovering that the Weird Sisters are about to feed on Harker (“Never did I imagine such wrath and fury,” Harker says, “even to the demons of the pit” [43]). And further, Dracula has hairy palms and nails “cut to a sharp point,” suggesting claws.

There is an important caveat to be made, however. There is reason to believe that Stoker deliberately crafted the Count in such a way that he became an embodiment of atavism or a creature on a lower rung on the evolutionary ladder – an early hominid red in tooth and claw, returned to haunt and mock civilization. For example, Dracula is described as having “extremely pointed” ears (24), which I think is a subtle nod to Darwin, who famously claimed in *The Descent of Man* that “man is descended from a hairy quadruped, furnished with a tail and pointed ears, probably arboreal in its habits, and an inhabitant of the Old World” (389). And the fact that Stoker’s vampires are furnished with long and sharp

---

34 I don’t know why that is, but presumably we simply like to talk about sex, and particularly Freudian theory grants ample license to see sex where it manifestly is not. In fact, the sheer absence of overtly sexual content in a given work may be construed to prove that the work is, in actuality, all about sex. For example, sexuality is conspicuously lacking from H. P. Lovecraft’s work: “In the face of such a radical exclusion,” writes Michel Houellebecq, “certain critics have concluded that his entire body of work is in fact full of particularly smoldering sexual symbols. Other individuals of a similar intellectual caliber have proffered the diagnosis of ‘latent homosexuality.’ Which is supported by nothing either in his correspondence or his life. Yet another useless hypothesis” (57-8). These are but a few instances of what I think is an often unwarranted emphasis on sexuality in horror scholarship. Likewise, the critic Elaine Showalter reads Stevenson’s *Dr Jekyll and Mr Hyde* as a “fable of fin-de-siècle homosexual panic, the discovery and resistance of the homosexual self” (107). This, surely, is a historicist-psychosexual reading gone utterly berserk. Would the fact that Hyde travels in “chocolate-brown fog” be “suggestive of anality and anal intercourse” (113) to anyone but a high-strung Freudian critic?

35 17, 23, 27, 37, 127, 155 (“his big white teeth … were pointed like an animal’s”), 244, 247, 251, and 266.

36 43, 88, 91, 94, 126, 221, 244, 245, 247, 251, and 325.
canine teeth may, again, be a nod to Darwin who noted that humans are apt to bare their no-longer-fearful canines in a “playful sneer or ferocious snarl.” This, Darwin speculated, revealed their “animal descent,” since it was an emotional vestige from an evolutionary past when “our male semi-human progenitors possessed great canine teeth” which they would reveal or use in a fight (Expression 248-9). Perhaps Stoker had Darwin’s speculations in mind when he chose to equip the count with sharp canines.\textsuperscript{37} If so, Dracula is \textit{deliberately} an “ancestral monster,” and not an example of an unconscious representation of some racial memory of a fang-flashing alpha predator lurking in the limbic bends of Stoker’s brain. All the same, in the \textit{reader} of \textit{Dracula}, the good count may still cause some stir of echoes of nocturnal monkey shrieks, since the reader arguably takes the monster at face value first and foremost.

At any rate, Dracula is suffused with animalism. He has the power to command “all the meaner things: the rat, and the owl, and the bat – the moth, and the fox, and the wolf” (Stoker 209) and can even change into a bat (90) and a wolf (78; 131). Particularly this ability to metamorphose into “lower” species can be construed as an image of retrogressive evolution; in fact, the zookeeper Thomas Bilder says as much when he claims that “there’s a deal of the same nature in us as in them theer animiles [sic]” (126)—that is, the wolves.

In one of the novel’s most chilling scenes, Jonathan Harker sees Dracula scale the outer wall of his castle like a “lizard” (39). And in another passage, Dracula’s “white sharp teeth … champed together like those of a wild beast” (247). Dracula is also compared to a panther (266), a lion (ibid.), and a tiger (278) – in short, a wild predator which must be hunted down. And who better suited for the job than a band of seasoned hunters: Seward, Godalming, and Morris? As Van Helsing says when Dracula has just eluded the good slayers, “You follow quick. You are hunters of wild beast, and understand it so” (267).

Likewise, after she has become a vampire, Lucy Westenra is described in animal terms. She gives an “angry snarl” and begins “growling” when cornered by the vampire hunters (188). As Seward notes, a “foul thing … had taken Lucy’s shape without her soul” (190). She is, in a way, a sexy version of the Beast People of Wells’s \textit{The Island of Doctor Moreau}, a regression to the beastly core of humanity.\textsuperscript{38} Stoker’s point is not so much, I think, that

\textsuperscript{37} As Barber notes, the vampires of folklore have no sharp canines, which are “an artifact of the fictional tradition” (“Staking Claims” 78). And strangely enough, Béla Lugosi’s Dracula (dir. Browning) has no visible fangs at all.

\textsuperscript{38} In Stephen King’s recent \textit{Cell}, a mind-targeting virus (“the Pulse”) transmitted by cell phones reduces all its victims to their beastly, zombie-like Darwinian core. As one character says, “What Darwin was too polite to say, my friends, is that we came to rule the earth not because we were the smartest, or even the meanest, but because
unbridled (female) sexuality is dangerous (human-Lucy’s “purity” turns to vampire-Lucy’s “voluptuous wantonness” [187]), as for example Phyllis Roth argues, but rather that sexuality is something which we share with the “lower” animals. What makes us human is what is missing from vampire-Lucy (her “soul” or, presumably, her capacity for non-carnal love, compassion, friendship, etc.).

*Dracula* is a work of horror since it is obviously designed to scare and disturb its readers. And one of the ways in which Stoker sought to scare and disturb his readers was by introducing his central antagonist, Count Dracula, who would in the minds of his readers evoke images of dangerous beasts and perhaps even touch on an aspect of human nature which fears large mammal predators still. In particular, Dracula’s mouth is evocative of alpha predators, even as he “merely” uses his sharp teeth to puncture the skin of his victims. Dracula, then, is essentially a predator with malicious intent and superhuman rationality (or “cunning” [209]), a highly dangerous and fascinating monster. However, unlike his ferocious cousin the werewolf, Dracula threatens not to maim and maul his victims: his threat is one of contagion (cf. the “germ theory” of vampires in Matheson’s *I Am Legend*). “There are far worse things awaiting man than death,” as Béla Lugosi says in Browning’s *Dracula*. Not only is Dracula a kind of degenerate human, he threatens to degenerate the rest of mankind by spreading his vampire “genes,” his blood, which is why he goes to London with its “teeming millions” – to “create a new and ever-widening circle of semi-demons” (53-4). Thus Dracula can be seen as a disease carrier – literally, of vampirism, and metaphorically, perhaps of venereal disease such as syphilis (suggested by Auerbach and Skal in Stoker 363). And as such, he might invoke in the reader a strong, innate disgust reaction; he certainly does so in the characters of the novel (24; 53; 221; 251).

Thus, Stoker’s vampire has a double life (or un-death) in that he is both a metaphorical transformation of culture-specific anxieties (well-explored in the criticism) as well as a timeless construct crafted to target the human mind in a very specific way (also well-explored in the criticism, but from a Freudian point of view, according to which the fear of the vampire derives from infantile ambivalence toward the mother [Moretti 441]). The latter

---

we have always been the craziest, most murderous motherfuckers in the jungle. And that is what the Pulse exposed” (182).

39 And not, I think, of a combined penis and vagina, as Christopher Craft argues (445-6)

40 According to Harker, Dracula and his minions would continue to multiply “for centuries to come” (53), yet according to a recent article, one single vampire feeding only once a month would, by the laws of geometric progression, have displaced the entire human population with vampires in the course of a few years (Efthimiou & Gandhi).
aspect explains why Count Dracula is scary even today; culture changes rapidly, the mind does not.

5.4.1 Dracula the MCI

Prior to studying *Dracula* in this context, some ten years had elapsed since my last reading the novel, but certain scenes stood out in my mind. These were the scene where Jonathan Harker is shaving and notices that Count Dracula makes no reflection in his shaving mirror (30-31); where Dracula scales the castle wall like a lizard (39), where vampire-Lucy is encountered by the vampire slayers outside her tomb (187-9), and where Dracula materializes to Mina Harker in her bedroom (227-8).

Apart from the last scene, these all feature vampires as conspicuously counterintuitive agents. In the mirror scene, Dracula, it is implied, only partially adheres to the laws of physics. Being a human being (at this point in the narrative, the naïve reader does not realize that the count is no ordinary man), we would expect Dracula to reflect in mirrors; he does not. This makes him counterintuitive. Likewise, in the lizard scene he seems to defy the law of gravity. And vampire-Lucy is a “soul-less” being with whom there is no reasoning; she is no longer sweet Lucy of old, but has become a monomaniacally blood-sucking fiend. As Davis and Javor note, horror stories often feature “menace[s]” which exhibit “depersonalization; i.e. a “soul-less” creature that we can see, such as a zombie or robot or shark or vampire” (6). Such a depersonalized creature is vampire-Lucy, who violates the ontological category of person (as well as the specific person file – “Lucy” – which exists in the heads of the novel’s protagonists and readers) in that she looks like, but no longer is, Lucy. And when she reenters her tomb, the slayers watch “in horrified amazement as we saw … [Lucy], with a corporeal body as real at the moment as our own, pass in through the interstice [between door and jamb] where scarce a knife-blade could have gone” (189) – no mean feat for a human body. Also, and even more strikingly, she is dead. This is the most blatantly counterintuitive property of vampires, and it is one of only two reliably culturally transmitted vampire characteristics (the other is blood-drinking; an unusual activity, to be sure, but not counterintuitive in the technical sense).

Although anecdotal, I think that the sheer memorability of these scenes, and the fact that they focus on the counterintuitive properties of vampires, lends further evidential

---

41 He does not, in fact; Harker replicates his precipitous journey twice – but initially, it seems that way.
weight to the claim the MCI agents are particularly salient and memorable – and vice versa, their focus on MCI features explains why the scenes are, to me at least, memorable. (The last scene, of Dracula entering Mina’s bedroom in a hauntingly nightmarish, suggestively underplayed sequence, makes no elaborate point of the vampire as MCI. In this scene, visibility is close to zero as the room is filled with fog (as noted, a characteristic of much horror scenery), and Dracula’s red eyes are glimpsed through the fog. A serenely dreamlike scene is suddenly perceived to be full of danger. The reader is suspecting menace, certainly, but not suspecting it there and then.)

Stoker provided Dracula with a range of abilities, limitations, and features, only some of which are counterintuitive. For example:

- Count Dracula is dead yet alive
- He can change his shape at will (into bat, wolf, dust, and fog)
- His powers are diminished in sunlight
- He commands a number of animals
- He commands the dead
- He commands the weather locally
- He is unable to enter a home without an invitation
- He is unable to cross running water on his own volition
- He must sleep in his native soil
- He casts no reflection
- He can grow and become small at will
- He produces new vampires (his victims must imbibe some of his blood, and then become vampires themselves only post-mortem)

The truly counterintuitive, ontology-violating properties are the fusing of person/animal categories (shape-shifting), the fusing of animate/inanimate (alive/dead) categories, and the violations of the person category (no reflection, extraordinarily flexible morphology). The rest are merely bizarre traits – and perhaps not surprisingly, ones which are frequently

---

42 The now-traditional notion of sunlight as fatal to vampires was introduced only in Murnau’s copyright-infringing Nosferatu from 1922.
43 According to Van Helsing (209) – in the novel we only see him commanding the un-dead, however.
44 Again, according to Van Helsing (ibid.). We don’t see him doing that, either; but Lucy does contract in the rather striking manner described above.
omitted by other vampire creators. In fact, I think Stoker made his king vampire almost too bizarre (and maybe he sensed this – his working papers reveal that the count was originally intended to have even more odd characteristics, such as casting no shadow, being “insensible to the beauties of music,” and being impossible to photograph or paint [Frayling 343-4]). In compiling this list, I had to go back and check several times; it would be interesting to ask a number of readers to list the characteristics of Count Dracula a week or so after reading the novel. I bet most readers are liable to forget quite a few traits.

The vampire is a highly malleable or adaptable concept, even as its defining “core” characteristics are retained in cultural transmission and adaptation. (In contrast, the zombie seems a much more static horror archetype, perhaps because it is essentially a vampire without the bells and whistles: zombies are undead, mindless, contagious predators. They are not as discerning as the blood-drinking vampires proper, but are, instead, content with the indiscriminate ingestion of live human tissue.) As noted, the vampire changed quite drastically in its transition from folklore to popular fiction, and it has changed even further during its bloody journey through the twentieth century. The vampire can be a frightening, homicidal predator, and it can be a pathetic substance abuser. It can be utterly disgusting and antagonistic, such as Count Orlok in Nosferatu, a suave aristocrat like in Lugosi’s portrayal, and it can be a romantically tragic figure, such as Lestat in Interview with the Vampire. And of course, he can be an irresistibly sexy fellow, as well, like the tall, dark, and handsome version in the Buffy the Vampire Slayer episode “Buffy vs. Dracula.” Of these versions, Orlok is probably the closest to Stoker’s original conception.

Illustration 6: Dracula in "Buffy vs. Dracula."
The modern “core” vampire is probably more or less like the ones in the film *From Dusk till Dawn*. They have standard (or, in the case of the females, above-standard) human morphology by day and change into rather disgusting (corpse- or animal-like) creatures by night; they are equipped with sharp fangs with which they bite their victims, who then fairly rapidly become vampires themselves; sunlight, as well as religious symbols and the ever-present stake, are fatal to them; they evaporate when “killed”; they can metamorphose into bats; and they have superhuman strength. And like in Coppola’s adaptation of *Dracula*, the bestial aspect of the vampire is quite emphasized.

Illustration 7: A vampire from *From Dusk till Dawn*, and one from *Buffy the Vampire Slayer*.

The vampire remains a popular cultural trope as witnessed for example in the critical and popular success story of *Buffy the Vampire Slayer* (dir. Whedon), whose vampires owe more to Stoker than to the Eastern European folklore which preceded Dracula, even as they are made even more animal (often feline) than Stoker’s vampires. Partly, the vampire’s great potential for subtext, its “metaphorical juiciness,” makes it a great vehicle for cultural commentary: the supernatural happenings and monsters of the *Buffy* series, for example, are really metaphors for the obstacles commonly faced by teenagers (“Buffy the Vampire Slayer”). And partly, the vampire resonates eerily with the human psyche. It seems fair to assume that the predation pressure from vampires in the environment of evolutionary adaptedness was negligible, yet the human mind is constructed in such a way that the minimally counterintuitive vampire, with all its predatory ferociousness and attributes, is a salient and memorable cultural unit – utterly unreal as it is.
5.5 Concluding Remarks

More, much more could be said about Dracula in an adaptationist perspective. For example, one could explore how the biological imperative of survival is overruled by the culturally (religiously) dictated importance of spiritual purity or integrity. In a story preeminently concerned with survival, with the checking and annihilation of a predatory threat, it is still better to be dead than to “live on” as a debased vampire, even considering the plentiful opportunities of “reproduction” that a career in undead offers. As Mina Harker says to her husband and friends after becoming infected by Dracula, “[y]ou must promise me ... that should the time come [when she is turning into a vampire], you will kill me” (287). Also, the Darwinian reader might wish to explore the role of honor and social status – both very important issues in the novel, and both intimately linked with reproductive fitness. Or one could examine the issue of gender, and how it is organized in this particular cultural ecology and represented by Stoker. Such considerations fall outside the scope of this investigation, however.

R. L. Stevenson, arguably an early literary Darwinist, briefly discussed in his essay “Pastoral” (1887) the function of romantic adventure stories in an evolutionary perspective. Although couched in vague terms and with little regard for scientific methodology, his account accords with aspects of the Homo Timidus theory of horror fiction. Stevenson’s is an argument in the contemporary dispute over the virtues of realistic versus romance novels; unsurprisingly, Stevenson favored the latter, which he saw as having a deeper resonance with an evolved human nature. As he wrote,

novels begin to touch not the fine Dilettanti but the gross mass of mankind, when they leave off to speak of parlours and shades of manner and still-born niceties of motive, and begin to deal with fighting, sailoring, adventure, death or childbirth … Each has his own tree of ancestors, but at the top of all sits [our evolutionary ancestor]; in all our veins there run some minims of his old, wild, tree-top blood; our civilised nerves still tingle with his rude terrors and pleasures; and to that which would have moved our common ancestor, all must obediently thrill.

Dracula is that sort of adventure story, featuring fights, chases, close calls and near misses, and a hectic race against time. The story makes our civilized nerves tingle with the rude terrors and pleasures of the hunters of wild beasts, I think, and that might explain some of the novel’s death-defying, apparently perennial popularity.

45 Or as the writer and critic Andrew Lang put it in 1886, arguing for the raison d’être of romantic literature: “Not for nothing did Nature leave us all savages under our white skins; she has wrought thus that we might have many delights, among others ‘the joy of adventurous living’ and of reading about adventurous living.” As he said, “[w]e will get all the fun we can out of the ancestral barbarism of our natures. I only wish we had more of it” (102).
Is it scary, though? It certainly is suspenseful. Stoker made good use of dramatic tools in building and maintaining suspense and a suspenseful atmosphere: the Transylvanian locals repeatedly and futilely warn the unsuspecting Harker against going to meet Dracula, thereby ascribing to him some of the awfulness which is later revealed (12-14). The dramatic introduction (Harker’s stay in Castle Dracula) is followed by breezy, everyday journal entries, soon to be polluted by disturbing signs and portents such as the doings of mad Renfield and ghoulish Peter Swales. Unnaturally rapidly deteriorating weather (73-4) and the horrible ramblings of old Swales (66) precede the coming of Dracula to England (Dracula is repeatedly associated with bad weather: his side of the Borgo Pass has a “thunderous” atmosphere [16], and the weather deteriorates dramatically after Harker has entered his calèche [19]). And first and foremost, Stoker lets the reader be perpetually a few frustrating steps ahead of the protagonists, at least until they start comparing notes two-thirds of the way into the story. A level of knowledge higher than that possessed by the protagonists is a very effective dramatic device, an insight which Alfred Hitchcock used to great effect in many of his films. In what has become known as Hitchcock’s Bomb Theory, the master of suspense noted that if two men at a table were talking idly for fifteen minutes and then suddenly blown up, the audience would be surprised, but there would be no suspense. On the other hand, if the audience – and not the characters – knew that a bomb was hidden under the table, set to go off in fifteen minutes, then there would be fifteen minutes of suspense (Truffaut 73).

I think that certain scenes, passages, and descriptions in Dracula are unsettling or harrowing, and a few even outright scary if enjoyed alone at nighttime – for “to be alone is to be full of fears and alarms,” as that Dutch wellspring of good advice, Van Helsing, points out (144). However, it would be absurd to claim that Dracula causes a full-blown fight-or-flight reaction. At the same time, Count Dracula is a creepy operator, and I defy anyone to stand their ground against him in a dark alleyway.

One contemporary reviewer certainly found Dracula scary. He confessed to becoming so engrossed in the story that “we could not pause even to light our pipe.” Having begun reading in the evening, the reviewer noted how at “midnight the narrative had fairly got upon our nerves; a creepy terror had seized upon us, and when at length, in the early hours of the morning, we went upstairs to bed it was with the anticipation of nightmare. We listened anxiously for the sound of bats’ wings against the window …” (Review in Daily Mail 364). Obviously (and disregarding the hyperbole), the poor man’s HADD kicked into
overdrive. This is what good horror stories do: keep us enthralled for the duration of the story, make us fear monsters which are but figments of the imagination, anxiously monitor the environment for predatory monsters, and, as Wilson says, “stay alert and alive in the vanished forests of the world,” even after the theater is vacated, the TV turned off, or the book closed.
6 Conclusion

The occasionally troubled relationship between the “Two Cultures,” which boiled over in the Science Wars of the 1990s, is particularly salient in some strands of contemporary literary theory which deliberately disregard any input which the sciences might offer. The emergent literary movement sometimes known as literary Darwinism, however, is an attempt to bridge the gap between the sciences and the humanities, and that project seems to me worthwhile and promising, even as the approach is still in certain regards underdeveloped.

In particular, some Darwinian readings of specific works of literature are ultimately unconvincing, but at the same time, the approach brings with it new and often startling angles and, more importantly, the potential of consilience, the potential of a literary theory and practice which are consistent with the social and the natural sciences.

The cognitive-evolutionary approach to supernatural horror fiction, which I call the *Homo Timidus* theory, seems to me to embody the most valuable aspects of evolutionary literary study. It is a scientific theory in that it generates testable hypotheses, a few of which are addressed in this thesis. In that sense, it is preferable to the psychoanalytical approach to horror fiction. And it explains why good horror stories generally travel well in time and space, a fact which easily becomes baffling (or ignored) in purely historicist accounts of the genre. By incorporating findings from cognitive and evolutionary psychology, one can explain striking features of the genre otherwise easily overlooked or misunderstood: for example, the ubiquity of animal or animal-like predators in horror fiction seems to reflect an innate tendency to fear such beings. We are evolutionarily “hard-wired” to attend to and retain certain kinds of information, and one such perceptual bias might be the attention that even urban dwellers afford predators. Also, the fact that most horror monsters are modified for maximum attention-commanding potentiality reflects our innate or intuitive ontology in that such “interstitial” beings gain a particular salience as a consequence of their ontology-violating nature.

The *Homo Timidus* approach begins to explain why so many people are attracted to the genre (it may give pleasure as a means of satisfying an adaptive tendency to seek out strong emotion in safe contexts, and it may afford a physiological “kick”), and it explains why the genre, like so many of its antagonists, just won’t die, even as the supernatural is increasingly marginalized in our part of the world. It offers a range of tools and concepts to be used in
further explorations of the genre, and it might even be of value to scholars and scientists outside of literary studies.

I have attempted to apply these speculations in a Darwinian reading of Bram Stoker’s well-known horror novel *Dracula* (1897). Unlike most Darwinian readers, I have disregarded the internal dynamics of the novel, such as the traditional focus on mate selection and status-seeking behavior amongst the characters. Instead, I have focused on *Dracula* specifically as a work of horror by looking at the ways in which Stoker sought to scare and disturb his audience. Following Joseph Carroll’s lead, I have incorporated pertinent aspects of Stoker’s cultural context into my interpretation – as it happens, the very aspects that problematize my reading of Count Dracula as essentially an ancestral predator. Debates about retrograde evolution and atavism were very much in the air in the 1890s, and Stoker may have deliberately crafted his central antagonist to embody such notions. Yet even so, it is conceivable that the vampire evokes in his readers an unconditioned aversive response by triggering their innate predator-avoidance mechanisms.

I have considered Stoker’s Count Dracula as a counterintuitive agent, noting that he incorporates features from distinct ontological categories, a fact which makes him (and his conspecifics) particularly attention-demanding and interesting. The vampire, which appears to rise from graves all over the world, is a powerful figure, and not just as a metaphorical vessel of contextual fears, anxieties, and desires, but as a literal, predatory presence.

The thread running through what may occasionally seem a profusion of sometimes disconnected ideas and speculations is that supernatural horror fiction is crucially dependent on evolved properties of the mind. The fictions we produce and consume reveal quite a bit about our nature, and the apparently perennial appeal of scary stories with supernatural elements seems to me a fairly clear indication that, to paraphrase the science writer William Allman (35), our modern skulls house Stone Age minds still.
7 List of Sources


Block, Ed, Jr. “James Sully, Evolutionist Psychology, and Late Victorian Gothic Fiction.” 


  <http://www.totalfilm.com/features/the_total_film_interview__david_cronenberg>.
  Retrieved 11 June 2007
  <http://aleph0.clarku.edu/huxley/CE9/E-E.html>.
Huxley, T. H. “The Struggle for Existence in Human Society.” *Collected Essays* IX. *The


University of Minnesota, Minneapolis, MN., 2002. 17 March 2007


