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# On the Limits of Culture: Why Biology is Important in the Study of Victorian Sexuality

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ON THE LIMITS OF CULTURE: WHY BIOLOGY IS IMPORTANT IN THE STUDY  
OF VICTORIAN SEXUALITY

by

ROBERT BURNS

Under the Direction of Paul Schmidt

ABSTRACT

Much recent scholarship in Victorian studies has viewed sexuality as historically contingent and constructed primarily within the realm of discourse or social organization. In contrast, the following study details species-typical and universal aspects of human sexuality that must be adequately theorized if an accurate model of the ideological forces impacting Victorian sexuality is to be fashioned. After a short survey of previous scholarly projects that examine literature through the lens of biology—much of it marred by an obvious antipathy toward *all* attempts to discover the involvement of ideology in human behavior—this study presents a lengthy primer to the modern study of evolutionary psychology, behavioral genetics, and human sexuality. Because the use of science is still relatively rare in literary studies, the first chapters are designed both to convince the reader of the necessity of considering biology and evolution in examining human sexuality, as well as to provide the general educated scholar in our field with the basic framework of knowledge necessary to follow the remainder of the text. Chapter three follows with a detailed examination of the sources of the political resistance to biological and genetic models of human behavior within liberal arts and social science departments, and chapter four presents an evolutionary and biochemical model for the

apprehension of art that locates the origins of culture within the evolutionarily-fashioned brains of individuals and attempts to recuperate the concept of aesthetic emotion and foreground the special nature of erotica in its ability to produce immediate neurochemical effects in the brains of its consumers. Finally, the study examines works of Victorian literature, especially My Secret Life, to demonstrate the deficiencies in constructionist and interactionist theories of human sexuality while detailing the new readings that emerge when one is aware of the biological basis of human mate selection mechanisms.

INDEX WORDS: Evolutionary psychology, Behavioral genetics, Human mate selection mechanisms, Human mating behavior, Victorian marriage novels, Victorian pornography, Victorian erotica, My Secret Life, Thomas Hardy, Victorian sexuality, Biology and literature

ON THE LIMITS OF CULTURE: WHY BIOLOGY IS IMPORTANT IN THE STUDY  
OF VICTORIAN SEXUALITY

by

ROBERT J. BURNS

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of  
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ON THE LIMITS OF CULTURE: WHY BIOLOGY IS IMPORTANT IN THE STUDY  
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## FORWARD: A CAUTIONARY TALE

Although Richard B. Freeman, the organizer of the National Bureau of Economic Research Conference on Diversifying the Science and Engineering Workforce, had asked Harvard president Lawrence Summers to be controversial in his remarks to the fifty attendees who had been invited to the private affair, no one could have foreseen how spectacularly successful Summers would be in this regard. Indeed, by the Monday following his extempore comments at the Friday, January 14, 2005, conference, Summers found himself firmly ensconced in the national news for his speculations about why fewer women than men are represented at the top ranks of science in the United States. Nor did the furor die down quickly enough for Summers to save his job, for despite an immediate and extremely contrite letter of apology to the faculty, he shortly thereafter received a “no confidence” vote, and early in 2006 he announced his resignation. Summers’ lecture pursued several points, but the two that seemed to create the most dissension involved the availability of qualified female hires at the high end of the science and engineering market. Summers certainly made few friends in the audience with his assertion that discrimination at the hiring level doesn’t make a very persuasive explanation for the disparity, though his logic, in terms of economics, was unimpeachable. Summers’ point was simple: given the massive amounts of funding spent on minority recruitment by the top universities in America—Harvard’s new program is funded by a fifty million dollar grant—there must be only a small pool of

well-qualified individuals or else the schools involved would be having greater success. Also, in logic especially obvious to the economist, such discrimination in the highly competitive hiring market would have encouraged at least a few schools to assemble faculties with a far larger proportion of highly qualified minority hires at lower starting salaries in order to have lower overall costs.

Because they were made by one of the most respected economists in America, Summers' comments would probably have created nothing more than a few articles in the local paper, but he also speculated *why* there might be fewer female scientists available to hire, and here he forwarded the possibility that there is "a different availability of aptitude at the high end." There's certainly nothing new in the "more idiots/ more prodigies" thesis regarding human males, which seems to be true even in areas outside the reach of cultural forces, so Summers wasn't speculating wildly. Applying the preceding concept to this particular problem, Summers pointed out that although males and females as a group have the same average scores on math tests males dominate either end of the performance spectrum. In other words, far more boys than girls miss all the questions on the math portion of the SAT, and far more boys than girls get all of them right. Therefore, if extreme proficiency in math is a good predictor of extra-high competency in science and engineering—which Summers and many others think is the case—then the pool of candidates qualified to be hired at a school of Harvard's caliber will be skewed heavily in the direction of men.

As Summers soon learned, basing a public policy argument on a concept as abstract as standard deviation is never a wise course of action, nor did it help that he went on to assert that "there is reasonably strong evidence of taste differences between little

girls and little boys that are not easy to attribute to socialization,” no matter how strong—and it is at the very least “reasonably” strong—such evidence is.<sup>1</sup> And only the very bold or very stupid would stand in front of a room full of feminists and tell a story like the one he told about his twin daughters who, when given toy trucks in an effort to raise them in a non-gendered fashion, exclaimed, “look, daddy truck is carrying the baby truck.”

Ultimately, then, Summers perhaps has a tin ear, but the real question should involve his use of science and whether or not there are, indeed, “issues of aptitude, and particularly of the variability of aptitude” that affect the presence of females in the science and engineering professions. As the drama unfolded, it became clear that Summers had actually read a lot of the science involved in the issue—which is understandable since one of the leading luminaries in the field, Steven Pinker, worked underneath him at Harvard—and that a good deal of the science supported his position. Therefore, he must have been especially nonplussed by the ferocity of his opposition over the coming weeks.

And ferocious the opposition was. Individual after individual rose to voice his or her strong disbelief and indignation that President Summers could have posited such a grossly sexist concept in these enlightened years of the early twenty-first century. Most striking was that, as usually happens in public debates of this sort, what Summers actually said mattered little. Based on the early, erroneous reports of offended attendees published before the transcript became available, the debate was inevitably about “innate ability,” a phrase which Summers carefully avoided and which mischaracterizes his

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<sup>1</sup> See, for example, Doreen Kimura’s “Sex Differences in the Brain,” where she concludes that “the finding of consistent and, in some cases, quite substantial sex differences suggests that men and women may have different occupational interests and capabilities, independent of societal influences” (125). Also see Eleanor Emmons Maccoby and Carol Nagy Jacklin’s classic *The Psychology of Sex Differences*. Anne Fausto-Sterling unsuccessfully attempts to discredit the latter in her *Myths of Gender*, and Robert Storey dismantles Fausto-Sterling’s argument with devastating effectiveness in *Mimesis and the Human Animal* (see especially pages 22-24).

point.<sup>2</sup> Another notable aspect of the debate was that many of the loudest critics must have known, from having read the scientific literature themselves, that Summers' speculations were not beyond the pale of current belief in the field of cognitive psychology. The debate over the actual significance of sex-based differences is still underway, but even the vocal critic of sex-based differences Nathalie Angier, a New York Times science writer, had to admit in an article coauthored with Kenneth Chang that “researchers who have explored the subject of sex differences from every conceivable angle and organ say that yes, there are a host of discrepancies between men and women—in their average scores on tests of quantitative skills, in their attitudes towards math and science, in the architecture of their brains, in the way that they metabolize medications, including those that effect the brain” (“Gray Matter”). No one really knows yet what all these differences mean in terms of function, but the substantial differences in cognitive architecture seem directly related to what researchers Irwin Silverman and Marion Eals describe as “the near universality of sex differences in spatial abilities across human cultures” (533).<sup>3</sup> It is not unreasonable, then, to conjecture that some sort of sexual dimorphism in the human brain might be related to different distributions of mathematics competency in human populations. No one, not Summers, not even a hard-liner like Pinker, is saying that sex differences are invariably present in the populations of all males or all females—after all, many individuals will inhabit the statistical center of the scale, or even the wrong pole entirely—but in statistical terms,

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<sup>2</sup> My favorite headline came from an article by Suzanne Goldenberg in the Guardian in the UK: “Why Women Are Poor at Science, by Harvard President.”

<sup>3</sup> This is one of the best documented and most researched areas of sex-based cognitive dimorphism in humans, and I will argue later that there seems to be an evolutionary dimension to the difference. For additional surveys of the literature see Gaulin and Hoffman; Kimura and Hampson; and Linn and Peterson.

and statistics is after all the language of science, such differences repeatedly show up in carefully designed test after carefully designed test.

Also, however, many of Summers' critics espoused opinions that must have been contradicted by their own experiences as parents of boys and girls. I'll admit up front that I don't have any first-hand experience at raising children, but in my lengthy career as a social constructionist—when I would go about vocally dismissing all innate differences between males and females and insisting that we might just as well classify humans by hair color or height—it was always parents who objected the loudest. Nor were these always the uneducated or ideologically unaware, for, in private conversations, many of my colleagues of the most avant literary-critical stripe affirmed that their kids, depressingly enough, seemed to arrive already as boys and girls. My delightfully and recalcitrantly hippie cousin, indeed, even had a book on “raising the baby ‘it,’” a seventies liberationist guide to avoiding gender indoctrination, but all to no avail; the boys immediately were typical boys, and the girls typical girls.<sup>4</sup>

In America, however, we have a tradition of public discourse that focuses on how the world ought to be, not how it actually is, even if that requires a bit of trimming in between the public and private. Summers' real crime, then, was one of context. In a hallway conversation with a colleague, his story about his daughters would have been met with a smile of commiseration at the apparent failure of his parenting plans. And, as Steven Pinker was quick to point out in an interview with The Harvard Crimson, at a conference of scientific psychology Summers' speculations about sex differences would have been fine, sparking genuine intellectual debate rather than outraged posturing

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<sup>4</sup> I, too, will try to raise my children—if I have them—to be as ambiguously gendered as possible, but from the experience of all of my friends who have attempted the same thing, I'm pretty sure that their innate disposition will be the chief determinant of whether or not I am successful.

(“Psychoanalysis Q-and-A”). I have titled this brief introduction “a cautionary tale” because I realize that in pursuing so avidly—for many years now—the subject of evolutionary psychology, human behavioral ecology, behavioral genetics, and literature, I am, in many regards, working in the wrong context, for much of contemporary literary criticism holds the opposing view about innate human characteristics, preferring instead to see cultural and social forces at the root of all human behaviors. I, too, see cultural and social forces involved in all aspects of human behavior, and see myself as working within a well-established critical tradition that recognizes the role of ideology in the very act of subject formation. Still, as I will argue in the coming pages, I believe that ideologies always arise in a circular economy with biological and genetic forces, and that neither can be considered as an independent, essential entity. I am not claiming to be first on this turf, for a handful of brave souls have preceded me, but as a discipline of criticism, “literary Darwinism,” as it has unfortunately been termed, is chaotic, unformed, and barely recognized.<sup>5</sup> Furthermore, much work within the field displays a damaging antipathy to critical pronouncements about ideology and its role in the shaping of subjectivities.

Like any product of an emergent criticism, what follows will no doubt be a good deal messier than a tightly crafted essay written in a mature paradigm like New Historicism or Post-Colonialism. I started out with a simple premise: to apply recent insights about the behavioral chemistry of human reproduction to strategies of human mating as illustrated in Victorian pornography and other Victorian texts. Years later, I am admittedly only part way into a fascinating project that presented new complications

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<sup>5</sup> See my introduction ahead for a comprehensive survey of extant works in the field, all of which were completed by a small band of intrepid scholars, most of whom had probably already achieved tenure status by the time of their unfortunate fall into heresy.

at almost every turn. In the end, however, I hope that I have created a document that is consistent with the intellectual and methodological concerns of a wide variety of disciplines, from biology, genetics, behavioral ecology, and cognitive psychology to literary studies, anthropology, and history. I do have specific lines of argument that I will follow, which I will present in the next section of the work, but I must admit that part of my goal here is to show non-biologists and non-scientists why biology and cognitive psychology matter in the study of literature. To this end, the initial chapters will be aimed at introducing a number of concepts that will be unfamiliar to many of my readers, and I hope that my work will serve as an effective introduction to a body of knowledge that will undoubtedly be of ever increasing importance to literary scholars in the future.



## INTRODUCTION: HOW I ARRIVED AT MY CURRENT PROJECT

I have spent most of my academic career as a staunch social constructionist, and there will be no mistaking the fact that my entire dissertation is a conversion document of sorts. One curious characteristic of conversion tales is the exaggerated exposition of one's previous crimes—witness the creepy ex-gays who boast about how many guys they blew in the park each night before they “found Jesus”—but I am not exaggerating when I affirm my once unwavering belief that the entire categories of male and female were nothing more than clever fictions intended to conscribe human behaviors into socially productive and politically unthreatening avenues. Indeed, I was quite impatient with those who seemed so ideologically unaware that they couldn't comprehend the artificiality of the male/ female dichotomy that conveniently, for men that is, derogates women into the weaker and domestic sphere. All of this thinking followed quite naturally from my political ideals (many of which I still hold) and from my earlier education, during which, as an undergraduate student of the “professional” sort, I took extensive class work in both anthropology and history and had as idols men like Clifford Geertz and Hayden White. My smugness was sufficient that I would chuckle right along with the in-crowd when my Shakespeare instructor, Dr. Peter Herman--himself a disciple of David Kastan--skewered poor high school teachers returning for summer classes when they were foolish enough, in a class on Shakespeare's tragedies, to make comments about Shakespeare's skillful explorations of human nature. After all, hadn't New

Historicism and its British cousin, Cultural Materialism, totally demolished the concept of a human nature that exists in any even remotely transhistorical sense? Rather, human behavior is yet another cultural text that must be studied in a minutely historicized context, for what seems inside an individual is, in the words of Judith Butler, “irretrievably outside.” I once enthusiastically held this position, which completely dismisses the involvement of biology, genetics, or evolution in the way that people behave, feel, or perceive the world.<sup>6</sup>

This entire set of beliefs unraveled when I began examining the chemical basis of love for a discussion of love for Valentine’s Day in a freshman composition class. It’s not as if I was perfectly fine one day and the next day I woke up and Alan Sokal was my hero, for in truth my explorations were quite gradual and tentative, and I resisted strongly along the way.<sup>7</sup> I had for some time been vaguely aware that love was largely a chemical reaction in the brain, for Dr. John Hannay had insisted so in an honors symposium on science and literature that I took as an undergraduate; but I always assumed that such base biological motivators were so overdetermined and articulated through cultural forms and channels that it was meaningless even to speak of the biology involved or to contemplate the possibility that people in the past experienced the same sort of love that we do today. I certainly had critics to back me up, for love, in many academic circles, had become a relatively new invention, not quite as new as homosexuality but not that much older, either. Never mind that I could read my favorite Medieval lyric, “Alison,”

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<sup>6</sup> Butler’s statement, in its entirety, is: “I am suggesting that this self is not only irretrievably ‘outside,’ constituted in social discourse, but that the ascription of interiority is itself a publically regulated and sanctioned form of essence fabrication” (“Performative Acts” 279).

<sup>7</sup> Alan Sokal wrote the famous and brilliant hoax “Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity.” Stanley Fish, on the editorial board of Social Text, which published the essay, naturally described it as a “bad joke.”

and discover a description of love that *exactly* fit my experience of it: “Nihtes when I wende and wake,/ For-thi myn wonges waxeth won,/ Levedi, al for thine sake/ Longinge is y-lent me on.” In retrospect, it is difficult to reconcile my former beliefs with the way that I read and loved literature—on a very direct and physical level. Had I thought about it, I would have realized that my experience of “Alison” required a near-miraculous coincidence for the anonymous author around the year 1300 to have arrived at a culturally-scripted “love” that so closely mimicked my own, yet in an almost entirely pre-industrial and pre-capitalist society. Somehow I willingly suspended disbelief and continued a pragmatic personal use of literature that sought connections and universals at the same time that I sought a politically actionable theoretical paradigm that denied the very source of my love of literature. I am willing to bet that many modern students of literature have found themselves in a similar position.

My discovery that human biology scripted a remarkably stable experience of romantic love—a biology that crosses species, even—created a corrosive acid that dissolved much of my formerly cocky critical swagger. Like most of my peers, I was completely unaware that scholars from a dizzying array of other disciplines, many of which I’d never heard of before, were examining the same subjects—from human sexual behavior to political economies to artistic creation—that concern us in the up-to-date humanities department, yet approaching their work within an empiricist and scientific tradition that yielded extremely significant discoveries.<sup>8</sup> Although I consider myself still

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<sup>8</sup> Several personal factors have encouraged me to attempt the synthesis that I am aiming for here. For starters, all of my early training was in science; I entered college as a physics major and was throughout my earlier schooling the sort of math and science wiz that people in the humanities make great fun of. Not only that, but my father was a plant physiology professor for the University of Georgia, so I grew up constantly doing science projects and recognizing the scientific method as the surest path to actual knowledge (though I’ve discovered, depressingly enough, that many of my peers in the humanities can’t even describe the scientific method to me at the same time that they loudly pronounce their surety in the

in motion when it comes to professing a theoretical orientation, a few things are now evident to me, primary among them the fact that “culture” is not even remotely an autonomous entity, as is often assumed by many of the most popular schools of literary criticism today. Such reductionism in the social sciences is easily as misguided as the much-ridiculed reductionism practiced by the Skinnerites last century. Indeed, I will argue that it is impossible to speak of culture without also speaking of biology. At the most basic and profound level, biological processes shape almost every aspect of human behavior, from completing the most mundane tasks to dreaming of the most audacious feats, and the psychology of human organisms is inextricably bound up in the purely biological conditions governing their survival. Moreover, many of the psychological mechanisms involved have a clear genetic component, and therefore it seems entirely reasonable to look backward into human evolution to discover their origins, just as the relatively new field of evolutionary psychology encourages us to do.<sup>9</sup>

The biological substratum underwriting human experience and communication is significant enough to inform an entire dissertation-length exploration of the connections of biology and literature simply through detailing the biological component of human artistic endeavor, but I intend to proceed into a far more interesting topic to me, for I am particularly fascinated by the way that culture is often fashioned in response to biological imperatives and universal “content-dependent” psychological mechanisms that exist primarily at the level of the individual (like, for example, sexual jealousy or the strategic

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falsehood of anything arrived through it). Even more useful in my current studies, as an inveterate plant and animal breeder, I have studied genetics to the point that it is remarkable that I never thought to apply my insights to humans, whose behavior I always partitioned into the world of “culture.”

<sup>9</sup> The reader within the field of literary criticism will notice right off that I am committing a host of grievous critical errors—essentialism and presentism chief among them—but I hope that my discussion throughout the first several chapters will be comprehensive enough to at least soften the blow of my bad critical taste.

pursuit of extra-pair copulations, both of which I will discuss at some length in chapter two).<sup>10</sup> In the odd, emergent economy between culture and biology, the two are inseparable, for the history of philosophical, religious, and literary thought displays a great tension between the behaviors that humans instinctively follow and the behaviors that the various authoritarian regimes of culture attempt to impose upon their subjects. Through it all, of course, biology usually has the upper hand. The meek won't inherit the earth, at least not under any possible scenario that I can play out in my head, and, given sufficiently comely looks, the neighbor's wife will always be coveted by the dude next door.<sup>11</sup>

The increasingly complex societies created by humans over the past few thousand years have necessitated new rules and new behaviors, however, even as the genetic and biological inheritance humans share stays much the same as it was for our hunting and gathering forbearers in the Pleistocene era 100,000 years ago, and culture exists as a surprisingly effective means of articulating and shaping human behaviors into acceptable modalities within ever-changing systems of economic production and human reproduction.<sup>12</sup> As will become clear, cultural critics do have one thing very, very right,

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<sup>10</sup> Humans have monogamous tendencies regardless of the culture studied—even though the majority of cultures (87% of those in the HRAF) also exhibit polygyny, primarily when male resource allocation allows the support of multiple mates. “Extra-pair copulations” simply refers to sexual opportunities outside the primary pair bond that an individual might be in.

<sup>11</sup> I do not mean to ignore here the fact that genes and cultures often co-evolve, so that something like lactose tolerance, for example, evolves into a population according to whether or not they raise cows and consume milk. For a great non-mathematical model of co-evolution, see W.H. Durhams's Coevolution: Genes, Culture, and Human Diversity. To see an example of the dense mathematics usually involved in Theoretical Population Genetics—the discipline such studies are usually pursued under—see “Gene-Culture Coevolutionary Theory” by Marc W. Feldman and Kevin N. Leland.

<sup>12</sup> This is a simple fact; activities that may have proven adaptive in past environments of evolutionary adaptedness—that is, activities that once conferred fitness benefits on the individual pursuing them—often become maladaptive as human technology alters the fundamental relationship between human organisms and their environment (witness the universal human love of fat and the modern problem of obesity). I realize that all expressions positing a central role for culture in the shaping of human behavior have been dismissed as “neo-Freudian” by recent scholarship, and, finding not all that much in Freud that inspires me,

for cultural productions are indeed both ideological and localized, yet when examined with a biological eye inevitable commonalities appear, and my study will attempt to negotiate between the local and the global—in this case biological and inherited—to prove the inseparability of the two. The sorts of Victorian literary works that I am interested in, everything from pornography to marriage manuals and novels, will demonstrate the inescapable reach of biology and evolved human psychological mechanisms, and I hope to show how current readings are enriched when one takes into account both culture *and* biology. I will also, betraying my past as a political critic, demonstrate that a more accurate depiction of the political work that culture attempts and accomplishes is possible when one looks beyond the usual suspects—capitalism, Colonialism, sexism, phallogocentrism, heteronormativity, etc.—for explanatory paradigms and considers instead how all of these institutional pressures arise in dialogic fashion with evolved human biology and psychology. Most of all, however, I hope to achieve the sort of interdisciplinary synthesis that will allow the political insights of contemporary literary criticism to withstand and actually be enriched and strengthened by the onslaught of scientific knowledge that is even now appearing in these days of sophisticated genetic research.

As a secondary theme, I would like to examine how the Victorians—in a process ongoing today—failed accurately to represent sexuality in general and female sexuality in particular, for such a discussion is vital to understanding the ideological importance of a whole host of Victorian works. The first inescapable conclusion one reaches when

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I of course would hate to be painted with this wide brush. If I were to try to defend myself, it would be to point out that my model of culture isn't necessarily "repressive"; instead, I view culture as a network of beliefs through which the desires of individuals are deployed in a manner that generally tends to enhance individual reproductive fitness.

studying reproduction through a biological lens is that female humans, far from being the passive participants that they were considered to be in the standard Victorian view of biology, and even still are to some extent today, actually control the reproductive process, right down to the egg, which is physically involved in conception through the secretion of a chemical that attracts and entraps sperm (Small 122). Not only do human females control sexual access, but they also possess a host of psycho-physiological mechanisms that determine the success males achieve at fertilization, from the timing of inter-copulatory orgasms that decrease fertility to the occurrence of copulatory orgasms that aid in conception.<sup>13</sup> As I will show later, human females indeed possess a striking range of tactics that confuse and subvert male control of the reproductive process.

Nevertheless, because human infants are incredibly helpless—even monkey babies can grasp their mothers to hold on, which human babies can't—it seems very likely that human males have made substantial parental investment in the raising of human young for the past several hundred thousand years, which often sets the interests of females and males at odds, for the human female desires sperm from the highest quality mate available as well as dependable material support to help her raise her offspring, and often the two do not involve the same individual (indeed, DNA testing consistently reveals that up to thirty percent of children worldwide are being raised by men who think they are the fathers but really aren't, and the general figure in the U.S. is considered to be around ten

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<sup>13</sup> Intercopulatory orgasms are those, often achieved through masturbation, that occur between copulations. I suspect that human females also give vocal and physical cues that encourage males to ejaculate, thus further controlling the process. Research, for example, has demonstrated that Barbary macaque females give vocal signals that encourage, and are often necessary for, male ejaculation (see Ute van den Bergh and Jürgen Lohmann). To my knowledge, such research has never been done on humans, though it seems reasonably straightforward if one were to find a sufficient number of couples willing to be videotaped in coitus. Nevertheless, some factors like vaginal contractions, and perhaps even facial flushing, would have to be assessed using more sophisticated methods.

percent).<sup>14</sup> As all plant breeders know, *mater est certa*, yet *pater* is often quite uncertain, especially given the female human traits of hidden estrous and selective promiscuity.<sup>15</sup>

As feminist primatologists like Sarah Blaffer Hrdy and Merideth Small have argued, it is inevitable that natural selection would work on female sexuality as intensely as male sexuality, and the very anisogamous nature of humans—that is, with radically different sized gametes—suggests distinctly different evolutionary pressures on males and females. I have argued above that culture and its concomitant productions betray a great anxiety about what actually happens within the arena of innate biological and psychological mechanisms, and I see female sexuality as the key to many vexing questions about human ideological endeavors. A key to my argument is my belief that human males have a general desire to allocate their resources to their own offspring, and I trust that my lengthy discussion in chapter one will provide a convincing demonstration as to why. For now, however, I will simply point out that such a desire would be expected as the inevitable outcome of selection pressures working at the level of the individual where the determining mechanism is differential reproductive success (in other words, the genes that have remained prevalent in the gene pool of modern humans are the ones leading individuals especially to value the support of those who are the closest to one in terms of genetic relatedness, a proposition that, as I will show later, has plenty of physical evidence supporting it). How, then, did selection pressures shape human males

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<sup>14</sup> See Baker and Bellis 199-200.

<sup>15</sup> My propositions here may create confusion since I have yet to discuss the distinction between proximate and ultimate mechanisms shaping human behavior. I will be discussing these concepts at great length later, for they are central to my argument, but here is a quick explanation. When I eat French fries, the proximate mechanism involved is an enjoyment of salt and fat, though the ultimate mechanism behind my taste preferences is a system of gustatory desires shaped through evolution that arose to seek and enjoy two things that were essential for human life but less plentiful in the environment of evolutionary adaptedness (salt and fat). Indeed, as chapter one will demonstrate, almost every facet of our apprehension and appreciation of the world involves ultimate mechanisms.



to deal with the disparity between female and male interests, a competitive game where females held the strongest cards and actively attempted to subvert male desires?

One way was physical. In addition to plunger-shaped penises designed to help dislodge previously existing semen in the vaginal canal, human males developed relatively large testes able to produce lots of sperm in order to compete with other males, and even, it seems, different types of sperm in the ejaculate that function differently within the cervix and cervical canal to aid in the process of sperm competition.<sup>16</sup> Indeed, selection pressure even developed counter strategies to larger sperm quantities, so that the last portion of male ejaculate is actually spermicidal, and coagulates into a semi-soft vaginal plug clearly designed to discourage sperm from a subsequent partner from reaching the ovary. Moreover, human males possess their own psycho-physiological mechanisms, and adjust sperm quantities according to how much time they either have or haven't been with their partner since the last copulation, presumably because that is a possible determinant of possible cuckoldry and consequent sperm competition.<sup>17</sup> Males also developed a host of undesirable behavioral practices that appear to rely on content-dependent—thus virtually universal—psychological mechanisms, including a proprietary attitude towards females, sexual jealousy, and the practice of claustration.

Human males also, however, have almost universally gotten in charge of culture, and as any feminist critic will tell you, the patriarchal ideology thus engendered may be the most powerful weapon in their arsenal. One striking feature of patriarchy is that is

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<sup>16</sup> Sperm competition simply refers to the process that occurs when the ejaculate of more than one male is inside the female partner's reproductive tract. Although long studied in other animals, human sperm competition research owes the most to British researchers Robin Baker and Mark Bellis. The difficulties involved—collecting thousands of condoms full of ejaculate, all collected from couples pursuing normal reproductive behavior, and then analyzing the contents—has discouraged attempts to replicate their findings about functional differentiation of human sperm types, though the data collected by Baker and Ellis is quite impressive.

<sup>17</sup> Also Baker and Bellis, though this has been replicated by others.

nearly universal, a curious fact not explained by cultural anthropology, with its obsessive interest in cultural differences, and a cultural feature demanding a more careful explanation. Males didn't all get together in the past and collectively collude against females—a logical absurdity—but given their intense interest in controlling the reproductive strategies of females, the tendency was for males to take advantage of their sexual dimorphism in terms of size and general role as the greater provider of both sustenance and defense in order to create cultural and social institutions that favored their own goals.<sup>18</sup> What I am proposing is that an awareness of the evolutionary significance of inter-sexual competition between human males and females illuminates both a motivation and a mechanism for patriarchy, something that heretofore has been missing from the culturalist paradigm, which tended to look at material practices like capitalism for explanatory cues (a view which ignored the existence of patriarchy throughout societies exhibiting all modes of economic production).<sup>19</sup> As I will demonstrate in the final chapters of my work, my belief that patriarchy at least partly emerges from male anxiety over the lack of control of the female reproductive process, an anxiety firmly rooted in evolved and innate psychological mechanisms, is strongly supported by the texts that I have chosen to discuss, not only in the prescriptive force of marriage manuals

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<sup>18</sup> The division of labor by sex is one of a lengthy list of human universals. On this, see Donald E. Brown's Human Universals. The attempts at male control are, of course, still ongoing. See, for example, Sarah Blaffer Hrdy's brilliant evolutionary analysis of Republican senator Rick Santorum's anti-abortion rhetoric on the floor of the Senate. Hrdy concludes: "Like other high-status male primates before him, he was intent on controlling when, where, and how females belonging to his group reproduced." See Mother Nature 5-6.

<sup>19</sup> Please note that I am not saying that patriarchy is natural or inevitable or the way things should be, for I am as happy as anyone that patriarchal structures are being interrogated and dissolved in our own period of post-industrial late-capitalism. Nevertheless, I am arguing that the fullness of one's view of patriarchy grows when it is seen through the lens of evolution and biology and that a more accurate view of patriarchy could prove politically useful in future theoretical projects. I do, however, recognize the perceived political negatives in postulating a biological basis for things which one dislikes, and I refer my reader to chapter two ahead, which will discuss the politics of sociobiology, behavioral genetics, and social constructionist criticism.

like Happy Homes and How to Make Them but also in the obsessive sexual desires of pornographic narratives like My Secret Life. Also, the reader's understanding of the ideological projects of these works will be infinitely more comprehensive when these texts are viewed alongside an awareness of the evolutionary origins of patriarchy and the peculiar range of institutional pressures that that origin has brought about.

As my colleagues know, I have been hanging out in academic circles for quite some time now, so I'm fully aware that certain readers will completely resist my project to bring science back into the discussion of sexuality and the subject. For starters, science doesn't have a very good reputation in humanities departments, in part, truthfully, because scholars in the humanities don't really understand it, but also because science, in its earlier days, was frequently commandeered by decidedly regressive social and political forces. The misogynistic, patriarchal male scientists of the nineteenth and early twentieth century make very easy targets, and many of them will show up later in my study, but earlier literary critics weren't all that ideologically aware either, and the same ideological self-examination that occurs regularly in the humanities is also a routine part of science these days, too. Still, I know the criticisms already lined up against me, conveniently pre-packaged into vague normative categories like "essentialism" or "objectivism" which, to belong to the really *au courant* circles, must be delivered with a slight hint of distaste in one's voice. In contrast, I find much to be gained in proposing a criticism that follows the course of replicable sensory data, arranged into logical, explanatory constructions, then tested and retested—in short, the scientific method—over the near theological leap of faith that so much of the sophistry of modern critical theory requires.

I realize that my biologically-oriented view of human culture and behavior will be dismissed as ignorant and untenable by certain readers, and I will you a brief story to explain my certainty of this fact. At a recent out-of-town academic conference, I was discussing my current research into biology and behavior with a friend (and colleague). I listened to her objections with patience, and was both in complete agreement with the political desires she expressed and very sympathetic to her practice of queer theory. But when I countered with a string of scientific discoveries supporting my own intellectual position, her dismissive response typified a particular mindset widespread in humanities departments. I am paraphrasing now, but it went something like: “I don’t believe science at all, for it’s just another ideological construct, and I don’t think that observations or the senses can tell us anything about the world or be used to predict future physical events.” My response was simple; I picked up my jacket and dropped it on the floor. “I can tell you with certainty,” I countered, “that when I let go of my jacket it will hit the floor, and furthermore, that it will drop with a speed that can be predetermined every time given the laws of gravitation and the consistency of wind resistance on the way down.” “No,” she responded. “One time when you let go of it, it will fly up to the ceiling.”

Now I am sure this colleague is at least as intelligent as I am, and quite possibly more so, nor was she likely to have been drunk since the cash bar was yet to open (we were, indeed, twenty feet from the door waiting for it to open). This is why I use the term “near theological” above, for the leap from critical dogma to outright miraculism is obviously shorter than one might ordinarily think. John Henry Newman had marble statues crying real tears, and modern critical theorists have jackets flying upwards to the ceiling. I’ll pass on both. Still, as a part-time student of the philosophy of science, I

could have pointed her in the direction of further reading so that her argument could have had enough of a veneer of intellectual respectability to fly in friendly company, and many of the thinkers she could have referenced are involved in my study, even if I will be opposing them. In a discussion that's already going to tax my reader's patience by attempting to assimilate a vast range of sources—the price one pays for interdisciplinarity—I'm not going to delve too deeply into the philosophy of science here, but a few points will help ground my own discussion better in the current discourse about science occurring in humanities departments. The proponents of scientific theories of the “inverse-gravity-levitating-jacket” sort do have their advocates, and one imagines that even Foucault, that general purpose thinker of everything in current scholarly discourse and avid debunker of scientific pretensions, would laud the radically localized nature of such thought. But a logical name for my friend to have dropped into her argument would have been that of Thomas Kuhn, who argued against the realism and objectivism he discovered in Karl Popper's The Logic of Scientific Discovery. Kuhn, whose theories have aged with a distinct “new age” patina, doesn't get quoted all that much within the scientific community, but he is often cited by those in the distant fields of literary and cultural studies where scientific rigor is less valued.<sup>20</sup>

Kuhn pursued a strategy that is well known to critics of science and rationalism; as the second chapter of my dissertation will show, his case is not unlike that of Stephen Jay Gould, another thinker who has been relatively uninfluential within the science

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<sup>20</sup> Of course these scholars also know the least about science (and are the very same scholars, actually, who believe that the Heisenberg Uncertainty Principle has “disproved” science—see note 21 below). Kuhn is, however, sometimes used by scientists pursuing political goals, and, fittingly, the great defender of group selection theories, Eliot Sober, along with his co-author David Sloan Wilson, uses him in their work Unto Others. I'll discuss this work more in chapter three since the question of individual selection verses group selection (renamed multi-level selection to make it more palatable, much as creationism became “intelligent design”) is a fascinating and significant area of discussion concerning the politics of evolutionary theory.

community but widely quoted outside of it (or, as I will show, often misquoted, for Gould's own intellectual honesty fortunately kept him from veering too widely from the very adaptationist paradigm that he is usually credited, at least by humanities scholars, with destroying). Kuhn's great advantage, like Gould's, was that he was a brilliant writer, brilliant enough, indeed, that his exaggerations of Popper's philosophy seemed perfectly fair when couched in his own persuasive rhetoric. Popper, of course, realized that scientific revolutions often radically re-write what comes before, but viewed this process, rather than a refutation of the scientific method, as the very proof that the scientific method allowed self-correction, growth, and an increased fidelity to physical truths (it will become clear that I am, for better or for worse, generally Popperian in my view of science). But by exaggerating his opponent's position, then in reverential tones proclaiming the daring originality of his own, Kuhn started a cultural—as opposed to scientific—revolution that is still underway. Not only has his terminology become part of everyday speech, especially the inescapable phrase “paradigm shift,” but he is often cited as having proven—due to his insistence on the contingent and apparently arbitrary nature of the very theories that allow humans to know truth about their environment—that science has no privileged insights into the working of the material world (though Kuhn himself, especially in the third edition of The Structure of Scientific Revolutions, tried to distance himself from the relativism he is credited with helping to establish).

But it was Kuhn's disciple, Paul Feyerabend, who I most wanted to recommend to my jacket-levitating scholar friend. Feyerabend is another thinker who is a freakishly talented writer, and I have always loved the bitingly funny and technically virtuostic writing in his Against Method. But scientists have little use for technical virtuosity in

their writing, and Feyerabend's work is even more marginalized within the field of scientific discourse than that of Kuhn (and rightly so). Feyerabend's ideas are especially instructive in considering the limits of scientific knowledge, however, for he has pushed the radical skepticism concerning science to its natural and most troubling (and, to me, repugnant) conclusion, arguing, for example, that creationism and Darwinism are equally valid and should both be taught in school science classes. (It would have been tempting to have pursued Feyerabend's general drift a little farther with my friend, and argue that the Christian condemnation and persecution of lesbians and gays is just as valid as contemporary queer politics, but then thank god that the relativism of even the staunchest relativists ends somewhere!)

As usual, the truth is less spectacular than either side would have it. The scientific method is extremely useful in developing a body of knowledge that closely mirrors the observable world and the forces that govern it. Planes fly, nuclear power plants make energy, and medical cures are often, thank god, startlingly effective. As has often been remarked, even the most radical debunker of science doesn't hesitate to take advantage of a massive array of scientific and technological advancements when he or she is sick and in need of specialized care. Yes, there are spots where the reach of science is more speculative than others, and there are scientists who abuse and overstate the certainty of their conclusions, but generally speaking, the development of science has been of incalculable value to contemporary life, and the recent explosion of new technologies will lead to a substantially increased body of objective knowledge about humans and the world they live in. At the risk of sounding repetitive, I will say it again: we in the humanities must begin the process of creating a politically motivated and

ideologically aware criticism that can coexist with the sometimes startling advances made by science within the last several decades. I realize there doesn't seem to be much pressure from within humanities departments for this, but without an adjustment of theoretical orientations, I can't help but think that we literary scholars will one day begin to look like teenage kids around the Dungeons and Dragons table, (mis)invoking the Heisenburg Uncertainty Principle in a process analogous to making a certain roll of the dice confer the ability to throw spirit-piercing swords.<sup>21</sup>

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<sup>21</sup> I hate to beat up too much on Phillip Hill--his Lacan for Beginners will reappear again in chapter one--but he does make an easy target. After a brief mention of Heisenberg, he makes a breathtaking, indeed dizzying, analogical leap: "Since Heisenberg, science . . . has become yet another set of impossibilities" (43). Hill is clearly the sort of audience Alan Sokal envisioned when writing "Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity."



## CHAPTER ONE: PREVIOUS CRITICISM AND AN INITIAL DISCUSSION OF MY GOALS

I realize that I have made some bold claims in the preliminary portions of my study, and that the sorts of evidence that I am citing are not familiar ones to literary critics (intercopulatory orgasms, indeed!), but I actually see myself as working not so far outside the dominant paradigms of contemporary literary criticism, although I have expanded the boundaries of exploration. The perception is that biologically based critics are attempting to create an alternative to poststructuralist forms of critical inquiry, and as I will demonstrate shortly, many do specifically frame their discussions that way, but I have to admit that I very often find myself nodding in assent when I read Foucault, or Butler, or Weeks, or any of a host of other thinkers who reign ascendant in today's academe.<sup>22</sup> Social constructionists and discourse theorists have brought incomparable insights into the field of cultural studies, although I would separate myself from them by denying the totalizing and comprehensive nature of their claims. In Marxism and the Philosophy of Language, V. N. Volosinov may claim that "wherever a sign is present, ideology is present, too," and in a sense he does have a point in that all languages are grounded in ideological identities, but such a broad assertion discourages critics from recognizing the merely representational role that symbols often fulfill.<sup>23</sup> For my purposes

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<sup>22</sup> I do find the omnipresent Marxist influence a little quaint and retrograde, but the insights of cultural materialism birthed through Marxist criticism underwrite my entire study here, so I remain in many ways a "Marxist" critic.

<sup>23</sup> Throughout the discussion in this paragraph I refer the reader to what I'll call Burns's first rule of literary criticism (though it holds true in every discipline): "Every critic will inevitably overstate the comprehensive reach and utility of his or her new idea." The careful reader will of course notice that it does not disprove itself.

here, I would restate his point as, “signs are sometimes potent vehicles for ideological content,” an assertion still open to political criticism yet less liable to turn every linguistic expression into an endless hall of mirrors where each new perspective produces a new meaning. Nor am I as pessimistic about the ultimate utility of language as many contemporary critics, who insist that language inevitably incorporates a series of impossibilities and misunderstandings, and that we are all thus doomed to a life filled with miscommunication.<sup>24</sup> Actually, I find language astonishingly effective for human communication—as is fitting since language skills and human intelligence coevolved—and though many distinguished careers have been made out of the clever exposition of possible indeterminacies in linguistic expressions, the great majority of in-group language use leads to virtually complete comprehension (though I am not discounting the importance of closely examining the occasional contexts of language failure, nor the rich tapestry of multiple meanings).

And for all of the incredible insights brought about by Foucault’s argument that “discourses” actively shape our subjectivities and the very world that we live in, a process that clearly does occur to some extent, and Derrida’s pronouncement that “there is nothing outside the text,” I nevertheless think that such reasoning has led to an unfortunate dismissal of the human animal and the material world in which he or she

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<sup>24</sup> Lacan for Beginners is admittedly a pretty lowbrow work, and it flattens a complex subject considerably, but it is still representative of the use of Lacan, especially by non-specialists. In it, Philip Hill asserts: “We are condemned to use language and to always be misunderstood” (44). Such dire pronouncements—while admittedly striking some queer resonance in me at the sheer *hopelessness* of it all, perhaps a holdover from the impeccably-posed punk nihilism of my youth—actually strike me as a little silly, especially since Hill probably wrote it on a day where language proved perfectly functional and entirely non-problematic at least 99% of the time. Again, Hill’s claim would be perfectly okay if the emphasis were reversed: much—though far from all—of the human experience of the world, especially when sharing it with others, necessarily involves linguistic expression or takes place within the realm of language, which can at times prove to be an unreliable, inexact, or even sometimes entirely ineffective means of communication.

lives as appropriate and knowable areas for examination.<sup>25</sup> I am sympathetic to Stephen Greenblatt's complaint that "we wall off literary symbolism from the symbolic structures operative elsewhere as if art alone were a human creation, as if humans themselves were not, in Clifford Geertz's phrase, cultural artifacts," for culture *is* inevitably involved in subject formation, and scholars before him seemed blissfully unaware of the fact (Renaissance Self-Fashioning 4). But too heavy a reliance on the ideology/subject-formation riff can lead to a complete evacuation of the space formerly inhabited by a physical and biological specimen possessing volition, memory, and a host of other evolved animal characteristics, as occurs when Tamar Garb argues in The Jew and the Text that "'Real' Jews and 'fictitious' Jews occupy the same representational theatre, one in which the masquerades of performative subjectivity can just as easily take their cue from fiction as the characterization and codes of art can call upon life as their model and source" (30). Perhaps Garb doesn't intend to collapse "real Jews" into mere "masquerades of performative subjectivity," but this passage handily accomplishes the feat. In the hands of too many critics, it seems, the ideas above are combined into a reductive critical stew that, while exceptionally useful in the creation of publishable scholarship—and let's not lose sight of the economic basis of the critical enterprise as it exists in the modern university—actually ignores the physicality and biology of the subjects it professes to examine, or worse, attempts to silence those who propose the examination of a body and its attendant innate biological and psychological mechanisms that pre-exists the cultural forms written upon it.

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<sup>25</sup> The Derrida quote is of course from Of Grammatology page 158. Lacan, too, postulated a view of reality, at least the part of it that we can know, as occurring entirely within the realm of language and discourse, so one can see that the tendency by literary and cultural theorists to appropriate all areas of knowledge as their own privileged area of exploration is very widespread.

My study here will concern itself significantly with human sexuality, one area where the physical subject is far more than performatively involved, and I hope to dissolve the false dichotomy between “nature” and “nurture” since both are obviously of equal importance to subject formation. It is tempting to see in Foucault’s frequent invocations of “bodies” and “pleasures” a recognition of the very things that are central to my biological examination here, and indeed he does promise that his History of Sexuality will not be “a ‘history of mentalities’ that would take account of bodies only through the manner in which they have been perceived and given meaning and value; but a ‘history of bodies’ and the manner in which what is most material and most vital in them has been invested” (152). Still, even if he does see bodies and pleasures as some sort of a transhistorical, material substrate that is endlessly reorganized by cultural narratives into the discursive categories of “sexuality,” he still winds up placing desire and sexuality entirely, at least as David Halperin reads him in How to Do the History of Homoexuality, within “historical configurations of power, knowledge, and subjectivity” (88).<sup>26</sup> I have no doubt that “configurations of power, knowledge, and subjectivity” do help shape desire and sexuality, for, as I will demonstrate later, our evolutionary history left humans with a significant degree of behavioral plasticity when it comes to what turns us on, but the body and the brain chemistry involved in desire and pleasure, a legacy of our biological heritage, cannot be collapsed into mere cultural constructions, and sexuality will always be more than, as Halperin considers it, “an apparatus for constituting human subjects” (88). This, however, is the common post-Foucauldian view, and the statements

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<sup>26</sup> I realize that Foucault has a meaning for “sexuality” here that at least partially distinguishes it from “sex” (as in, sexual acts), though the distinction is not always clear in criticism following his lead. I will argue, though, and I believe convincingly enough, that “sexuality” itself—that is, the comprehensive totality of narratives and beliefs that inform the human desire for and practice of sex—can never be divorced from its biological underpinnings without significant consequent distortion of the whole.

of gender critic Teresa de Lauretis are fairly typical in showing the accompanying political message: “Sexuality, commonly thought to be a natural as well as a private matter, is in fact completely constructed in culture according to the political aims of the society’s dominant class” (12).<sup>27</sup>

Nor is the body itself immune from the transformative reach of Foucault’s followers, for Donna Haraway argues that the body is merely a “material-semiotic actor” involved in “the apparatus of bodily production” (qtd. in Weeks 84). I am not blind to the central insight here, that people experience sexuality and contemplate sexual behaviors within conceptual, subjective frameworks at least partly fashioned by the cultural context within which they occur, nor am I blind to the economies of power or political processes involved, nor the modernity of many of the prevailing “discourses” of sexuality, but I trust that the reader won’t have to get very far into chapter one before he or she sees that plenty of science exists to prove that sex and sexuality follow scripts that are sometimes far more genetic and biological than cultural. Individuals are not empty vessels into which sexuality is poured, and if Jameson’s famous assertion was “always historicize,” the spectacular success of his exhortation clearly makes it time to heed my own call to “recorporealize.”

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<sup>27</sup> Likewise, Adrienne Rich, in “Compulsory Heterosexuality,” describes heterosexuality as a “political institution” (145), and Halperin complains of “the powerful cultural magic that continually (re)produces the sexual body as a heterosexual body” (84). As will be obvious in chapter two, I’m no big fan of heteronormativity or any sort of sexual binaries since they seem to create a reduction of pleasurable possibilities for individual humans, and I’m all for eroding these forces in any way possible. Nevertheless, the biologically informed critic won’t get very far by viewing procreative sex entirely through the lens of ideological forces. More interesting to me, as I’ll discuss later, is how a general openness to pre-reproductive homosexual experimentation gets channeled into primarily heterosexual behavior in human adults when the possibility seems to exist for continued bisexual experiences.

I am not pretending, however, to have gotten to this turf first, though, as I argued earlier, many scholars previous to me in the examination of biology, genetics, and literature have tended to ignore or discount entirely the undeniable theoretical refinements accomplished within the fields of literary and cultural studies in the past few decades. Although the dividing lines are sometimes blurry, one camp of scholars clearly arrived at the subject from the “science” side. Chapter one will introduce to the reader a vast array of researchers working within fields as diverse as cognitive psychology, evolutionary psychology, human behavioral ecology, and behavioral genetics, all of whom have been inching ever closer to the turf normally claimed by those of us in the humanities, for no study of the human comprehension and experience of the world—even biologically oriented ones—can proceed without tackling the issues of language and symbolic thought. Even Edward O. Wilson, whose brilliant work Sociobiology set off such a firestorm of protest on its publication in 1975, pursued valuable explorations of biology and the arts, and many of his writings on the subject have been included in Brett Cooke and Frederick Turner’s anthology Biopoetics: Evolutionary Explorations in the Arts.<sup>28</sup>

Particularly wonderful is Wilson’s extended discussion in Biophilia of the universal wariness of snakes found in the human species, for Wilson attempts to trace the passage of this genetic predisposition into the symbolic realm, where it erupts worldwide into vastly separated systems of religious and artistic expression. I will not deny that

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<sup>28</sup> I realize that my mention of Wilson’s name, especially in such glowing terms, might literally cause a physical reaction in the gut of some of my readers. Hear me out, however. I too ridiculed Wilson in the many papers I wrote about sex and gender in contemporary society, for, never having read him, all I knew about him was the cartoonish depiction available in other works in the humanities (written by others, I’m pretty sure, who had never read him either). Chapter three will discuss Wilson and the reception of Sociobiology in more detail, but for now suffice it to say that I was astonished by the clarity, sensitivity, and depth of his scholarship once I actually began to read his works.

Wilson occasionally makes claims that are guaranteed to alienate humanities scholars and artists, even if he is probably right, for in On Human Nature he insists that “Science can hope to explain artists, and artistic genius, and even art, and it will increasingly use art to investigate human behavior” (213-14). This admittedly smacks of the sort of disciplinary takeover that humanities scholars fear the most, but in truth Wilson shows a great respect for, and understanding of, the arts. In Biophilia he states:

We are in the fullest sense a biological species and will find little ultimate meaning apart from the remainder of life. The fiery circle of disciplines will be closed if science looks at the inward journey of the artist’s mind, making art and culture objects of study in the biological mode, and if the artist and critic are informed of the workings of the mind and the natural world as illuminated by the scientific method. In principle at least, nothing can be denied to the humanities, nothing to science. (81)

I won’t deny the slightly “science-centric” nature of Wilson’s perspective—as is fitting for one of the most distinguished and influential scientists of our era—but I also find in this passage and others like it a philosophical depth that is actually sort of daunting given the resolutely matter-of-fact manner of my own explorations in this area.

Much scholarship from the science side of the divide is less philosophical and more practical, however. Out of cognitive sciences comes a strand of exploration that starts with the cognitive structure of the brain, then shows how artistic creation, and indeed the entire field of aesthetics, is indebted to basic, universal aspects of mental functioning. In great contrast to thinkers like Terry Eagleton, whose Aesthetics locates the subject entirely within the cultural and social realm, the authors presented in the

pioneering collection Beauty and the Brain: Biological Aspects of Aesthetics all demonstrate that aesthetic universals do exist and that they seem to be tied directly to specific cognitive features of the brain being described through modern cognitive research. The more recent collection, Biopoetics, also contains several important essays following this approach. In “An Eco-poetics of Beauty and Meaning,” Frederick Turner examines the formal aspects of art to show that the “forms of the arts are not arbitrary but are rooted in our biological inheritance” (123). Very compelling is the evidence that he gathered through shared research with experimental neuropsychologist Ernst Pöppel about poetic meter, in which they discovered that “all over the world the meter has a line-length of about three seconds, tuned to the three-second acoustic information-processing pulse in the human brain” (122). Turner goes on to speculate about several different cognitive-based “operators” that shape the forms of human artistic expression, from the “reflexive or dramatic operator” to the “narrative operator” and “representational operator,” all of which exhibit the interaction of “inherited biological and learned cultural factors” (122).

In the same volume is Wayne E. Allen’s important “Biochemicals and Brains: Natural Selection for Manipulators of Sexual Ecstasy and Fantasy,” an article that explores the evolved brain chemistry of humans to suggest that aesthetic emotions of humans are developmentally rooted in the same biochemical processes as those involving sexual arousal, orgasm, pair bonding, and even the ingestion of psychoactive and hallucinogenic substances. The evolved roots of human aesthetic responses are also the subject of Gordon H. Orians and Judith H. Heerwagen’s much-cited work of environmental aesthetics, “Evolved Responses to Landscapes.” Postulating that, because



they motivate human behaviors, emotional responses like the ones involved in aesthetics could not have developed unless they conferred reproductive benefit, Orians and Heerwagen examine “how our aesthetic reactions to landscapes may have derived, in part, from an evolved psychology that functioned to help hunter-gatherers make better decisions about when to move, where to settle, and what activities to follow in various localities” (557). Their work is notable for being the first to trace the “savanna hypothesis”—the instinctive and near universal preferences for savanna-like environments in humans—and how such instinctive desires shape the aesthetic features of art, from architecture to paintings and photography.

One book-length study of special importance due to its impeccable research and elegant prose is Mark Turner’s Reading Minds: The Study of English in the Age of Cognitive Science. What Turner pursues is a work of “cognitive” rhetoric, for he sees in the normal affairs of English departments—the generation of “ever more subtle and masterful readings of ever more texts for an ever more specialized group of readers”—a general neglect of language and literature, the very things he thinks should be at the base of literary studies (3). His argument is sound: “We take for granted our capacities to invent and interpret, and devote ourselves to exercising those capacities and publishing the results. It is the capacities themselves that need explaining” (19). Language and literature, he insists, are “acts of the human mind” (48), and he spends his book analyzing how humans think and how the brain makes possible language and linguistic acts. Using the methods and language of rhetorics, Turner examines concepts like the generic projection of symmetry and different types of analogies that reflect actual “conceptual connections and patterns and activities in the mind” (240). The most striking feature of

the book is the almost overwhelming array of literary examples he provides, making it one of the few hybrid works of cognitive science and literary studies to satisfactorily demonstrate practical applications of his ideas, and Turner's book undoubtedly stands as the best description so far of how evolved capacities of the brain shape the creation and enjoyment of art.<sup>29</sup>

Other studies pursue the subject of evolution and art from a more general, yet no less satisfying angle, postulating evolutionary origins and possible reproductive and fitness advantages encouraging its development and production. Ellen Dissanayake, for example, has written widely on the evolution of human artistic creation and perception, both in her books What Is Art For? and Homo Aestheticus: Where Art Comes from and Why, and in articles like "'Making Special': An Undescribed Human Universal and the Core of a Behavior of Art," in which she writes:

My studies of art in crosscultural and evolutionary perspective have led me to identify what I believe is a distinctive universal human behavior that remains undescribed or inadequately acknowledged in the literature and that can serve as a meaningful common denominator of art in all times and places. I have termed this behavior "making special." Making special

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<sup>29</sup> For a short, but no less persuasive, introduction to Turner's scholarship, see his "The Cognitive Study of Art, Language, and Literature" in the Spring 2002 issue of Poetics Today, an entire issue devoted to "literature and the cognitive revolution." I do not mean to indicate that attempts at the practical application of cognitive and evolutionary psychology don't exist, just that the field isn't exactly bulging at the seams with compelling ones. Brett Cooke's straightforward "Sexual Property in Pushkin's 'The Snowstorm': A Darwinist Perspective" is an excellent examination of evolved male notions of sexual property and how they intersect with the emotional issues involved in both the creation and consumption of literary art. Also instructive are three articles from the excellently edited issue of Poetics Today mentioned above: Francis F. Steen's "The Politics of Love: Propaganda and Structural learning in Aphra Behn's Love-Letters Between a Nobleman and His Sister"; Lisa Zunshine's "Rhetoric, Cognition, and ideology in A.L. Barbauld's Hymns in Prose for Children"; and Alan Richardson's "Of Heartache and Head Injury: Reading Minds in Persuasion," the latter especially notable for the parallels it draws between Austen's time and our own, for he reads Austen's work within "the shift within Romantic-era discourses on mind and character from environmental to biological approaches to psychological behavior and subject formation," just as he hopes to see happen in our own time (143).

refers to the fact that humans, unlike other animals, intentionally shape, embellish, and otherwise fashion aspects of their world to make these more than ordinary. (30)

Paul Hernadi pursues a similar adaptive theme in his article “Why Is Literature: A Coevolutionary Perspective on Imaginative Worldmaking,” in which he interprets “literary pleasure (whatever their present contributions to our personal and social well-being may be) as indicative of literature’s past power to make its devotees more astute planners and problem solvers, more sensitive and empathetic mind readers, and more reliable cooperators than their conspecific rivals” (26).

Evolutionary psychologist Geoffrey Miller, in The Mating Mind, actually postulates a role for art that is specifically tied to human reproductive behavior, for he sees art as a “biological signaling system” and fitness indicator arising through sexual selection—as opposed to natural selection<sup>30</sup>—which advertises genetic fitness and thus desirability to possible mates. Miller’s work does a great job of foregrounding the role of sexual selection in evolution, and just this would make it a significant work given the earlier neglect of this important subject, but it also provides a wonderful examination of sensory biases in humans on its way to making the more speculative claim that art and music arose both as desirable ornaments and as fitness indicators (since the complexity and finesse of artistic expression indicates a healthy brain and good genes). Sexual

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<sup>30</sup> The distinction between natural selection and sexual selection is actually from Darwin’s own work. Natural selection refers to the process through which features conferring differential reproductive success at the environmental level are selected for. Sexual selection, on the other hand, refers to things like male human penis size—for it is much larger than the penes of other primates—which are at least partly selected for through consistent mate preference choices of the opposite sex. Studies using both animal populations and computer simulations have shown that sexual selection is a very powerful evolutionary force that can have extremely significant effects on populations of organisms (especially through the process of “runaway sexual selection,” first postulated by evolutionary theorist Ronald Fisher in his 1930 work The Genetical Theory of Natural Selection).

selection, for Miller, operates in humans through a more general and multi-purpose “unified pleasure system,” and he sees this hedonic basis of human experience as especially important in evolutionary terms because “pleasure helps solve the problems of reinforcement learning and prioritizing behaviors” (150). Although the chemical aspects of the human pleasure system are better covered elsewhere—in Victor Johnston’s Why We Feel, for example, and Helen Fisher’s Why We Love—Miller’s discussion integrates the hedonic aspects of human experience back into an evolutionary perspective in an extremely coherent and believable way.<sup>31</sup>

It is rare to be working in a field where such a short summary could knock off such a sizable chunk of the scholarship extant within it, but such is the emergent nature of evolutionary studies of literature. There are, however, two leading scholars in the field that I have left to discuss last because I think they are very instructive as to what the motivations of many researchers pursuing a path similar to mine are, and therefore I want to draw a clear distinction between them and me here at the very beginning of my project. The first of these is Joseph Carroll, whose 1995 book Evolution and Literary Theory stands as a foundational text in the field. In many ways Carroll got here the first of any literary scholar, and he is a truly gifted thinker with an intelligence that is depressingly acute—at least to scholars like me who are normally endowed in terms of brainpower—and a range of learning of the sort that hardly seems possible in today’s era of academic specialization. And though I do have my disagreements with parts of his argument, I completely agree with his initial statement that literature itself, just like knowledge and

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<sup>31</sup> These book titles show that scientists have much more matter-of-fact attitudes about titles than do literary scholars! For all of the strengths of Miller’s book—and it is a wonderful work, and one that is accessible enough to non-biologists—his “art as fitness indicator” theory does tend to minimize the very important functional aspects of art discussed by scholars like Hernadi and Dissanayake.

cognition, is a biological phenomena, and even this far into my project the reader would have to guess my approval of his insistence that “reproductive success, in its twin aspects of sexual union and the production of successful offspring, is central to human concerns and thus to literary works” (Evolution 2).

Nevertheless, one quickly discovers that, more than out of an awe for the inescapable wisdom and methodology of science like mine, Carroll is writing out of the desire to discredit poststructuralism, whose ascendancy in contemporary English departments he greatly resents.<sup>32</sup> Carroll proudly speaks of his membership in the Association of Literary Scholars and Critics, which he describes as “an offshoot of the intellectually conservative academic organization, the National Association of Scholars” and a group consisting “largely of older members of the profession who are still committed to more traditional forms of study” (Literary 31). As far as critiques of the current critical paradigms go, Carroll’s is very articulate and compelling, but ultimately he ignores the fact that the extreme form of constructionism he sets up to knock down isn’t the only form of constructionism possible, for even in my biologically oriented framework there is no escaping the fact that something like sexuality, say—though undergirded by content-dependent psychological mechanisms that resulted from evolutionary pressure—is understandable only when viewed in conjunction with the discursive and symbolic forms through which it is articulated in a particular social and cultural context. Moreover, it is impossible at this point to deny the great theoretical gains made from applying the concept of textuality to events and details outside of the

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<sup>32</sup> It may seem like an overly fine distinction to draw, but I think it is important. When I encountered the growing body of data about evolution and the cognitive sciences, I wanted to see what I could make it do in the context of literary studies. One gets the feeling that Carroll, on the other hand, was waiting for any vehicle he could find to express his displeasure with the status quo and seized upon evolutionary psychology precisely because he saw its utility in that regard.

text, but Carroll clearly wants to ground his study of literature in a more tightly constrained context, that of the human brain and the literature it produces.

His stance on the current state of literary studies could not be more clear. In the introduction to his later work, Literary Darwinism, he asserts: “In the humanities, scholars happily confident of their own avant-garde creativity continue to repeat the formulas of Freud, Marx, Saussure, and Levi-Strauss—formulas that have now been obsolete, in their own fields, for decades” (x). In the same work he cites “the stale and etiolated rhetoric of postmodernism,” which he thinks must soon crumble from within, partly, he indicates, because “radical ideology has perhaps already exhausted the range of important social groups that can plausibly be represented as oppressed minorities” (xi). This latter represents a rather flattened view of the ideological awareness fostered within contemporary criticism, but it inspires the first hundred pages or so of Evolution and Literary Theory, in which he takes on, in turn, everyone from J. Hillis Miller and Derrida to Lacan, Foucault, and Jameson. He sums up his observations in the following manner: “By taking Derridean semiotics and Foucauldian discourse theory within which to synthesize the obsolete linguistics of Saussuree and Jakobson, the obsolete psychology of Freud, and the obsolete sociology of Marx, poststructuralism has generated an ever more complex system of rhetoric altogether detached from empirical study, whether of evolutionary research or standard social science” (Evolution 27). There is no doubt that Carroll’s depiction of poststructuralism presents it in a very negative light, and any anti-poststructuralist scholar can mine Carroll’s book for plenty of germane quotations from the leading figures in the field to drop into hallway conversation, often out of context, to make the entire enterprise of contemporary criticism look pretty silly.

Let me say right off that, though I find the foundation of Carroll's scholarship too narrow, I am sympathetic to Carroll's anxiety about the prescriptive force accompanying the political ascendancy of poststructuralism in modern-day literature departments. As a student writing about biology and human behavior, in an academic context where four of my superiors will have to sign off on my research before allowing me to receive the degree that I have worked many years to obtain, I am highly cognizant of the great divide that exists between certain strands of poststructuralist thought and my own research. Moreover, it should be clear to the reader that I too, along with Carroll, find the current decentering of the subject into the realms of discourse a less than satisfactory shorthand, for, convenient as it is for literary scholars, and politically useful as it may be, it entirely ignores the innate aspects of the individual that arise from biology and evolution.<sup>33</sup>

When Roland Barthes insists that "man does not exist prior to language, either as a species or as an individual" (135), and Foucault argues in Language, Counter-Memory, Practice that "the subject (and its substitutes) must be stripped of its creative role and analyzed as a complex and variable function of discourse" (138), I second Carroll's disagreement. Nevertheless, when cleansed of the seemingly unavoidable exaggeration that all scholars invest their original ideas with, one fact remains: language and the symbolic realm—a realm easily enough construed as a series of discourses—is heavily involved in shaping the particular articulations of biological consciousness that turn into "individuals," and though many aspects of this consciousness are rooted in 100,000 years

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<sup>33</sup> Though I should go ahead and admit my skepticism about the political usefulness of academic criticism here, for though critics love to pretend that they are changing the world, right down to the "rebel" pose so many of them adopt, their world is largely insular. Take queer theory, for example. The wonderful and important job that MTV's Real World has done in normalizing the joys of gay sex in our country is so much greater than that achieved by any academician, even of the superstar and highly compensated Sedgwick variety, that the academic discourse fades into near insignificance in the face of popular culture.

of biological constraints, the expression of these aspects are environment-dependent, just as the expressions of the particular genetic traits in each phenotype depend upon environmental factors. Therefore, the insights fostered by poststructuralism seem vital.<sup>34</sup>

In addition to his constant disparagement of poststructuralism, Carroll has a few other odd projects he pursues in Evolution and Literary Theory. One of these, the rediscovery and rehabilitation of Hippolyte Taine, is quite understandable, for Taine's 1879 History of English Literature was indeed remarkable for its incorporation of Darwin's ideas and its biological view of literature. Taine insisted that "we ought to study the organism in connection with the medium," a call that still sounds true well over a century later (qtd. in Carroll, Evolution 17). Not a fan of modernity, Carroll, in fact, declares: "the one literary theorist whose basic doctrinal orientation is closest to my own is Hippolyte Taine" (16). Still, Carroll's discussion goes into the sort of extended, loving detail about Taine's work that would only be permissible in a college-press publication, though his discussion does mostly serve to forward his own project of developing a biologically-defensible apparatus of literary theory.

Carroll's other hero reveals more about the political nature of his project, for he describes Matthew Arnold as "perhaps the single most important, exemplary figure in the current debate on the canonical value of the Western cultural tradition" (Evolution 22).

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<sup>34</sup> My argument against poststructuralism, indeed, doesn't center on the involvement of discourses in "subject creation," but rather the direction of the causal flow presented in most of the theoretical models it presents. The standard view in most literary-critical schemes is that culture is something that exists on the outside, preserved in a series of ideologically interlocking discourses ready to do its productive work once a new potential subject appears. As a biologically oriented critic, I tend to view the content-dependent mechanisms within the subject as radically implicated in the creation of culture and cultural discourses, and thus I see an accompanying causal flow from the individual back out, a view that runs directly counter to the literally disembodied view of culture presented in poststructural theory. I will return to this question later, for I do think it is key to conceptually blending the disciplines of biology and literary studies.



He continues: “At the present time, anyone who would affirm the hard-won achievements of Western culture must enter into battle with these and like proponents of a radical negativity [Derrida, Foucault, and Jameson], and in any such modern conflict between culture and anarchy, Arnold is of necessity a central point of reference” (Evolution 23). I hardly see “chaos and barbarism” right around the corner, as Carroll approvingly cites from Roger Kimball’s Tenured Radicals, and I’ll land on the “hedonistic aesthete” side of the fence with Pater and Bloom, as Carroll describes it, over the traditionalists on Arnold’s side any day. It’s not that I dislike Arnold’s writing; in my graduate student classes, I often got the idea that I was the only person enjoying reading his prose, which I found deliciously funny. Still, I see little in him to preserve in terms of a culturalist paradigm intended to enhance human civilization, and I’m a little suspicious of anyone who does. I have little interest in the intrinsic “rightness” of morals, which to the evolutionary oriented theorist should be obvious as mere adaptive mechanisms codified into prescriptive form, or cultural formulations meant to control other adaptive mechanisms, the whole prescriptive edifice paradoxically outdated at the time that it is most rigorously enforced (witness modern religion and its quaint view of sexual propriety, so clearly formulated in the era before modern reproductive technologies, or consider homophobia, or a host of other regressive beliefs that are unfortunately extremely difficult to dislodge). Nor do I have any interest in “tradition.” I am not naïve, and I understand the political groundedness of tradition, and actually see in science a continuing process that seems to loosen culture from outdated traditions.<sup>35</sup> With these

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<sup>35</sup> The fear of scientific progress is especially acute in social conservatives, and they constitute the other field of critics of biologically informed criticism who will try to shout projects like mine down. A recent advertisement proclaims: “If you don’t matter to God, you don’t matter to anyone. As a society, we reap the consequences of the unquestioned acceptance of the belief in evolution everyday. It diminishes our

(lengthy and serious, I think) caveats aside, however, Carroll's work is essential reading for anyone interested in the subject, and his skill as a scholar of Darwin and Taine, as well as his capacious grasp of literature, help him create a substantial examination of how evolutionary approaches compare to almost every other critical tradition on existence.

The second foundational critic in the field that I think deserves closer examination is Robert Storey, whose Mimesis and the Human Animal: On the Biogenetic Foundations of Literary Representation appeared in 1996, one year after Carroll's Evolution and Literary Theory. He titles the first section of his work "Pugnacious Preface," and in it he, too, grounds his own explorations in the desire to overturn the ascendancy of poststructuralism in the academy. He describes the prose he was forced to read as a practicing scholar: "it seemed also to revel, both smugly and pretentiously, in its own abstract obscurantism. Everyone was a philosopher, giddy, in J. L. Austin's words, with the 'ivresse des grands profondeurs' and turgidly propounding the gospel according to Derrida or Kristeva or Foucault" (xiii). Like Carroll, he caricatures contemporary criticism as "mere tub-thumping for this or that special-interest group" (xvii) and proposes biology as a way to reestablish criticism on surer terms with the object it is intended to study. Storey, however, spends more time than Carroll on contemporary scientific research, and in this his approach is closer to my own, and he is especially

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worth and reduces human beings from being 'made in the image of God' to merely being players in the game of survival of the fittest" (Weekly Standard, October 16, 2006, 21). Accompanying the caption is a two-page picture of a gun barrel pointed right at the reader. This silly stuff is, alas, all too common, and it points out the strong critics of evolutionary approaches to the arts from both sides of the liberal/conservative divide. Science does, I'm happy to point out, seem to break down calcified categories of "correct" behavior, so the conservatives do have a point, so I'm actually less understanding of the conservative impetus for Carroll's scholarship. With my free-wheeling social politics and genuine love of ever more perversion and diffraction, I doubt I'd ever be inducted into the Association of Literary Scholars and Critics.

cogent in his dismissal of the more radical strains of science-denial in today's humanities departments.<sup>36</sup>

Storey's methods are both morphological—in, for example, his study of the implications of lateralization of the brain—and functional, as in his examination, to give one example of many, of narrative as “an indispensable instrument of social negotiation” (81).<sup>37</sup> In keeping with the advancements seen in the evolutionary sciences, Storey recenters his study on the individual subject, the level upon which selection exerts its

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<sup>36</sup> In fact, I agree with both Carroll and Storey when they denigrate the poststructuralist dismissal of scientific discoveries, for in this regard I think both thinkers are dead-on, and my defense of the scientific method will appear again in chapter two ahead, where I discuss the political forces that have been arrayed against evolutionary psychology since its consolidation in the last chapter of E. O. Wilson's *Sociobiology* in 1975. Even a quick perusal of Paul Gross and Norman Levitt's *Higher Superstition: The Academic Left and Its Quarrels with Science* will provide even a reader with relatively basic science skills with plenty of howlingly funny bits of scientific nonsense promulgated by non-scientists—often very well-known ones—who've stumbled a little beyond the boundaries of their own knowledge. Nevertheless, Gross and Levitt's rhetoric is often arrogant and over-the-top, obviously suited to stirring up the troops, but not particularly suited to the general reconciliation of scientific pursuit informed by ideological awareness that is, I think, the future of both disciplines.

<sup>37</sup> I have struggled with where to address the subject of functionalism in my manuscript, but for the anthropologically aware reader, sooner is probably better than later. As an anthropology student in the 1980s, my teachers were all participating in the backlash against functionalism, so I learned that being a functionalist was *the* one thing no one wanted to be. Indeed, not very far into my project I had to immerse myself in anthropological texts again as I worked out a neo-functional theoretical paradigm to follow in order to assuage my natural fear of pursuing anything remotely functionalist, which my study most certainly is. Simply put, functionalism—as the school of anthropological theory founded by Bronislaw Malinowski and A. R. Radcliffe-Brown in the early twentieth century—tended to view cultures as existing in a state of equilibrium that developed in response to the culture's inhabitants' precultural needs, so that culture fulfilled the function of creating social stability (Malinowski and Radcliffe-Brown actually had differences in their theoretical paradigms, but my broad definition remains true for both). Functionalism clearly had its problems, perhaps most significantly in its valorization of the status quo and in its teleological and tautological underpinnings (in other words, the function that a cultural variant fulfilled was defined by the very need that was postulated to define the function). In addition, functionalism often looked at cultural and social systems as optimal, a problem often seen in the thinking of naïve evolutionists; just as biological constraints and environmental forces lead to definitely sub-optimal design of organisms—the “best possible,” rather, is what results—so to would there be expected to be less than optimal and not at all well-designed socio-cultural systems. Functionalism was also criticized by social interactionists, psychologists, ecologists, and psychologists as ignoring the central concerns of their own fields of study. Neo-functionalism, as I will use it, is a more modern compromise in which outside forces, both evolutionary and ecological, are recognized in the construction of systems-level models that take into account genetic fitness and differential reproductive success in order to avoid the tautological shortcomings of old-fashioned functionalism.

pressure.<sup>38</sup> Halfway through his text, he sums up: “The picture that is emerging of the human subject is, then, complex but fundamentally coherent. That subject is a seeker and maker of meaning first of all—not because it is a bourgeois capitalist, or a hegemonic sexist, or even a benightedly retrograde humanist, but ultimately because it is a gene-driven organism that has evolved to live by its wits” (101). The body itself also, I think correctly, resumes a place at the center of the processes shaping cognition and human experience, for Storey observes of the human subject that “always its cognitive compass is the body, that brittle and vulnerable gamete-bearer for which its huge brain anciently evolved: all its categories as well as its conceptualizations are erected upon a scaffolding of the needs, limits, and relationships, defined both ontogenetically and phylogenetically, of the omnipresently physical and emotional *Moi*” (102). Although Storey’s lengthy consideration of Iris Murdoch is great reading, the heart of his study consists of his treatment of the genres of tragedy and comedy. Both contain extensive histories of the subjects as well as biologically informed corrections of earlier critics, all in a text dense with the usual signs of scholarship. His chapter on “Comedy and the Relaxed Open-Mouth Display” is especially important, for Storey locates humor anatomically, in the right side of the brain; evolutionarily, in the facial expressions and behaviors of primates; and descriptively, as involving “the presence of a *masterable* discrepancy or incongruity, whether of a social or of a cognitive kind” (italics in original, 163). But above all, in fitting with his central thesis, he argues that laughter seems to confer “*phenotypic* advantages”—that is, advantage to the specific individual laughing, for modern science

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<sup>38</sup> More accurately, he believes selection to occur at the level of the gene, as postulated in Richard Dawkin’s *The Selfish Gene* (as do I, actually—I will describe the importance for the distinction in chapter three). Still, since the individual is the phenotypic expression of those genes, it makes a useful shorthand to say that selection occurs “at the level of the individual.”

has found laughter to be physically beneficial to humans, from boosting immunity to relieving pain—so that “comedy may differ essentially from tragedy in licensing the drive toward self-serving fitness by the laughter of its spectators” (172). Storey’s evolutionary approach is convincing and novel, and Mimesis and the Human Animal remains one of the most accomplished works in the field to date, although it does exhibit a distinct blindness to ideological forces as they function in the contexts Storey discusses throughout his work.

Even after such a lengthy summary of extant related works and my own clearly stated intentions at the outset, I realize that some readers might still be asking the very sensible question, “so how exactly does one *do* biologically oriented criticism?” I admit that the difficulty in answering this question is a shortcoming of sorts, and naturally wish that an actual theoretical technique could be more easily summarized—thus packaged, disseminated, sold, and cited like such economic success stories as Bloom’s “anxiety of influence” or even Said’s *Orientalism* in its more reductive and, alas, common form—but an awareness of biology doesn’t overturn what comes before sufficiently for that to be the case, despite the claims of some of the practitioners above in that regard. Were I a canner scholar, or one with greater ambition, I would clearly gain from the sort of critical exaggeration that we as scholars see all around us, the disbelief at others’ ignorance, the feigned joy at one’s own miraculous discovery. Rather, I am aiming more for the sort of Geertzian “thick description” that entranced me so as a young anthropology student, though much “thicker” this time, and thus I can’t separate myself so far from contemporary historicist and feminist criticism. Evolutionary psychology and human behavioral ecology provide a new and startling layer of information with which to

augment our existing readings of texts, and though sometimes these new discoveries will contradict or replace earlier critical notions, that is far from my goal when I apply evolutionary concepts to literature. As I think the reader will agree in the coming pages, despite their seemingly antithetical natures, my evolutionary approach and existing methods of both textual and extra-textual scholarship actually fit together surprisingly well. If, as Camille Paglia famously observed, Foucault took “a very little research a very long way,” I’m afraid I might accomplish the opposite, taking a lot of research a little way, but I promise significant new insights in the process. Whenever a scholar heads into relatively new terrain, the first steps are bound to be a little tentative, but I trust that I will achieve a significant degree of conceptual integration in my quest for a critical method able to participate in the exciting progress made in the cognitive sciences in this new era of genetic research.

Here’s how I will do it. I envision a simple organization for my topic, perhaps distressingly simple given the academic context, but for this project I will take my cue from the many fine science writers who appear to value clear, lucid prose far more than we do in the humanities.<sup>39</sup> My second chapter will serve as an introduction to evolutionary thought as it applies to human behavior, both as a polemic to argue for the indispensable nature of my approach, but also as an introduction to the concepts and terms that will appear throughout the remainder of my work. This is especially important, I think, since no concise introduction to evolutionary thought exists within the

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<sup>39</sup> The real shame of the current ignorance of science in the humanities is that the current advances in scientific thought are available to scholars working within the “arts” half of “arts and sciences,” for unlike literary critics, whose intellectual style often accentuates the cultishness and exclusionary nature of their pastime, the scientific field possesses innumerable writers who can write extremely engaging prose in a manner that describes the concepts involved to any reader of reasonable intelligence. I will follow the lead of my favorite science writers and endeavor to avoid my well-honed penchant for opacity, carefully nurtured through a long career as a graduate student.

context of the humanities, and therefore this is likely to be new material for many of my readers.

The second chapter will first deal with the biology of human perception. Were this a book aimed at a popular audience, I'm sure I would title the chapter "why is sugar sweet, why does shit stink, and why does sex feel so good?" But whereas I'll deal with those topics, I'll stick with the title "The Biology of Human Experience" for the time being. In this chapter, I will examine the basic biological universals governing both the human perception of the external world and human behavior. I will start with the pleasure and rewards system in the brain, and show how humans—as well as many other animals—have evolved an internal mechanism that, through chemicals like dopamine, creates pleasure in the presence of things beneficial to survival and reproductive success and displeasure in response to actions or events that might prove deleterious to these pursuits. Building upon the research of psychologists like Viktor Johnson and David Buss, I will argue that "sweetness," or even "beauty," are not essential qualities inherent in any given object; rather, the human rewards system has evolved to experience pleasure in response to them because such a response proved beneficial to differential reproductive success in the past environment of evolutionary adaptedness (EEA). Beauty will be of special interest to my study since I am examining pornography and mate-selection later, and large numbers of cross-cultural studies show that, far from having been "invented" in ancient Egypt as Camille Paglia insists, beauty is a comprehensive, universal, and fairly reliable system of signaling reproductive fitness.<sup>40</sup> I will also examine a host of bodily

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<sup>40</sup> As I will show, human males are just as subject to fitness-signaling processes. For Paglia's rather fanciful argument, see *Sex, Art, and America* pages 262-65. For an extensive—but in my opinion very misguided—discussion of "beauty" as an ideology created to "transfer the power of the female libido to

functions that exist entirely beyond the realm of culture, some of which are quite surprising (as, for example, the aforementioned discovery by British scientists Robin Baker and Mark Bellis that the sexual context predicts the amount of sperm in a male's ejaculate; in return, females, whose sexual repertory is just as complex, are able to effect near total ejection of male inseminates in their flowback, thus retaining great control of the process).<sup>41</sup> Human sight and smell register very specific aspects of the human environment as well, and I will concentrate especially on human smell, which is capable of relaying very surprising environmental details, from the fluctuational asymmetry of another unseen individual to reproductively relevant characteristics of that individual's inherited immune system.<sup>42</sup> The initial intention of chapter two, then, is to establish a list of "human universals" that provide compelling evidence for the adaptive hypothesis I will be pursuing throughout the remainder of the work.<sup>43</sup>

Next, I will turn to the "modern synthesis," the combination of human population genetics and Darwinian selection forwarded by theorists starting with the pioneering work of Ronald Fisher early last century. Although I will provide a brief history of such thought, noting especially the amazing work of William Hamilton on the genetic basis of altruism, mostly I intend to show how adaptationist hypotheses provide a coherent and compelling explanatory framework for the material presented earlier in the chapter. The

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men-in-general," see Dean MacCannell and Flower MacCannell's "The Beauty System" (the quote is from page 208).

<sup>41</sup> Flowback, the ejection of male inseminate by females after sexual intercourse, turns out to be very important in evolutionary theories of male-female sexual competition, and Baker and Bellis have done extensive research on female seminal flowback to buttress their arguments. Flowback, as anyone experienced at heterosexual sex knows, always occurs to some extent or other, and Baker and Bellis conclude after analyzing large numbers of flowback samples that "the possibility emerges that females may influence the number of sperm placed into store from any particular male on any particular occasion" (48).

<sup>42</sup> See Claus Wedekind et al, "MHC-dependent Mate Preferences in Humans." I will discuss the importance of human major histocompatibility complex preferences in more detail in chapter two.

<sup>43</sup> For an excellent discussion of human universals, see Donald E. Browns's groundbreaking and highly regarded Human Universals.



real focus of my study, however, is human reproduction, and to this end chapter one will present in detail the evolutionary forces that have shaped human reproductive behavior. What will emerge is a view of reproduction in which selection pressures work independently on males and females, leading to intense competition between the two. Evolutionary psychologists have shown that men and women are equally choosy in long-term pairings, but they are undoubtedly responding to different things. Because physical cues are so important as markers of female fertility, human males have developed clear pan-human preferences in this regard, including a desire for such obvious fertility markers as youth and healthy skin and hair to virtually universal preferences for a .7 waist-hip ratio (WHR).<sup>44</sup> Physical cues, while less important for human females, do exist, and females crossculturally prefer such fitness markers as health, strength, height and masculine facial features (caused by hormone levels at puberty).

Differences in male and female behavioral repertoires concerning reproduction and mating are far more complex than these physical preferences would indicate, however, and here we encounter content-dependent psychological mechanisms encouraging a host of reproductively useful behavior. Human behavioral ecologists have forwarded some of the most important theories about mating behavior, and at the base of male-female competition is the helpless condition of the human infant at birth. It is a safe assumption that male parental investment has always been a feature of human

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<sup>44</sup> In a recent television show about “speed dating,” males knew whether or not they wanted to pursue female partners within seconds of first seeing them, and their desires correlated perfectly with preferable waist-hip ratios of the females involved. This of course runs counter to the claims of many feminist scholar, but makes perfect sense in evolutionary terms. Fat in the gluteofemoral region is dependent upon estrogen levels, and not only did a high WHR correlate with irregular menstruation (see Hartz et al 1984), but a mere .1 increase in WHR (from .7 to .8) led to a 30% decrease in the probability of conception per cycle during artificial insemination (Zaadstra et al 1993). In adaptive terms, 30% is a massive differentiation, and such a large discrepancy undoubtedly explains the universality of the WHR-preference data (See also Wass et al 1997).

reproduction behavior, leading, as I indicated earlier, to a number of important adaptations on the part of both males and females, adaptations that have been submitted to extensive scientific analysis both at the human and primate level.<sup>45</sup> One factor that clearly emerges is the generally polygynous nature of humans, an observation supported not only by physiological evidence like body dimorphism and testes size but also by anthropological studies discovering a strong tendency for high value males to have multiple partners.<sup>46</sup> Human females display their own physical and psychological adaptations, from an awareness of the status and probability of resource allocation on the part of potential male partners, to the ability to control the reproductive success of males through receptivity, hidden ovulation, and control of the sperm once inside the reproductive tract.<sup>47</sup> The latter especially is supported by studies showing that inter-copulatory orgasms decrease fertility in upcoming copulations; that orgasms occurring less than one minute before or occurring after male ejaculation assist sperm uptake; that females are more likely to orgasm with more symmetrical partners; that polyandrous females are more likely to experience orgasm (and conceive) when copulating with

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<sup>45</sup> Biologist Robert Trivers, in the early 1970s, first popularized the now widely accepted notion that differences in parental investment could affect mate selection and reproductive strategies among human females and males.

<sup>46</sup> Larger testes size has proven to be an indicator of polygynous mating behavior throughout all mammals, but especially in our closest primate cousins. While smaller than those of chimpanzees, who are very polygynous, human testes are still large when compared to those of certain of the apes that are very monogamous. Testes size is also heritable and variable, suggesting a balanced polymorphism in human populations and consequent mating styles that are characterized by greater and lesser levels of monogamy (see Baker and Bellis 110). Body dimorphism is also a fairly reliable indicator of polygyny in mammals. As far as organism size goes, on average human males are 10% taller, 20% heavier, 50% stronger in the upper body, and 100% stronger in hand strength than human females. In primate terms, this suggests moderate polygyny (Miller, *Mating Mind* 75).

<sup>47</sup> Female mate choice was disregarded before the work of the feminist primatologists described earlier in this introduction. Female primates, just like human females, are choosy, and probably base their decisions on the same sort of criteria conferring reproductive success as do human females. In field observations, Japanese macaque females refused copulatory solicitations 43% of the time, and male African vervet monkeys achieved copulation on only 42% of their attempts (Small 110).

someone other than their main partner; and that polyandrous females show lower sperm retention through the process of flowback when copulating with their main partners.<sup>48</sup>

In chapter two, therefore, I will establish not only the physical and ecological basis for the content-dependent psychological mechanisms central to my study but also the human behavioral attributes that, in culturally specific contexts, are the inevitable expressions of these genetically encoded human traits. In this, I will not be a biological determinist—the false bogeyman created by non-adaptionist thinkers—but rather I will attempt to prove that, in coding for the creation of particular proteins, genes also code for particular behavioral traits. The complexity of gene-environment interaction will always preclude a determinist connection between genes and behavior, for genes are often probabilistic, entirely dependent upon environmental cues as to whether or not they will be expressed, and no one can deny a certain amount of behavioral plasticity in the developmental psychology of all members of the human species. Furthermore, many traits involve combinatorial gene interaction, and many more involve pleiotropy, the ability of one gene to control multiple aspects of expression, so it is rarely correct to speak of a gene for anything.<sup>49</sup> Nevertheless, I am firmly convinced that adaptation through natural and sexual selection has shaped both the human body and mind, and, furthermore, that any study of culture is meaningless without a consideration of the psychological mechanisms and innate behavioral attributes shared by all human organisms as a result of our common evolutionary origins. I intend my introduction on

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<sup>48</sup> Many events can lead to inter-copulatory orgasms (ICPs). Some ICPs are spontaneous, even in females, some involve masturbation, some involve homosexual activity, and some involve non-copulatory sexual behavior with a partner. For orgasms and fertility, see Baker and Bellis pages 229-243. For orgasm occurrence, see Thornhill, Gangestad, and Comer, “Human Female Orgasm and Mate Fluctuating Asymmetry” (*Animal Behavior* 50:1601-15).

<sup>49</sup> Though some genes seem to come close to inevitable expression. One example is a form of the gene “IGF2R” on chromosome six identified by Robert Plomin and his colleagues that is associated with extremely high intelligence. See Geoffrey Miller 26.

evolutionary psychology, mate selection theory, and differential reproductive success in chapter one to provide the reader with a comprehension of the terms that will appear in the remainder of my study as well as a good idea of the extensive scholarship that I am building upon in my own studies of ideology and biology in Victorian texts.

Much of the resistance to biologically oriented thinking has been politically motivated, and the strength of that resistance is so strong even to the present day that attempts within the social sciences and humanities to invoke evolutionary explanations still risk significant marginalization. Therefore, before I turn to a concrete discussion of literature and art as a distinct subcategory of cultural activity and meaning making, I want to spend the third chapter of my work examining the specific make up of the band of political allies that has arranged itself against projects such as mine. From the very beginning, politics have constituted one of the most fascinating aspects of the debate over sociobiology and evolutionary psychology, and it is undeniable that until scholars of my bent can answer completely all of the politically motivated charges hurled against us, we have no shot at all of constructively adding to the ongoing debate over culture and literature taking place everyday in university English departments across America. The chapter will begin with a brief history of the sociobiology debate, including Wilson's Sociobiology and the violent response to it.<sup>50</sup> The first scientists to oppose sociobiology, including Gould, Lewontin, and their close associate Steven Rose, were self-described Marxists attempting to apply Marxist principles to their study of biology, which

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<sup>50</sup> Although I use "violent" figuratively here, the debate did indeed involve real violence. At a 1978 debate sponsored by the American association for the Advancement of Science, a group of protestors rushed the stage, grabbed the pitcher of ice water on the table next to the podium, and poured it over Wilson's head while chanting "racist Wilson you can't hide, we charge you with genocide." The protestors included at least one person connected with the Sociobiology Study Group, an anti-Wilson organization that also included Wilson's colleagues Stephen J. Gould and Richard Lewontin. Ironically, the incident actually led to greater sympathy for Wilson and his intellectual cause. For a description of the event, see Ullica Segerstrale's Defenders of the Truth 22-23 (the earlier quote is from page 23).

undoubtedly inspired their arguments against adaptationist theoretical orientations and the then widely held—and since nearly universally accepted—belief that selection occurs almost entirely at the level of the gene and individual, not at the level of the group or species as Gould, Lewontin, Rose, and others found more fitting to their ideological perspectives.<sup>51</sup>

No one can deny the importance of ethical considerations in science, and in these days of cloning and bioengineering no one can escape debate concerning the practice of science, but sometimes the critics of science fail to understand that just because scientific pursuits don't contain built in ethical guidance, that doesn't disqualify the truth of their findings, and thus Howard L. Kaye misguidedly complains in The Social Meaning of Modern Biology that “knowledge of these evolutionary origins and ends fails to provide us with morally or even biologically compelling guidance on which ends ought to be pursued and by what means” (181). To the scientist, this is a peculiar tack to take in evaluating scientific evidence, though Kaye's dismissal of modern biology is clear in his criticism of believers in scientific truth, whom he describes as frightened by the contemporary climate characterized by cultural relativity and individual disorientation: “For those who do not celebrate such a condition, the apparent certainties achieved by the natural sciences have been powerfully attractive” (178). Although Kaye's observation may contain at least a grain of truth regarding scholars like Joseph Carroll and Robert Storey, it shouldn't take the reader long to see that it doesn't apply to my study here. A mistaken belief in genetic determinism drives most criticism like that of Kaye's, and thus

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<sup>51</sup> I will define group selection more completely in chapter three, but it involves the belief that the characteristics and behaviors of individuals evolve because they serve the well-being of supra-individual social, cultural, or biological groups. As I indicate in the text, the criticism of group selection has been extremely effective, and one rarely encounters the concept outside of the social sciences, where its political appeal has enabled it to outlive the hard evidence against it.

psychologist Russell Gray complains that “evolutionary explanations are taken to imply that our behavior is, in some way, programmed by our genes, and thus the behavior is natural and immutable,” and even the distinguished Marshall Sahlins falls prey to the same intellectual error when he complains that sociobiology excuses perpetrators of undesirable behavior.<sup>52</sup> Of course sociobiology does nothing of the sort, for to my knowledge there has never been a sociobiologist postulating an invariable one-to-one correspondence between particular genes and specific behaviors, nor one arguing that a genetic predisposition to any particular behavior renders that behavior acceptable in social and cultural terms.

Chapter three will also examine the feminist criticism of evolutionary psychology, from explicitly targeted attacks like Anne Fausto-Sterling’s 1985 Myths of Gender to the implicit attacks in constructionist works like Judith Butler’s Undoing Gender, all of which view any theory of sexual difference as perpetuating the patriarchal authority of men over women and the hegemony of heteronormative discourses concerning sexuality. The problem with this viewpoint involves the startlingly convincing scientific evidence arguing against it. I actually agree with David Buss and Neil Malamuth when they argue in Sex, Power, and Conflict that “feminism is partly concerned with what ought to be” (3). At some point, however, feminism must grapple with the emerging consensus outside the humanities and social sciences concerning the biological basis of sex differences in order to continue the very desirable erosion of patriarchal privilege in societies throughout the world. In terms of politics, the question is whether a comprehension of the structural attributes of patriarchal ideology, right down to its

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<sup>52</sup> Gray’s quote is from “In the Belly of the Monster: Feminism, Developmental Systems, and Evolutionary Explanations.” For Sahlins’s argument, see The Use and Abuse of Biology: An Anthropological Critique of Sociobiology.

biological underpinnings, renders it less or more impervious to change. In Undoing Gender, Judith Butler insists that the fact—her belief, actually—that the patriarchal framework takes place at a symbolic level makes it “difficult to intervene upon” (210), and there is no doubt that it is no more easily intervened on at the biological than symbolic level. Nevertheless, a more nuanced recognition of the forces leading to patriarchy can refocus attention where it might do more good, and to me it seems as if an understanding of the biological motivations for claustration might, for example, provide a key to lessening the rampant repression and abuse of women in Muslim cultures worldwide. Nor do I think that knowing that the brutality of female genital mutilation arises from innate, evolved psychological mechanisms of human males makes the process any less horrifying to anyone, sociobiologist or non-sociobiologist alike.<sup>53</sup> Indeed, I believe evolutionary informed criticism might prove of greater political utility than older forms of criticism always jousting the same stale and improbable villains.<sup>54</sup>

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<sup>53</sup> And lest this seem like a distant concern, as many as 7,000 young girls in England still receive cliteridectomies each year.

<sup>54</sup> Capitalism or other economic systems based on property ownership are the favorites of the moment. Gerda Lerner’s The Creation of Patriarchy ties patriarchy into the emergence of private property as societies began organizing around agricultural pursuits, though she ruefully observes that “in all hunting/gathering societies, no matter what women’s economic and social status is, women are always subordinate to men in some respects” and that “there is not a single society known where women-as-a-group have decision-making power over men or where they define the rules of sexual conduct or control marriage exchanges”(30), thus undermining her entire thesis and strengthening evolutionary explanations. As another example, Nancy Chodorow argues in The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender that capitalism causes the widespread linkage between mothering, nurturing, and the culturally identified female nature. Sherry Ortner, in her influential “Is Female to Male as Nature Is to Culture” (republished in Making Gender), argues that the feminine personality “can be explained as having been generated by social-structural arrangements” conceptualizing women as closer to nature and identifying men with culture, thus leading to a universal “devaluation of women” (35,24). Ortner’s argument, though influential, is notable for its arrogant dismissal of biological theories when she cursorily insists “without going into detailed refutation of this position, I think it fair to say that it [a theory postulating biological components to human behaviors] has failed to be established to the satisfaction of almost anyone in academic anthropology” (24). I am certain that there is indeed a cultural component to what we perceive as the universal virtues of “motherhood”—and Sarah Blaffer Hrdy’s Mother Nature gives plenty of examples of mothers who participate in ecologically motivated infanticide or infant neglect, thus shattering the view that mothers are “naturally” nurturing and caring—but crosscultural studies of mother-infant bonds show a remarkably similar range of mothering behavior and cultural descriptions of mothers,

Finally, and this will no doubt come as something of a relief to my initial readers given the fact that I am a Victorianist seeking a Ph.D. in literature, I will be able to turn my attention to actual texts, for I think that at this point, whether you agree with me or not, you will at least have some sense of the mountains of evidence arguing against the “Standard Social Science Model” that have been compiled in disciplines other than our own, and also the institutional pressures within our own field that are discouraging their incorporation into literary scholarship.<sup>55</sup> My first chapter devoted to art, however, will be broad and theoretical, and will take off on Paul Hernadi’s excellent article “Why is Art?” In it, I will examine exactly what art accomplishes and speculate as to how it fits into a theoretical framework that is evolutionarily informed, for I think the very expression of art, as opposed to simpler forms of communication, involves a complex interblending of evolutionary functionalism and cultural knowledge. Though this chapter will be shorter than the chapters surrounding it, it seems like a good idea to present in one setting all of the disparate strands of thought about the origins of art itself since a model of causation at the ultimate, as well as proximate, level seems both possible and desirable before I tackle specific contexts of cultural transmission. In an earlier footnote I addressed one of my main concerns for this chapter, and that is nailing down the precise location of culture. In contrast to the common model that sees culture as an external source impressing itself upon individual members of a social group, I will forward a model that locates culture more in the evolved interests and capabilities of individuals, so that the causal flow also

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suggesting that the linkage between mothering and common conceptions of female nature is not primarily under the control of historically particularistic economic conditions.

<sup>55</sup> The Standard Social Science Model, or SSSM as it is often abbreviated, is a term devised by Leda Cosmides, John Tooby, and Jerome Barkow to describe the still prevalent belief in the social sciences that environmental factors are the prime determinants of larger functional systems like culture and individual level traits like gender and cognition. The term has become so widely accepted that it is used within the field of evolutionary psychology with no explanation needed.



goes from interior to exterior. The fact that both cultural and cognitive factors are inherently so intertwined necessitates a model of evolution that encompasses both, and in this I will follow the work of W.H. Durham, whose Coevolution presents two interlinking systems of inheritance, one genetic and the other cultural. Following Richard Dawkins, Durham proposes that culture is transmitted in units called “memes,” which are self-replicating chunks of cultural knowledge that are transmissible between individuals and generations and that have the ability to shape the expression of genes to produce individual phenotypes within a population.

Many of Durham’s postulations are very useful in a consideration of art, especially his theory of “enhancement,” by which he refers to the selection process that leads to the presence of memes that interact with genes to produce greater reproductive fitness. Furthermore, Durham’s theory recognizes the ability of individuals to select from an entire menu of possible memes while making judgments as to their consequences, which I think more accurately depicts the human use of the widely divergent ideologies and messages contained within artistic works in almost every period of history. As will become clear in the following chapters, I see the ideological impetus of cultural texts to exist always within a sort of feedback loop, with genes, as Wilson famously observed, indeed keeping culture on a leash, but with culture also returning the favor, both in the physical sense of fashioning phenotypes and the ideological sense of policing the acceptable range of behaviors. Art and other cultural texts, contrary to the totalizing claims of some discourse theorists, reflect and reinforce ideologies, but only in very

special circumstances are they as productive and creative as many of the first wave of Foucault's followers would have had us believe.<sup>56</sup>

The first category of cultural creation I propose to discuss is pornography, both written and visual (the latter thanks to the amazing compilations of visual Victorian pornography gathered in the first and second volumes of Sins of Our Fathers), and chapter four will be devoted to a discussion of Victorian sexuality as depicted in pornography.<sup>57</sup> Although the entire remainder of my study will examine human reproductive behavior, Victorian pornography presents a special case of sexual discourse because it was written largely by males and for males, and therefore one could expect a sort of pure distillation, the apotheosis of patriarchy. Nevertheless, here's an observation that I know will be distressing to many others who believe pornography to (re)present overdetermined and thoroughly unhealthy cultural forces that can at least theoretically be undone once adequately understood: Victorian pornography, when examined with a knowledge of basic evolutionary and biological principles, presents a surprisingly unmediated depiction of male sexual desire and male sexual psychology. Of course there are inevitable cultural distinctions of the class and ethnicity sort, nor am I discounting the presence of paraphilias at least partly shaped by cultural factors—a fondness for a particular type of clothing, for example, or the Victorian male predilection for flogging—though many paraphilic interests, like urolagnia or scat, do have a very strong biological

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<sup>56</sup> Many of them will show up later in my study, of course, including Catherine Gallagher, Thomas Laqueur, Nancy Armstrong, Mary Poovey, and Leonard Tennenhouse.

<sup>57</sup> I see sexuality as the most fruitful window into the study of biology and literature, for one's sexual choices are tied invariably to the promise of differential reproductive success, though one must always be careful not to ignore both the proximate and ultimate factors involved (after all, the sports car and nice shoes are all about sexual access, too, and the better the quality of one's mate, the more statistically promising are the chances of one's offspring).

foundation.<sup>58</sup> Nevertheless, despite the cottage industry that has grown up around rendering Victorian sexuality a locus of intense pressures from a host of strange new discourses, from the medical and scientific to political and moral, human male erotic striving has a remarkably universal air about it.

Most pornography indeed, even that from centuries ago, pursues similar themes, all of which seem entirely familiar to anyone who has seen even a modicum of the stuff, so it would be wrong to argue from the fringes of paraphilic interest—no matter how interesting such fringes are—when attempting to fashion a theory of human sexuality that correctly encompasses both the biological and cultural factors involved. There’s a reason, as most male consumers of pornography understand, that Barely Legal is such a popular porn mag, or that emails that present come-ons for porn sites talk incessantly of horny coeds or hot teen action. The well-intentioned authors of works like The Beauty Myth attempt mightily to dislodge the male preoccupation with female youth, but even a casual study of biology will convince the reader of two things: alas, for those of us with little of it, beauty is not a “myth,” and, furthermore, male sexual attraction is oriented towards youth not because cultural forces have directed human males to gaze that direction but because male sexuality has as its *ultimate* explanatory drive the desire to produce offspring, and advancing age is a distressingly accurate marker for reduced reproductive viability (the pursuit of youth is a principle that, interestingly, holds true in gay male culture as well, which I think argues strongly for the generally reproductive

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<sup>58</sup> Never fear—lest you feel a little queasy already, I am saving my learned and lengthy discourse on the widespread sexual uses of urine by humans and other mammals for a later project, though the subject will come up briefly in this work on a few occasions and should be of interest to all literary scholars given the interest in urinary fetishes shown by prominent writers like James Joyce, D.H. Lawrence, and Henry Miller. I do believe a host of other paraphilias are evolutionarily based, including the sexual interest in particular types of clothing. As I will explain in chapter four, the necessary behavioral plasticity involved in sexual desire—necessary to leave sexual desire adaptable to a variety of status markers, all important to differential reproductive success—easily explains the common interests in things like uniforms or leather.

orientation of all male sexuality; I will discuss the possible biological origins of homosexuality in more detail ahead).<sup>59</sup> Indeed, as David Buss’s massive studies of cross-cultural data have proven, an advance in age past the period of possible reproduction is never, in any known culture, considered a marker for female beauty (the isolated paraphilic interest of Sexy Grandmas magazine aside). In addition, as Buss argues, the interest in teenage girls—and my text ahead will provide statistical details demonstrating this phenomenon, in case you remain unconvinced—is easily explainable given the extreme and well-founded anxiety over the certainty of paternity that males of almost every mammal species exhibit. The interest in virgins—and cultural practices like veiling, claustration, and cliteridectomies meant to insure the virginity of young females—arise directly from the fact that virginity on the part of the female assures paternity on the part of the male, and one way to insure the virginity of one’s subject is to

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<sup>59</sup> Here I have finally, I realize, run totally afoul of the well-intentioned wing of contemporary literary criticism that dismisses as heteronormative any view of sexuality that explicitly proposes procreation as its rationale. Indeed, having spent the last twenty years or so stridently arguing against all binaries, and postulating a utopian future where no sexual norms ruled and pleasure would undo the rigid binary of homo/heterosexuality, thus leaving the experience of homosexual pleasure open to all men and women just as it always has been to me in my own life, I arrive at this point of my scholarship with some sadness. Still, it is impossible for sexual desire not to have been shaped by the inheritance from countless generations of reproductively successful individuals, and this pretty much guarantees that male sexuality will be *primarily* focused on reproductively significant aspects of possible mates. I once would have strongly castigated anyone positing a reproductive telos for sexuality, but one doesn’t have to stumble too far into the scientific study of human reproductive behavior to become convinced that such a telos does indeed exist. There is hope for a queer future, though. What emerges from the scientific evidence is that homosexual behavior is relatively common among pre-reproductive males, so homosexuality—as the practice and not the identity—is part of the basic sexual repertoire of many if not most men, and I do believe that men’s lives would be richer if we as a culture could encourage that receptivity to remain more strongly into adulthood (in fact, the scientific discovery of so much pre-reproductive homosexual behavior on the part of males supports the folk-psychology belief that latent homosexual desires power homophobia, and this could be a fascinating case of cultural norms—compulsory homophobia for men, in this case—arising from the evolved biological underpinnings of male sexuality). Nevertheless, the common and statistically overwhelming adult male fascination with breasts and shapely butts is not cultural, but a biological universal, so it is an intellectual dead-end to pretend that most guys get sexually aroused by the cues of seemingly available women simply because their infinitely plastic desire for sex has been articulated through the cultural structures of “heterosexuality.”

get to her first.<sup>60</sup> This is all easily understandable and, though horribly unfair and politically unpalatable, won't change as long as men have even a slight control over the reins of culture.

The written pornography I will analyze will all be mainstream works, concentrating especially on the one most easily available, My Secret Life, a work that also benefits from having been discussed by most of the previous scholars examining Victorian pornography, including Stephen Marcus in his wonderful The Other Victorians, Lisa Z. Sigel in Governing Pleasures, and Ellen Bayuk Rosenman in Unauthorized Pleasures.<sup>61</sup> Of these three studies, Marcus's is particularly compelling, for he does an exceptional job of delineating the sexual psychology and worldview of the anonymous author of My Secret Life, though I remain completely unconvinced that the work is an actual autobiography (which does little to change his thesis).<sup>62</sup> Although a little old-fashioned in its theoretical modeling of culture, at least in these heady post-Foucauldian days, Marcus has an unerring sensibility as he dives into the immense text of Walter's

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<sup>60</sup> Also, if sexual desires coevolved in systems promoting life-long pair bonding, even of a polygynous nature, one would expect youth to be an extremely important predictor of possible lifetime reproductive events within the context of that pair bond, thus male interest in youthful partners would be selected for. To discover the general lure of fifteen year olds, one doesn't have to look further than the world of fashion models. Corinne Day's first photo shoot of Kate Moss took place when Moss was fifteen, and Day dressed Moss in cheap panties that clearly showed Moss's genitals underneath. The photo shoot was a great success, naturally, and I doubt that even those offended by Day's photos would deny the widespread effect they had on males who viewed them, though they clearly reside close to the line of child porn. Political enlightenment has a tough obstacle when it comes face to face with brute biology.

<sup>61</sup> Two additional important works that will inform my discussion are Michael Mason's The Making of Victorian Sexuality and Ian Gibson's The Erotomaniac: The Secret Life of Henry Spencer Ashbee.

<sup>62</sup> Michael Mason considers the text to be a true autobiographical account. Ian Gibson argues for the text's fictional nature very persuasively, and offers Ashbee himself as the most likely author. Some of Gibson's evidence, however, as well as his observation that the writer was actually inexperienced with women, ignores the fact that many of the narrator's seemingly ignorant details—including women "spending" copiously when they orgasm and women experiencing orgasms while being raped—are relatively standard items in the list of male turn-ons, so they could easily have been superimposed on the text since the whole point of writing pornography about one's own sexual exploits is to re-experience the erotic pleasure again, a process transferring the real into the imaginary. Indeed, pornography almost always involves fantasy, for it is, in the description of Berkeley Kaite in Pornography and Difference, a kind of "published dream" (viii).

sexual episodes to uncover especially important parts to drag to the surface for more thorough examination. Lisa Sigel's work, on the other hand, has a completely up-to-date feel as she ponders "submerged ideologies of empire" and "the historical processes that went into the formulation of these [pornographic] artifacts" (1,3). Sigel's work exemplifies both the strengths of cultural criticism—as when she looks at the frequent presence of the supposedly liberated and sensual Turkish harem in one strand of Victorian pornography—and its weakness, as when she attempts to attribute the invention of standards of beauty, and even the popularity of heterosexual pornography, to capitalism. Ellen Bayuk Rosenman is also writing within the resolutely ideological framework of contemporary literary theory, but her work displays greater joy in the sheer perversion of her subject, and early in her work she states her desire to "emphasize the fluidity and multiplicity of sexual experiences as they complicate familiar boundaries" (4). Against the accepted notion that My Secret Life is sexist and dehumanizing in its objectification of women, Rosenman argues that the protagonist actually protests against and re-writes Victorian social codes of sex and identity in his stories.<sup>63</sup> Therefore, Rosenman describes My Secret Life as a "manual for deconstructing masculinity" where "Walter's pornutopic fantasies court the vertiginous excitement of sexual and subjective anarchy" (170, 176).

I intend to pursue a path that will be cognizant of all of these distinguished works of scholarship, though my focus will be different. Before teasing out possible cultural or ideological components peripherally involved in the pornography under discussion, I

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<sup>63</sup> For the alternate view, see Fraser Harrison's The Dark Angel, where he insists that "Walter could only think of women, whether prostitutes, wives with jealous husbands, or orphaned children, in terms of their capacity to gratify him sexually and in terms of the amount of money he would have to spend to acquire them" (263).

would like first to establish how, for the most part, these works follow the rather universal desires and experiences of men. I realize this sounds ideologically naive—like I am ignorant of the past forty years or so of literary scholarship—but I assure you I am not. I simply believe that scholars’ quest for the different and unique, a quest partly encouraged by the institutional need for new topics for publishable papers, has obscured the fact that there are human universals, and in my study of pornography I intend to start with those universals and then study how particular ideological structures have both shaped their articulation and risen against them.<sup>64</sup> As a scholar educated over the past decade and a half, I am acutely sensitive to the functioning of ideological forces involving class, nationality, gender, and race, and I don’t mean to underemphasize their importance in Victorian pornography. Nevertheless, especially in the case of pornography, an obsession with uncovering ideology distorts one’s view of what is really happening, for it is easy to miss the most important facets of a text while concentrating on details peripheral to the work’s main enterprise. Pornography *is* reflective of the prevailing ideological obsessions of the larger Victorian culture that spawned it, and even reflective of the ideological structures that shaped the Victorian experience of sexuality, but before those forces can be outlined with any acceptable fidelity the “sex” part of the sexuality must be understood. After I have delineated the standard features of the male sexual repertoire that are displayed throughout, then I will be in a position to contemplate

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<sup>64</sup> The fetishization of uniqueness has plagued anthropology since the early twentieth century, leading to everything from the well-intentioned fraud of Margaret Mead’s Coming of Age in Samoa to the misleading emphasis on cultural difference in the works of Geertz. See, for example, Donald E. Brown’s excellent discussion of universals completely ignored by Geertz in his “Deep Play: Notes on the Balinese Cockfight,” pages 3-5 in Human Universals. The search for the ideology of empire fulfills the same sort of quest. Once one is looking, one can find it everywhere, a fact that at least partly calls into question the intellectual foundation of the entire enterprise. I’m not denying that the ideology of imperialism shows up in pornography, just that it’s relatively peripheral to the entire enterprise of understanding why pornography was produced and how and why it was consumed in Victorian England.

how the intersection of class and gender privilege affects the sexual escapades of the work's protagonist.<sup>65</sup>

At the risk of sounding repetitive, I will stress once more the most important aspect of my theoretical orientation. When I say that culture establishes powerful regimes enforcing normative behaviors and beliefs, I sound like any other doctrinaire critic, right down, indeed, to my obvious distaste for many of the behaviors so vigorously enforced. Still, I think it is a mistake to discern the locus for such forces in the realm of the “man-made,” like patriarchal privilege or capitalist consumerism, for such a practice, while perhaps politically useful in the short term, creates a lopsided view of the very institutions in which we are all enmeshed. The distinction involved becomes one of epistemology, and I am firmly convinced that biology got here first. I do recognize the appeal of a system of thought in which humans are infinitely malleable—to be improved and enlightened to near-perfection if only the cultural and social circumstances around them could be adequately altered—and this Marxist approach has influenced a whole generation of scholars not only in the humanities but in the biological sciences as well, as is evidenced in the works of the openly Marxist cabal of Stephen J. Gould, Richard Lewontin, Steven Rose, and Michael Levin. This tidiness, however, is illusory, and is becoming increasingly untenable in the face of advancing scientific insights into the nature of human cognition and evolution. If only there were no such thing as human nature, if only there were no such inconvenient—at least in the eyes of contemporary

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<sup>65</sup> And they certainly do. Walter is always aware of the privileges that his class entitles him to, and his sexual experiences are often shaped by his satisfaction at being the one paying and thus in charge of the sexual event. Also, the very text itself is located within a matrix of class and gender privilege, for it is written by a well-off male to be published in a very limited and expensive format for other well-off males to enjoy. Indeed, in some ways it is understandable that most discussions of this text concentrate on these aspects of the work, though I hope that my approach will show that the sex itself is important, and that relentless ideological obsessions often reach very wrong conclusions.



politics—human instincts, instincts that were shaped 100,000 years ago in the Pleistocene era. What you will discover in my critical methodology is an attempt to move one step up the ladder, to recognize ideology in its modern critical sense as a series of forces both emerging from and invariably shaped by biology.

## CHAPTER TWO: THE BIOLOGY OF HUMAN EXPERIENCE

If there is one thing that poststructuralism has taught us as practicing scholars in the field of literary studies, it is that we must constantly interrogate the interface between individual perception and the larger world, for often what seems natural and self-evident is anything but. Nevertheless, a recognition of the constrained nature of our senses does not condemn us to a descent into radical skepticism; rather, it allows us to fashion from the generally universal aspects of the human experience here on earth a series of explanatory paradigms about what conditions humans must have encountered in the past. Indeed, our senses have been fine-tuned through countless generations of evolutionary survivors, so that even biological cues as subtle as immune system function are detectable through the human sense of smell. Fortunately, the limits of our senses no longer create physical walls impenetrable to the gaze of human reason, for through the application of technology, humans have devised ways to measure all sorts of physical qualities of the universe that remain invisible to the human senses, from x-rays to the behavior of subatomic particles. But if we want to understand human behavior at all, our sensory experience of the world is the proper place to start.

As Victor Johnston asserts early in his book Why We Feel, “the human brain did not evolve to accurately represent the world around us; it evolved only to enhance the survival of our genes” (viii). According to Johnston’s thesis, then, human experiences are really “emergent properties” created in the brain, and his model will more or less

provide the starting point for all of my discussion below.<sup>66</sup> As he points out, the colors of the spectrum that we perceive as unique—the colors such as red or green or yellow—are simply random points upon the electromagnetic spectrum, yet frequencies that the recognition of by humans as distinct properties in the outside world conferred reproductive advantages in the past. Other organisms, like bees, for example, are not able to perceive many of the colors we humans find so evident, yet those same organisms are often able to discern environmental cues that are entirely beyond the abilities of human perception. As Johnston asserts, “the illusion of a naïve realism is so powerful and ubiquitous that we come to believe that objects really are red, or hot, or bitter, or sweet, or beautiful, and we usually do not ask how we impose this structure on our physical world, or how this structure relates to our biological survival” (13).

Let us consider momentarily the brain, the place where perception is transformed into the emergent properties that inspire human action or reaction. Sugar makes a nice place to start our discussion. Humans from every society on earth have a very positive hedonic reaction to sugar, yet it is meaningless to say that the “sweetness” they experience resides in the chemical structure of sugar itself. Instead, humans have clearly evolved a sensory bias that produces pleasurable sensations when consuming sugars, and this is completely understandable given that sugars are essential for energy and that high sugar content constitutes the surest marker that many important consumable items in the environment have matured to the point of maximum nutritional benefit. The same principle holds true for bitterness or a rotten smell, both of which produce a negative hedonic bias because they are frequently associated with spoilage and the presence of

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<sup>66</sup> This is not a strange concept at all to neuroscientists. See also Francis Crick’s [The Astonishing Hypothesis](#), published in 1994.

harmful bacteria, or even pain, which is a hedonic marker for tissue damage and possible infection (though, it goes without saying, dung beetles have evolved to love the smell of dung!).

Most significant human experiences, indeed, can be connected with an accompanying hedonic bias, from the often unhealthy pleasures of salt and fat to the raptures of love, and the functional paradigm I established in my introduction provides a means of analyzing and interpreting the origins of these biases and the concomitant emergent experiences accompanying them. Fat and salt, for example, would have been rare enough in the human environment of evolutionary adaptedness that they would have required significant effort to get, for even the acquisition of fat in one's diet involved the dangerous and sometimes unfruitful process of hunting. Thus, as any fan of McDonald's French fries will tell you, the consumption of both salt and fat create great pleasure and they rank very high on the scale of human food preferences, and the universality of the tastes and pleasures involved makes it easy for the giant food chain to roll out their goods in any part of the world to great acclaim.<sup>67</sup> As will be important throughout my entire study, it is essential to remember that sensory biases work at the proximate level; that is, the entire array of pleasurable human activities—from gorging on Little Debbie snack cakes to climaxing in the embrace of one's partner—are pleasurable completely independently of the awareness as to why the pleasure gained from those activities has a universal genetic basis arising from the past reproductive success of those of our ancestors most motivated by those feelings.

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<sup>67</sup> A recent study widely reported on the news, indeed, found French fries to be the favorite food of American females, surpassing even chocolate. Capitalism is exceptional at discovering the evolved biases of humans and satisfying them in a supremely effective way, and no one has done so better than McDonalds.

Geoffrey Miller, whom we met in the introduction, posits a unified pleasure system regulated through brain chemicals like dopamine and endorphins and points out that “pleasure helps solve the problem of reinforcement learning and prioritizing behaviors” (150). Pleasure systems share unique similarities in every culture worldwide, even when they maladaptively lead to situations like the current crisis with obesity in cultures with developed food industries, and thus it is reasonable to view them as species-typical motivational systems that encourage individuals to participate in biologically and reproductively beneficial behaviors, or, more correctly, behaviors that were beneficial in past ecological surroundings.<sup>68</sup> As we shall see soon, the universal nature of evolved neural rewards systems in humans is only one of many unifying forces connecting human nature across cultures, but it is central to any consideration of evolved human psychology, and the chemicals involved undoubtedly also underwrite the human preoccupations with love, sex, and mating. Moreover, humans have evolved a repertory of basic emotions—happiness, sadness, anger, fear, disgust, and surprise, understood cross-culturally by all humans—that are centered in the limbic system of the brain and which seem, as Miller points out, to work as hedonic amplifiers to make certain that environmental cues are not overlooked or undervalued by individuals. Thus the universal pain of heartbreak at the end of a relationship, or of anger at being betrayed by a friend, or of fear when encountering a novel and possibly dangerous situation.<sup>69</sup> In the human

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<sup>68</sup>In fact, as Miller points out, is not an exaggeration to view modern culture as “a vast, collaborative attempt to chart out this space of all possible stimulation, to discover how to tweak our brains in pleasurable ways” (155). Although this concept presents a nightmare to the “morals” crowd, I think it accurately reflects the radical intermixing of technology, pleasure, and evolved desires that modern culture specializes in, from the sex and violence of movies and videogames to the increasingly sophisticated use of pharmaceuticals and engineered foods. Naturally, I say, “chart away!”

<sup>69</sup>Though the latter situation involves a concomitant chemical reaction involving adrenaline that is also an evolved response to environmental needs since the adrenaline enables a more efficient response to the danger. Those of us like myself, a former thrill sport junky, understand the pleasurable nature of large

ancestral past, individuals who were not cognizant of the potentially deleterious nature of these situations in terms of survival and reproductive success simply didn't influence the transmission of genes into the next generation in any marked way.

I will push the preceding discussion of evolved, domain-specific neural circuits into the more controversial territory of psychology later, but first I would like to examine other evolved human universals to delineate additional effects of the common environmental pressures that led to pan-human sensory abilities. If all perception involves the creation of emergent properties within the consciousness of individuals themselves—or, at the very least, a targeted perception of biologically relevant information while simultaneously not perceiving non-biologically relevant information—then we would expect a remarkably stable set of sensory abilities in all humans worldwide since the human environment of evolutionary adaptedness presented humans with a relatively stable environment in the Pleistocene before humans began dispersing throughout the world. This is indeed what we find. Not only are taste classifications and taste preferences—positive reactions for qualities like salty and sweetness, and negative for qualities like bitterness—universal, but the human sense of smell is also universally oriented to distinguishing the same sorts of biologically relevant data. In this area, there is a great deal of sensory plasticity built into the human olfactory system, so that infants are born genetically equipped to become accustomed to different types of odors, and therefore preferences are clearly shaped within the realm of culture, but an astonishing array of olfactory capabilities point to the species-typical nature of smell.<sup>70</sup>

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amounts of adrenaline in the human biochemical system, and the same principle encourages the widespread human attraction to everything from roller coasters to scary movies.

<sup>70</sup> Actually, infants do exhibit hedonic preferences, wrinkling their noses at smells like the scent of rotten eggs and starting suckling motions in the presence of odors like that of butter, but as Piet Vroon points out,

For example, mothers can recognize their newborns by scent after as little as ten minutes of exposure, and there is increasing evidence that odor cues alone are significant for parents and siblings to recognize their own kin, and experimental subjects demonstrated a statistically significant ability to properly pair up clothing worn by infants with that worn by their mothers, thus suggesting a genetic basis to body odor (Stoddart 73-74). Furthermore, human bodies are shaped by evolution to encode information in olfactory cues, for the apocrine glands secrete great quantities of steroid-like substances, the importance of which is underscored by the presence of hair as a wicking mechanism in the regions of greatest concentration, such as the pubic area and axillae (armpits). Even urine and saliva contain significant quantities of odorous steroids, and androstenol is excreted in the urine of both males and females, thus suggesting a sexually significant role for urine in our evolutionary past.<sup>71</sup> Research into the value of scent in human mating is just beginning, but already we know that individuals rate as most pleasant the body odors of individuals with dissimilar major histocompatibility complexes, and in infertility clinics couples having trouble conceiving exhibit a statistically significant correlation in the similarities of their immune systems, thus underscoring the reproductive role of the olfactory ability to distinguish such cues.<sup>72</sup> Also, when presented

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this could possibly explained in terms of familiar and unfamiliar scent just as easily as preferable and non-preferable. The latter would be more consistent with findings that very young children seem indifferent to smells that produce strong negative hedonic reactions in adults. Nevertheless, all research shows that smell preferences undergo consistent changes at puberty, so that pheromone-resembling substances like musk and androsterone begin to inspire a positive hedonic experience. See Vroon 76-77 for his discussion of smell in children.

<sup>71</sup> As Stoddart asserts, “even trained perfumers sometimes find it hard to discriminate between vocalizing a particular odorant as musky or urinous,” and all sexually important steroids exhibit urinary tones (64-65). Saliva in men is also especially high in androstenol.

<sup>72</sup> The major histocompatibility complex (MHC) is a genetic coding process on the outer layers of cells through which cells signal their internal contents to the immune system so that white blood cells know which cells to attack. The functioning of the MHC is why individuals who have received organ transplants must take immuno-suppressing drugs. The research on MHC detection abilities in humans started with the

with t-shirts worn by men while sleeping for two nights, ovulating women rated the shirts worn by the most symmetrical men as the most pleasant, demonstrating the operation of a presumed fitness distinguishing mechanism in women.<sup>73</sup> In all studies women demonstrate a much greater sense of smell than men, thus suggesting a greater role of scent in female mate choice than in male mate choice, where so many fitness cues are located at the visible level.

Like in many other species of animals, the human olfactory system is designed specifically to assist in mating through the perception of pheromones. Although the subject of the human vomeronasal organ (VNO) has always been controversial, with many scientists in the past believing it was merely vestigial and useless, new studies have shown that it does indeed function in humans.<sup>74</sup> In an evolutionary move to partly counter the female benefits of hidden estrous, male humans seem able to determine when females are ovulating and most fertile from their secretions of copulins—vaginal fatty acids—as well as secretions from their apocrine glands, for in one study men rated the t-shirts worn by ovulating women as the sexiest and most pleasant (Buss, Evolution 246-247). Men, after inhaling copulins, rated photographs of women as more attractive than when they inhaled neutral odors (Etcoff 239). When in the presence of androstenol, both males and females rated females in photographs as sexier and more attractive (Stoddart 136). And when androstenone is applied to chairs in theatres or waiting rooms, men

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observation that mice used olfactory cues from urine in the selection of mates (see Etcoff 240-241 and Stoddart 74-75).

<sup>73</sup> See Gangestad and Thornhill “Menstrual Cycle” and Rikowski and Grammer. The men were given the shirts to wear for two consecutive nights while sleeping, and they were told to avoid deodorants or spicy foods. The women involved in the study had no idea what the study was about, and the replication of the findings makes them reliable.

<sup>74</sup> The VNO, and indeed the sense of smell overall, is a very ancient ability existing in the primitive limbic system and not connected to the neocortex wherein reside linguistic abilities. Thus it is often very difficult for humans to describe their olfactory sensory experiences in words. On the presence on the human VNO, see Monti-Block et al.



avoid them whereas women are more likely to choose them (Stoddart 137; also Kirk-Smith and Booth). In one study where one toilet cubicle in a row of many was treated with androstenol, males were five times less likely to use it (see Gustavson, Dawson, and Bennett).

All of the preceding studies demonstrate links between the human sense of smell and human mating behavior, though in the cases of pheromones the research still remains to be done to determine the specific connections involved. Likewise, the perception of visual cues also constitutes a species-wide system of mate preference behaviors, and this one is quite well understood. Although many people continue to believe that beauty is entirely a cultural creation—or worse, a self-evident functioning of transcendent ideals needing no additional interrogation—evolutionary psychology has proven exceptionally valuable in elucidating the true function of “beauty” in human mate choice. I have already covered several of the obvious points in the introduction, but I will repeat them briefly here. First of all, youth and female beauty are connected in all cultures, whereas there is a far less strong connection between female aesthetic preferences concerning male appearance and youth.<sup>75</sup> Furthermore, healthy skin, healthy hair, and symmetrical features rank high on the list of desirable features in all cultures.

More specifically, men worldwide prefer a .7 hip-waist ratio (HWR), and in studies conducted by Devendra Singh, heavy figures were judged to be as much as ten years older than the slimmer figures, thus providing another connection between weight and male mate preference. Significantly, both weight and HWR are directly connected to expected reproductive outcomes, with females who possess a HWR below .8 being up to

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<sup>75</sup> This, of course, is why Harrison Ford and Sean Connery get to bed such young female co-stars in their movies, and why older actresses find themselves shut out of roles that present them as desirable sex objects. I do agree that this seems horribly unfair, despite the evolutionary logic behind it.

twice as likely to conceive as a female with a HWR above .8.<sup>76</sup> Indeed, even in places with large numbers of overweight and obese people like Fiji, men still prefer women of a normal or average weight.<sup>77</sup> All of this flies directly in the face of the beliefs of hopeful (and, alas, naïve) critics like Robin Lakoff and Raquel Scherr, who insist in Face Value that “Beauty is not instantly and instinctively recognizable: we must be trained from childhood to make those discriminations” (30). Nothing could be further from the truth, and even three to six month old infants possess the same beauty detectors as adults. In studies conducted by Judith Langlois, when pictures that had been rated by adults for attractiveness were presented to infants, regardless of the race of the subject or the attractiveness of the infants’ mothers, the attractive faces caught the infants’ attention and inspired them to stare longer.<sup>78</sup> Most telling of all, human conceptions of beauty are consistent across all cultures, an immense stumbling block for the culturalist perspective to overcome.<sup>79</sup>

I will discuss evolved psychological mechanisms shortly—for they are more difficult to measure than the list of sensory biases and abilities presented so far, and thus involve more scientific debate—but the pan-human qualities above are undisputedly the sorts of things that demand a scientific explanation at the ultimate level. If, indeed, mate

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<sup>76</sup> See Etcoff 192; Zaadstra et al; and Wass, Waldenstrom, and Hellberg.

<sup>77</sup> See Anne Becker’s Body, Self, and Society: The View from Fiji. Becker’s findings are consistent with those of Devendra Singh, who has found the same results in the eighteen cultures he has examined.

<sup>78</sup> The attractiveness of the infants’ mothers was included in the study since it could have acted to bias infant preferences. See Langlois et al “Infant Preferences” and “Facial Diversity.” Also see Samuels et al “Facial Aesthetics.” For Nancy Etcoff’s discussion of these studies, see pages 31-32.

<sup>79</sup> See, for example, the aforementioned “Their Ideas of Beauty Are, on the Whole, the Same as Ours,” by Michael Cunningham et al, and “Criteria of Facial Attractiveness” by Douglas Jones and K. Hill. Two studies using computer programs are also notable. In one, Donald Giddon used a program to present profiles to subjects to be judges of attractiveness, and he found that very small changes, as small as 1 millimeter, could change a face from pleasing to unacceptable (see Etcoff 134-135). Also Victor Johnston’s innovative internet based “Faceprints” program proved a very popular test of worldwide perceptions of beauty and demonstrated great agreement on beauty and an unmistakable correlation between beauty and youth. For his discussion, see Johnston pages 145-149.

preferences are culturally based as some claim, then we would expect a far more comprehensive exploration of the possible design space available when it comes to prescribing culture-specific desires, for some process closer to random selection would come into play. But that is just what we don't find, and the reason is that natural selection has shaped human desires through millennia of successful reproductive events. The recognition of the effects of evolution on all aspects of human existence came about as the result of what has come to be termed the "modern synthesis," undoubtedly one of the great intellectual projects of the last century, and a short description of this intellectual achievement will aid the reader in comprehending precisely how important it is for the understanding of virtually all human attributes. The pioneering voice was that of Ronald Fisher, who first joined population genetics with Darwinian selection, and his insights birthed the entire field of sociobiology, and even later behavioral ecology and evolutionary psychology.

For much of the twentieth century, however, biologists had an incorrect view of selection, which was often believed to function for the benefit of the species or group and not the direct benefit of the individuals involved. Thus in V.C. Wynne-Edwards's very influential Animal Dispersion in Relation to Social Behavior, published in 1962, Wynne-Edwards argued that the well-known winter congregations of starlings allowed individual members to gauge the size of the surrounding population so that they could adjust their numbers of offspring the following year, thus leading to a more efficient use of food resources and continued survival of the species. Wynne-Edwards, indeed, believed that any species lacking the inbred ability to heed these sorts of social regulatory mechanisms would have gone extinct long ago through population explosion and overuse

of resources. Although, as I'll show in chapter three, it seems like the majority of non-scientists still cling to Wynne-Edwards's ideal of group-cooperation mechanisms, very few scientists still do, for the concept was discredited a few years after Wynne-Edwards's work by a number of very convincing studies, the most influential of which was George C. Williams's Adaptation and Natural Selection, published in 1966. Williams sensibly pointed out that if there were indeed "species preservers" in a population, they would be outproduced by "reproduction maximizers," so that those individuals possessing the genetic predisposition to sacrifice their own reproductive success for the good of the group would leave progressively fewer copies of their genetic material in succeeding generations. Since Williams's book, very few evolutionary biologists have postulated anything other than individual reproductive success as the basis for natural selection.

But there clearly is altruism in animal populations, and group selectionists believed that altruism had to involve group and not individual benefit since it so often involves behaviors very harmful to the individual performing them. Bees and ants, whose altruistic behavior is often extreme, posed a significant puzzle, and one of the great iconoclasts of twentieth-century science, William D. Hamilton, unraveled the mystery in his "The Genetical Evolution of Social Behaviour." Written with tenuous university affiliation, often in train stations and libraries, Hamilton's work used a combination of population genetics and complicated mathematics to forward a theory of altruism that concentrated on individual-level selection. Although the math involved proved difficult to many, Hamilton's basic thesis was that altruism is most often oriented toward others who share at least some of the genetic material of the individual involved (for example, in humans, siblings share fifty-percent of the same genetic material,

whereas in ants, bees, and wasps, their unusual reproductive process leaves sisters as much as 75% related). Therefore, altruism exists in populations because it is biased toward copies of the genes possessed by the altruist, and, furthermore, the levels of costs and benefits can be modeled and proven through mathematical equations.<sup>80</sup> More recent studies of a wide range of species have validated Hamilton's theory of "inclusive fitness," and his gene-level analysis removed one of the last stumbling blocks to the acceptance of individual selection.<sup>81</sup>

With a gene-level view of evolution and natural selection, the modern science of sociobiology became possible, for suddenly science had the tools to examine competition between individuals, and such competition proved to be commonplace, even in areas like supposedly monogamous mating practices which seemed to benefit from complete cooperation, for it became clear that the females of many bird species that practice monogamous pairing were engaging in extra-pair copulations (EPCs) whenever it seemed beneficial to their own genetic interests. Many people mistakenly see Wilson's great Sociobiology, published in 1975, as the genesis of the application of natural selection to social behavior, but his work was actually a masterful synthesis of earlier work, from that of the builders of the "modern synthesis" like Ronald Fisher, Ernst Mayr, Theodosius Dobzhansky, and George Gaylord Simpson, to the later evolutionary explorations of

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<sup>80</sup> Darwin knew that ants and bees presented a problem to his theory. His intellectual achievement is therefore all the greater since, before the dissemination of Mendel's discoveries concerning genetics, he recognized the possibility that altruism was selected for because it benefited members of one's own family. See Alcock 96-102.

<sup>81</sup> Thornhill and Palmer sum up the research succinctly: "There is no example of true altruism adaptation known in biology. This is the kind of adaptation that evolution by group selection for true altruism would produce if it had been effective in life's evolutionary history. A biologist who discovered a true altruism adaptation would become a famous biologist because of the novelty of such a finding" (206).

behavior by Williams, Hamilton, Robert Trivers, David Lack, and Richard Alexander.<sup>82</sup> Even Wilson's most provocative thesis, that differing levels of parental investment on the parts of male and female humans would inevitably lead to different tactics of mate selection and reproduction, had been suggested earlier in the decade by Trivers. Wilson's great achievement was that he propelled the study of sociobiology out of his own limited discipline and made it available to scholars of all disciplines, and especially important in this process was his prescient final chapter, which connected the discussion of sociobiology to human behavior.

Despite the uproar his final chapter caused—and maybe because of it since it spurred such great debate and renewed efforts at research—it didn't take long for a large number of biologists and psychologists to realize that individual-level competition and natural selection provided a comprehensive and indispensable tool-box for discovering why humans behave as they do. Two years after Sociobiology, Richard Dawkins's The Selfish Gene cemented the centrality of gene-level explorations in evolutionary analyses, and by the end of the decade Donald Symons had expanded Wilson's views on human sexuality considerably in his own The Evolution of Human Sexuality, a work that provided a clear and compelling presentation of the forces dictating distinctive and competing reproductive strategies in males and females. Great controversy emerged from the inevitable insistence by sociobiologists that genes contribute to all human behaviors, so that culture no longer existed, as it had for Franz Boas and his legions of followers throughout the century, as an autonomous force dictating the diverse cultural

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<sup>82</sup> I am indebted here to Alcock's discussion of Wilson in The Triumph of Sociobiology. See "Sociobiology before Wilson" 16-19.

practices of humans around the globe.<sup>83</sup> Although the counter-reaction to sociobiology always painted it as the reductive and deterministic insistence that genetic factors control all human behavior, I know of no sociobiologist who actually made such an untenable claim. Rather, sociobiologists merely posited an indisputable role for genes in all human behavior, recognizing at the same time that environmental factors are also involved in the phenotypic expression of genetically coded attributes. The title of Matt Ridley's 2003 work Nature Via Nurture sums up the findings of sociobiology, and his discussion is especially good at pointing out how genes actually fashion humans in specific ways to be sensitive to environmental forces in the process of phenotypic development. Even the very process of learning and responding to environmental pressures, in this paradigm, proceeds because organisms are genetically shaped to be responsive to particular stimuli that evolutionary forces have identified as linked to reproductive success.

At this point I arrive at the discussion of the material that will comprise the heart of my study. The question, of course, involves precisely how complexly endowed humans are with traits, dispositions, and psychological mechanisms at the innate level. Even Geertz had known that humans come into the world differently endowed, for no logical thinker could ascribe all human differences to cultural forces. Therefore, in The Interpretation of Cultures, he asserts that “our ideas, our values, our acts, even our emotions, are, like our nervous system itself, cultural products—products manufactured, indeed, *out of tendencies, capacities, and dispositions with which we were born*, but

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<sup>83</sup> For example, in his 1917 Culture and Ethnology Lowie asserts: “culture is a thing sui generis which can be explained only in terms of itself. . . . *Omnis cultura ex cultura*” (qtd. in Tooby and Cosmides, “Psychological” 22). Also, in his famous “The Science of Culture,” Murdock asserts that culture is “independent of the laws of biology and psychology” (also qtd. in Tooby and Cosmides 22).

manufactured nonetheless” (italics mine, 50).<sup>84</sup> Geertz clearly means to stress the lessened significance of innate mechanisms in this quote, but continued research has discovered the centrality of evolved mechanisms to human behavior. Still, the model of activity—and the interconnectedness of innate and cultural—is essentially correct here, though I can’t help but seeing the modern day connectionist theory in Geertz’s assertion. Connectionism, a school of thought founded by David Rumelhart and James McClelland, posits the existence of generic neural networks in the human brain, a model based upon the general functional attributes of computers. Environmental forces then shape these generic neural networks to perform various tasks, just as a computer program does, with human cognition and personality as the end result. Although computer modeling has demonstrated the ability of generic networks to handle simple tasks, however, complex mental tasks seem to be beyond the capabilities of such a model unless enough specialized sub-networks are created to endow the system with a rather comprehensive set of innate logical mechanisms, just as the evolutionary model of content-dependent mechanisms postulates (but that connectionists generally disavow). Nevertheless, connectionism remains popular, though connectionists are in the unenviable position of having Steven Pinker on the opposing side, and his The Blank Slate does an excellent job of discrediting extreme forms of connectionism.<sup>85</sup>

The current discipline of evolutionary psychology arose out of the realization that humans everywhere have been shaped by the same past ecological environments, and that

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<sup>84</sup> I can’t resist pointing out here that Geertz’s writings not only influenced my previous thinking in comprehensive and fundamental ways, but that his prose style was one that I admired greatly and modeled my own after. I trust the reader will see the similarities even from this short quote.

<sup>85</sup> See especially pages 78-83 of Pinker’s The Blank Slate. He continues in the following pages to counter the allied belief in extreme neural plasticity, showing that the areas of the cortex supposedly shaped by environmental pressure in novel ways pretty much wind up doing what they did in the beginning, thus suggesting innate wiring more than plasticity at work.



it is possible to connect current pan-human attributes to specific adaptive problems our ancestors faced in the past. The process of connecting past environments of evolutionary adaptedness with current human behaviors uncovered myriad content-dependent psychological mechanisms that are innate in humans. David Buss does an admirable job of defining evolved, content-dependent psychological mechanisms in his textbook Evolutionary Psychology, and he stresses the specialized nature of the process involved. Therefore, he insists that evolved psychological mechanisms always work in reaction to an adaptive problem, transferring the input of a narrow slice of sensory data into output, either in the form of physiological activity, the triggering of other psychological mechanisms, or “manifest behavior” (48). In his example, an individual enters the room at a party after getting a drink to find his or her partner being overly friendly with another person. The sensory cues of the situation signal an adaptive problem, that one’s partner may be about to be unfaithful, and the response is probably sexual jealousy (physiological arousal), and the decision mechanisms involved could lead to threats or a violent confrontation, or even feigned indifference (behavior), or a reevaluation of the entire relationship (other psychological mechanisms).<sup>86</sup> Above all, the situation plays this way because the adaptive problem involved is not new, so humans already possess mechanisms designed to confront the problem in a reproductively successful manner, or at least in a manner that was previously successful in past human environments.

Already in the early pages of this chapter I forwarded a lengthy list of sensory and psychological traits and preferences that seem true for all humans, and though I hinted at their reproductive function, within the framework of evolutionary psychology it is possible to provide more detailed explanations and to test their functioning in a scientific

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<sup>86</sup> See Evolutionary Psychology page 49 for his full description of the scenario in question.

manner. To them I will add a long list of additional content-dependent psychological mechanisms that function in much the same way, from the sexual jealousy in the previous paragraph to spousal violence, complex algorithms of social negotiation, tactics of deception, status attainment and advertising mechanisms, physical danger avoidance mechanisms, and countless others. One consistently vocal opponent of evolutionary psychology and adaptationist thought in general was Stephen Jay Gould, and he termed the connection of human traits to supposed functional origins “just so stories” in his article “Sociobiology: The Art of Storytelling.” In a more comprehensive article, “The Spandrels of San Marco and the Panglossian Paradigm,” written with his colleague Richard Lewontin, Gould critiqued the tendency of evolutionary theorists to consider all characteristics of organisms to be adaptations created in response to past environmental conditions or needs.

The subject of this famous article is the basilica of San Marco in Venice, upon the ceiling of which are fantastically detailed mosaics depicting a variety of religious events and subjects. One notable feature of the architecture are spandrels, the tapering triangular spaces that are created when domes are mounted on arches, thus forming a graceful quadripartite structure. These curved areas, four to each dome, are heavily decorated, so that they might seem to be a design feature themselves, but Gould and Lewontin insist that they are not design features at all, just necessary byproducts dictated by constraints from other features—in this case, domes and arches. Therefore, if one is tempted to begin analyzing the structure of the domes starting with the spandrels, one would come up with entirely the wrong analysis. Gould and Lewontin felt that many evolutionary explanations partook of the same sort of inverted reasoning, thus mistaking byproducts

for genuine evolutionary adaptations from which one could construe accurate details about prior environments.

Perhaps Gould and Lewontin only meant their essay as a call for caution and careful consideration when postulating adaptive explanations for current biological occurrences, but their rhetoric suggests that they had a more comprehensive aim, and that certainly has been the reading of the essay pursued by much subsequent scholarship in the humanities. Indeed, within the humanities and social sciences, Gould and Lewontin's essay became a cornerstone in the attempts to derail the spread of sociobiology and adaptationist thinking.<sup>87</sup> As Gould's most strident critic, Daniel Dennett, points out, Gould's grasp of architecture was less than perfect, and the spandrels—actually pendentives—in St. Mark are indeed design features. Dennett explains: “Not only were the pendentives just one among many imaginable options; they were just one among the readily available options” (273). Therefore, they are not byproducts—or “spandrels,” as the term has come to be used in evolutionary biology—but adaptations themselves. Far from destroying adaptationism, then, Gould and Lewontin merely illustrated the complexities involved when analyzing adaptive features, and most of Gould's innovations, from “exaptions” to “punctuated equilibrium,” proved equally unproblematic to adaptive thinkers, though he and his followers never gave up the pretense that they were mounting a serious “non-Darwinian” challenge to the possibility of offering adaptive explanations for current morphological and behavioral traits.<sup>88</sup>

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<sup>87</sup> For example, it inspired an entire collection of essays, *Understanding Scientific Prose*, edited by Jack Selzer and published in 1993, a work which demonstrates the high standing of the article in fields other than science.

<sup>88</sup> Exaptations are the functional exploitation of a previous trait that did not evolve for its current use, or the exploitation of a previously undesigned trait for some specific purpose. Far from offering a “non-Darwinian” alternative, as Gould suggested, Gould merely described what evolutionists always knew, that all functional structures evolve out of previous functional structures that served different purposes.

Clearly, however, there *are* problems involved in the attempt to connect current traits with possible adaptive problems in the past that influenced their selection, so a great amount of intellectual activity within the field of evolutionary psychology has centered on just this issue. George C. Williams forwarded three common-sense tests guiding the identification of adaptations in his 1966 work, insisting that in order to invoke an adaptive explanation, the mechanism or feature in question must meet the criteria of reliability, efficiency, and economy. In other words, adaptive features must be regularly present throughout all organisms of a species, solve a particular adaptive problem in an efficient manner, and do so without imposing too many additional costs on the organisms exhibiting the trait. Even with these rules in place, of course, adaptive explanations are often, as David Buss describes them, “probability statements about why a reliable, efficient, and economic set of design features could not have arisen by chance alone” (Evolutionary 16). Nevertheless, there are scientific methods available for testing the veracity of evolutionary hypotheses, and David Buss forwards several. For example, researchers can compare different species, compare males and females, compare individuals of the same species, compare the response of a single individual in different contexts, or perform experiments that compare the responses of test subjects to manipulations against control groups. Nor is data particularly scarce when testing evolutionary hypotheses, for researchers have available archeological records, ethnographic observations of hunter-gatherer societies, targeted observations to collect

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Punctuated equilibrium posits instantaneous shifts of functional organism design rather than gradual adaptation, but again the idea is hardly as sweeping as Gould claimed since even gradualists admit that evolutionary design sometimes moves in great leaps through design space in very short amounts of time. For a discussion of these issues, see Dennett pages 277-299.

data from particular social contexts, self-reports, public records, and the various creations of human cultures including the sorts of literary works I will be examining later.<sup>89</sup>

Evolutionary psychologists are able to derive their hypotheses from a variety of sources, though there are two modalities of evolutionary speculation that are usually involved. In the first, an existing theory is used to make a specific prediction. For example, from Trivers's theory of parental investment—basically that females invest far more in their offspring than males—we can predict that males are more likely to engage in sexual activity in anonymous contexts where little is known about the female involved. Next researchers can construct cross-cultural tests to determine if this is a pan-human male trait. When we discover that it is through observations and tests, we know that the results provide a valuable piece of evidence that, when joined with sufficient evidence supporting other related predictions arising from the same theory, provides legitimate scientific proof of the theory. Another means of generating a hypothesis is to suggest an adaptive function for an observable trait. Buss's example of this stems from the species-wide tendency of men to value the physical appearance of females especially highly in their mate selection, thus suggesting the hypothesis that visual cues are related to fertility. To test this, scientists need only collect a list of the physical cues involved—like HWR, for example—then see if they are connected to fertility, which in this case they are (Buss, Evolutionary 45). Such evidence, far from constructing Gould's "just so stories," provides solid, tangible evidence of mate-preference mechanisms that arose in our evolutionary past as responses to specific adaptive problems.

No one pretends that there are not complications involved, least of all the researchers involved, but the presence of competing hypotheses is actually the common

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<sup>89</sup> For a more detailed explanation of this list, see Buss's Evolutionary Psychology, pages 54-60.

currency of the scientific method. Take human male penis size, for example. As I pointed out in the introduction, the human penis is quite large compared to that of other primates. Although, hypotheses abound, the two most compelling involved functional design and sexual selection.<sup>90</sup> The latter, appropriately enough emerging only after female scientists got involved in the search, is simply the suggestion that men's penises evolved to such sizes because women preferred them that way to provide greater sexual pleasure. As Geoffrey Miller points out, sexual selection can produce startling results in a remarkably short amount of time, and this explanation for penis size seems intuitively correct.<sup>91</sup> Still, one can hypothesize from this explanation that human females would be very interested in male penis size, and some of the research involved suggests that women are much more interested in the visual cues provided by a human male's buttocks than his penis.<sup>92</sup>

Therefore, several functional hypotheses have been forwarded involving sperm competition. The earliest, from R.L. Smith's pioneering Sperm Competition and the Evolution of Animal Mating Systems, posits a role for the greater length of the human penis in depositing the ejaculate deeper in the female reproductive tract, thus aiding in sperm competition when the inseminate of multiple partners is involved. Baker and Bellis, however, point out that chimpanzees have greater levels of sperm competition

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<sup>90</sup> An additional hypothesis in the past involved the supposed role of penises in aggressive displays, but this seems unlikely since there is no straight correlation between the size of an individual and the size of his penis, and, as Baker and Bellis point out, a larger individual with a smaller penis would probably not be too intimidated by the converse. See pages 167-168.

<sup>91</sup> Sexual selection provides a powerful adaptive force in evolutionary development. In one study, biologist Nancy Burley glued tall white plumes on the heads of Zebra finches, which made them much more attractive to females of the species and greatly enhanced the number of copulatory opportunities they achieved. It is easy to see how such clear-cut preferences could extend to individual human males with larger penises, thus conferring them with greater reproductive success. For a discussion of Burley's research, see Miller, Mating 145.

<sup>92</sup> Baker and Bellis insist that female humans are "singularly indifferent to the penis" (168), though the evidence that they present is not cross-cultural and needs replication. Helen Fisher believes that the thickness of the penis is connected to sexual pleasure. See Anatomy of Love 177.

than humans, but significantly smaller penises, which undercuts Smith's explanation. Instead, Baker and Bellis believe that the real issue involved is the larger head size of human babies—because of their large brains compared to other primates—and the consequent larger size of the female reproductive tract. They argue that human males must have larger penises if they are to function as plungers able to displace previously deposited ejaculate, as their research indicates the human penis does in situations of sperm competition. Notice that both of these theories could be true simultaneously, for the reproductive advantages conferred by larger penis size in the Baker and Bellis model could actually lead to a psychological mechanism in female humans preferring larger penis sizes since the trait is genetically passed on to one's offspring. The situation is not hopeless, however, for both models suggest specific experiments to determine their veracity. For example, one could easily design cross-cultural tests of women's attitudes towards penis size and measure their sexual enjoyment in relation to the size of their partner's penis. And to test the Baker and Bellis hypothesis, one could attempt to correlate infant head size with reproductive tract size and penis size across species, as well as across races since race often correlates with different averages involving penis size. As this example shows, there is a great deal of real science and statistical data to be applied to the question of evolved human mechanisms, and in this regard Gould is simply wrong to suggest otherwise. Evolutionary psychologists, far from making fuzzy guesses, possess the scientific methodology to prove their assertions just as occurs in the other scientific disciplines.

Indeed, science is continually discovering new ways to analyze the biological foundations of human mating behavior, and a startling new avenue of research involving

functional magnetic resonance imaging (fMRI) has begun to illuminate exactly how the brains of humans respond to reproductive exigencies. If we accept, as I think is indisputable, that the human brain has evolved an intricate system of chemical motivators in order to signal to humans biologically beneficial behaviors, then we should expect a large number of these chemical rewards systems to focus upon reproduction. As I have shown, this certainly seems to be the case. For example, the chemical rewards involved in sexual pleasure hardly seem like the sort of thing that would have arisen as a byproduct of pursuing other biologically relevant behavior; instead, the indisputable pleasure of copulation, and even the contemplation of copulation, undoubtedly evolved because the encouragement of such behaviors, especially within specific ecological contexts, enhanced the reproductive fitness of our ancestors. At the pre-cultural—and even, I would argue, pre-psychological—level of pleasure, then, the brain uses dopamine and other allied chemicals to motivate human sexual behavior. Notably, these pleasures are context-dependent. In other words, males experience greater pleasure in the presence of greater reproductive benefit, as in the presence of greater cues of reproductive fitness, and females do the same, as is evidenced by the more frequent occurrence of orgasms with more symmetrical men.<sup>93</sup> Moreover, copulations in non-reproductively beneficial

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<sup>93</sup> This statement, I know, introduces some problems. For example, I know of no studies yet to determine how much greater experience due to enhanced copulatory opportunities plays into the equation of female orgasms in this situation. Naturally, the mechanism is the same in both instances, for male sexual experience becomes the marker to females that the partner is desirable to women, thus boding well for the reproductive potential of one's offspring. Orgasm, in this model, takes on a slightly different functional role since male sexual skill is involved, even if this skill was gained through enhanced copulatory opportunities brought about by greater symmetry. I can imagine the studies needed to sort out the mechanisms involved. Also, in relation to the previous portion of the sentence, it is worth pointing out that, though males are relatively indiscriminate in their copulatory desires, most males experience diminished sexual desire—often greatly so—in the absence of fertility cues like beauty and youth. In one of my classes, during a discussion of the advertising of drugs for erectile dysfunction, a young male student asserted, “of course older men need them; look who they are having to sleep with.” The brutal logic of this assertion disturbed me greatly at the time, but longitudinal studies of male sexual desire support his



situations—like rape, for example—are accompanied by brain chemicals creating repugnance and an extremely negative hedonic tone.

One of the central chemical mechanisms in the brain shaping human reproductive behavior is the system influencing romantic attachment. I have touched on this subject in the introduction, but I will repeat a little here. In functional terms, romantic attachment seems to have evolved in humans, and even other animals, as a means of uniting two members of the same species in order to enhance reproductive success.<sup>94</sup> The mechanism aids both in the selection of a suitable mate and the retention of that mate long enough to cooperate in the raising of any offspring resulting from the union. The hypothesis forwarded by anthropologist Helen Fisher is persuasive, for she believes that the rather short duration of romantic attachment among humans—at least of the euphoric and self-sacrificing kind—is an evolutionary response to the great helplessness of human babies. In her studies of HRAF files, she discovered a great spike in divorces at three to four years, from which she concludes that the chemical stage of romantic attachment lasts roughly that long, which is just enough to bring offspring to an age of reasonable self-sufficiency. Furthermore, because breast-feeding suppresses fertility—another evolved system maximizing reproductive success and efficiency—this time period is short enough not to interfere entirely with future conceptions if better partners are available.

In terms of the selection of mates, differences in the romantic styles of males and females clearly demonstrate the functioning of love. Men, for example, are quicker to

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assertion, for as men age their sexual preferences stay firmly focused on reproductive cues connected to females who are still of reproductive age.

<sup>94</sup> The romantic attachment we term “love” does indeed seem to occur in other species. See, for example, Helen Fisher’s *Why We Love*, which includes an entire chapter, “Animal Magnetism,” on “love among the animals” (26-50). Animals, she concludes, exhibit “heightened energy, focused attention, euphoria, craving, persistence, possessiveness, and affection,” all markers of romantic attachments in humans, and just as in humans these seem to involve dopamine and norepinephrine (50).

fall in love than women, presumably because visual cues tell men so much about the reproductive fitness of their proposed mate.<sup>95</sup> In fact, fMRI testing of males showed a greater amount of activity in the visual processing centers of the brain when they viewed pictures of their beloved than did females, and they also showed a greater response than females in the portion of the brain connected to sexual arousal, another finding supporting the importance of visual cues in male romantic love (Fisher Why 110-111). Females, on the other hand, show greater activity in the caudate nucleus and septum than males when viewing pictures of their partners, and Fisher speculates that, since these regions are involved in motivation and the processing of emotions, they are more involved because female romantic attachment involves the careful calculation of commitment and resource allocation on the part of one's partner (Why 113). Love, therefore, appears to have evolved in part as a tool to encourage the selection and retention of the best possible mate available in any particular ecological condition.<sup>96</sup>

Of course for my explanation to be feasible, love has to be a pan-human trait, which some scholars still deny. For example, many still follow the lead of Phillippe Aries and D. de Rougemont in viewing romantic attachment as an exclusively European invention and preoccupation.<sup>97</sup> Lawrence Stone, in his article "Passionate Attachments in

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<sup>95</sup> Francesca Cancion posits a different explanation. She cites "socialization factors that contributed to men being less responsible for working on the emotional aspects of the relationship," thus making them more likely to see love as "magically and perfectly present or absent" (77). Women, more accustomed to viewing love as something that takes effort in the negotiation of emotional obstacles, are slower to acknowledge love as, in Cancion's terms, "perfectly present." Further cross-cultural study will resolve this issue, but Cancion's speculations don't seem very persuasive since males seem very aware of both the effort involved in romantic attachments and the inherent dangers arising from them.

<sup>96</sup> Ecological variance explains the occasional slight variations in male mate preferences. For example, one culture has been found, the Yomybato of Southeast Amazonian Peru, where the men actually prefer a .9 WHR. As Douglas Yu and Glenn Shepard demonstrate, however, this is an expected outcome since ecological conditions there favor greater female weight and, unlike most other places, females with a .9 WHR actually outproduce other females there and are thus more reproductively fit.

<sup>97</sup> See, for example, Aries's Centuries of Childhood: A Social History of Family Life, and Rougemont's Love in the Western World.

the West in Historical Perspectives,” even indicates that the very subjectivity that allows the contemplation of romantic interest is a Western invention. Nor do such conclusions arise only from the theoretical preoccupation with difference indulged in by historicist scholars, for the neo-Freudian psychologist Robert Endleman reaches the same conclusion in Love and Sex in Twelve Cultures. Following Freud’s belief that sexual repression leads to culture and, more specifically, systems of romantic attachments, Endleman attempts to prove that romantic passion is unknown in tribal cultures that are sexually open. As William Jankowiak demonstrates in his introduction to Romantic Passion, Endleman is simply wrong, though there is no doubt that cultures do carefully regulate the expressions of romantic attachment. Therefore, though sexual banter is perfectly okay in Polynesian tribal culture, love and attachment are considered inappropriate for anything other than private expression, and this absence from public discourse has misled countless ethnographers into assuming the absence of love (7-8). Further scholarship has discovered love in many of the cultures where it has customarily been considered to be absent, including the Polynesian Mangaia, the Tiv in Nigeria, the Fulbe of North Cameroun, and the Kenyan Taita.<sup>98</sup> It seems extremely unlikely, then, that romantic love we experience in the modern Western world is the exclusive creation of Western culture, and thus the proper avenue of research should be how the evolved

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<sup>98</sup> See “Rethinking Heterosexual Relationships in Polynesia: A Case Study of Mangaia, Cook Island,” by Helen Harris; “Love, Lust and Found in Nigeria,” by Leonard Plotnoco; “The madness of Excess: Love Among the Fulbe of North Cameroun,” by Helen A. Regis; and “Notions of Love and Romance Among the Taita of Kenya,” by Jim Bell. Helen Harris cites B. Danielsson, who in *Love in the South Seas*, published as recently as 1986, still accomplishes a remarkable flattening of the subjectivities of his subjects: “According to our romantic idea of love everyone should endeavor to find the ‘right’ partner, who is assumed to be one person and one person only. Such a point of view was quite unknown to Polynesians: on the contrary a man or a woman was extremely surprised if now and again it happened that a person of the opposite sex was *not* suitable as a partner in love or marriage. The difference is easy to understand if we remember how similar and standardized people were in the small Polynesian racial groups” (67). As Fisher points out, there is much evidence that romantic attachments are formed and that they entail much exclusivity (115-116). In fact, Danielsson’s untenable thesis seems to me to smack of racism of the familiar “they all look alike” sort.

chemical and psychological mechanisms involved are shaped in culturally specific ways, as they undoubtedly are, but first we must obviously understand completely the universal aspects of romantic attachment.

I have already indicated some of the general findings of research into this area. Undoubtedly brain chemicals are involved, including dopamine, norepinephrine, and serotonin (Fisher, Why 55). Because of the difficulties involved in detecting brain chemicals in the brain itself, most of the research must instead focus on chemical levels in the bloodstream, but the findings so far are provocative and telling. For example, Italian researchers found depressed levels of serotonin in the bloodstreams of both subjects who were in love and subjects suffering from obsessive-compulsive disorder, thus suggesting that the obsessive and intrusive thinking about one's lover could be connected to serotonin levels (Marazziti et al).<sup>99</sup> Furthermore, because scientists have located specific areas of the brain involved in the production of particular types of neurotransmitters, fMRI scans of the brain can give us a fair indication of the chemicals involved in various cognitive processes.<sup>100</sup> One finding of the research of Helen Fisher and her team is that the caudate nucleus, a part of the ancient reptilian brain that actually predates the emergence of mammals over 65 million years ago, is intimately involved in the romantic experience of humans. Recently, science has discovered that this part of

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<sup>99</sup> I am indebted to Fisher's study for directing me to this valuable article, "Alteration of the Platelet Serotonin Transporter in Romantic Love." This is bad news for patients on SSRIs, of course. Fisher writes: "my colleague, psychiatrist Andy Thomson, and I believe that artificially elevating serotonin activity can endanger your ability to fall in love. . . [for] romantic love is associated with elevated levels of dopamine and possibly also norepinephrine. These neurotransmitters generally have a negative relationship with serotonin. So as you artificially raise brain levels of serotonin with pills, you potentially inhibit production, distribution, and/or expression of dopamine and norepinephrine—and jeopardize your ability to fall in love" (Why 197).

<sup>100</sup> Cognition occurs because electrical impulses travel among the 10 trillion or so synapses in the brain, and they do so through the movement of specific neurotransmitters that are emitted from one cell and which then travel to specific receptor locations on other nerve cells where they dock. The awareness of this process is what has facilitated the development of such effective psychiatric drugs in the past two decades.

the brain acts as a motivator through not only providing motivation and pleasure, but also in the planning of acquiring such a reward. Scans through fMRIs demonstrated that the more passionately in love the subject, the more active was the caudate nucleus, a finding underscoring the functional role that the brain plays in encouraging reproductively beneficial behaviors.

Also, Fisher's fMRI scans of the brains of individuals who were in love found great activity in the ventral tegmental area (VTA), another portion of the brain involved in rewards through the production of dopamine. The familiar euphoria of love, the peculiar concentration of energy, the stamina in the face of discouragement, all are undoubtedly tied back into evolved, dopamine-producing mechanisms in the human brain. Best of all, Fisher's findings were replicated by a simultaneous study conducted by Andreas Bartels and Semir Zeki at University College, London, and Bartels' team, because they used subjects who had been, on average, in love three times as long as Fisher's participants, also discovered additional regions of the brain, the anterior cingulate cortex and the insular cortex, that become more involved in attachment as romance progresses. Although the action of these latter regions—involved in emotions, emotional recollection, and attention—is not completely understood, it is known that mechanisms for attachment exist independently of those controlling romantic passion. Attachment mechanisms come increasingly into play as relationships proceed, and they often work through the actions of hormones like vasopressin and oxytocin, which produce the psychophysiological state accompanying attachment. Although these mechanisms are centered in the hypothalamus and gonads, there is no doubt that similar

reinforcing mechanisms evolved involving neurotransmitters in the brain areas pinpointed by Bartels and Zeki.<sup>101</sup>

In addition to such observable physical markers as specific patterns of brain activity, a distinct constellation of psychologically based behavior patterns appear to be species-wide concomitants of human romantic experience. The pioneering work in this area was done by Dorothy Tennov, whose 1979 Love and Limerence: The Experience of Being in Love detailed a lengthy series of traits that invariably accompany and characterize human romantic attachments. In this work, Tennov coins the term “limerence,” which she uses to refer to experiences running the gamut from infatuation to romantic passion and love. One of the major traits of the lover is intrusive thinking about one’s beloved (the “limerent object,” or “LO” in Tennov’s text). Lovers also experience a longing for reciprocation and a desire for merger or union with the LO, and their mood depends upon the actions of their LO such that they display great sensitivity to the behavior of their LO, both favorable and negative, and they feel euphoria in the presence of behavior indicating reciprocation.

Moreover, the limerent experience tends to encourage monogamy and the exclusion of romantic feelings for anyone else, and it is also accompanied by shyness and fear of rejection, particularly early in the relationship. The individual also feels pain—the stereotypical broken heart—when reciprocation seems uncertain, and he or she tends

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<sup>101</sup> The much cited work of neuroscientist Sue Carter and her research partners discovered that vasopressin functions as an attachment chemical in America prairie voles. When male prairie voles ejaculate, vasopressin levels in the brain rise, leading the male to begin defending territory and tend to his mate. When researchers blocked vasopressin formation in the brain, males instead went from one copulatory opportunity to the next, never exhibiting signs of mate attachment. Furthermore, when the brains of a virgin male prairie vole was injected with vasopressin, he began defending territory and became possessive of the next female he was brought into contact with. Although it may seem unnerving that human chemical rewards systems work much like those of prairie voles, that is undoubtedly the case. See Fisher, Why We Love, for a discussion of Carter’s research on prairie voles (88).

to dwell only on the positive aspects of the LO, even to the point of interpreting negative traits of the individual as positive. And, finally, individuals in love experience great sexual desire for their LO, in part because dopamine stimulates testosterone production, but also because other neurotransmitters accompanying romantic feelings like norepinephrine stimulate the sex drive.<sup>102</sup> Nor would one expect chemical mechanisms encouraging romantic attachment to evolve without a strong sexual component since reproduction and reproductive success clearly explain its presence and continuation in the human species. What is most remarkable about Tennov's list is that contemporary cross-cultural studies find these markers everywhere to signal human romantic striving, thus pointing to the extremely strong possibility—really even a certainty—that they involve universal evolved psychological components.<sup>103</sup>

Evolutionary psychology has identified a host of other evolved psychological mechanisms involved in human reproductive behavior, and though I have provided a few examples earlier, I will now go into greater detail, especially concerning the sexual differentiation of content-dependent psychological mechanisms in the human species. At the crudest, pop-culture level, the sociobiological thesis has been presented as an explanation for male promiscuity and female choosiness. Women jealously guard their limited supplies of eggs—the most precious commodity in the reproductive process—and men profligately attempt to inseminate as many females as possible since sperm is so cheap, in biological terms, to produce. I understand why feminists cringe at this scenario,

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<sup>102</sup> Rats injected with dopamine initiate copulatory sequences, and male rats experience a spike of dopamine in the presence of an estrous female. For a discussion of brain chemicals and sexual desire, see Fisher, *Why We Love*, pages 83-85. As Fisher points out, many of these brain chemicals function like amphetamine and are even sometimes addictive. As Roxy Music correctly observe, "Love is the Drug."

<sup>103</sup> A great place to look for an affirmation of the universality of these components of human love is the series of essays collected by William Jankowiak in *Romantic Passion*, for throughout the ethnological examinations therein the reader encounters romantic behavior that is identical to that in our Western culture, even in places where, supposedly, romantic attachment is nonexistent.

and in the next chapter I'll examine the political ramifications of professing such a view, but the real question is, how accurate is it?

One thing is certain; reproductive behavior among humans is indeed regulated by the supply of eggs in the ovary of females, for they are indeed the limiting factor when it comes to reproductive opportunities among humans. Furthermore, eggs *are* expensive in biological terms, for they are large, nutrient rich, and finite in supply (around 400 per each female). Nor does the female's contribution end with the supply of the egg, however, for pregnancy exacts great biological costs from human females, as does subsequent lactation, both of which, among other things, delay additional reproductive opportunities should there be an improvement in one's mate value through changing ecological conditions. In the face of such overwhelming investment on the part of females—only added to through the additional duties of nurturing, protecting, and feeding young—it is impossible to believe that evolutionary forces could have worked on females in the same manner as they did on males. Indeed, in species like the Mormon cricket where the male spermatophore is large and nutrient rich, mate selection mechanisms have evolved that are absolutely the opposite of those in humans, just as one would expect (Buss Evolutionary 102).

It is far too much of a simplification, however, simply to assert that women are “choosy,” for that obscures the bewildering array of male mate characteristics that females must be sensitive to and be able to judge, all in relation to other qualities that might be present. The calculations involved are undoubtedly complex, as anyone who has ever been in a relationship knows. A man may be emotionally reserved, thus signaling the possibility of abandonment—since love, among other things, signals a



consistent willingness to commit resources and assistance—yet have sufficient resources to make him seem like an okay mate choice. Or he may be slightly abusive, but attractive and charismatic. Or shorter than the ideal, but more intelligent than average. Human males and females must negotiate an incredibly complicated calculus on our way to romantic attachment, or even mere reproductive success, and none of us have ever been in relationships that did not involve the sorts of trade-offs I have described here. The most fascinating part of evolutionary psychology, then, reveals the evolved psychological mechanisms through which we determine our own mate value and then pursue the best possible strategy towards achieving reproductive success (measured, as I have said, at least two generations down, at the level of grandchildren). None of us, of course, is conscious of the evolutionary logic of our actions, which function regardless of whether we want children and grandchildren or not; the causal mechanisms that drive mate selection operate at the ultimate and not proximate level, and thus remain invisible until a sufficiently broadened frame of analysis is applied.<sup>104</sup> Furthermore, because humans never randomly or indiscriminately prefer members of the opposite sex as reproductive partners, selection mechanisms must function at the most basic level of human mating behavior.

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<sup>104</sup> It is worth repeating again that the desire not to procreate, expressed by many of my friends, in no way alters their mate preference mechanisms focused on maximum fertility cues. One of my associates has tried to argue against my logic, pointing out that marriage for many, especially in isolated areas, involves chance in that there is literally almost no available pool of the opposite sex from which to choose. This is a confusion of proximate and ultimate causes, and the existence of clear preferences when queried—WHR, beauty, youth, healthy skin, charm, kindness, wealth—shows that the mechanisms I am describing do indeed exist. A parallel mechanism, however, allows humans to make the best of their current reproductive opportunities while always remaining flexible about future possibilities. That is why status changes on the part of one partner often lead to the termination of relationships. For example, every member of the rock band Poison immediately ditched their old partners in favor of higher quality mates when they were signed. Certainly it looks rather piggish, but evolved mate preference mechanisms provide great pressure on human behavior.

What, then, has evolution shaped women to want? For starters, just like men, they value a kind and funny mate who shares the same values and interests. But beyond that, the particular adaptive problems faced by females, as contrasted to the strikingly different adaptive problems faced by males, has led to a great deal of sexual differentiation. The preference for male partners with resources is one of the most basic in the animal kingdom, occurring throughout all types of animals, from birds to mammals. Therefore, the male gray shrike, in the Israeli desert, collects edible prey and useful items like feathers and bits of cloth and arrays them throughout his territory, and the females choose based on the impressiveness of his collection, completely ignoring those with few or no items (Buss, Evolutionary 106). In the series of investigations led by David Buss, which sampled over 10,000 individuals in thirty-seven cultures, women consistently valued the financial resources of their partners 100 percent more than men did (Evolution 25).<sup>105</sup> Indeed, Buss's team found that "women across all continents, all political systems (including socialism and communism), all racial groups, all religious groups, and all systems of mating (from intense polygyny to presumptive monogamy) placed more value than men on good financial prospects" (Evolutionary 109).

Several related characteristics are also high on female preference surveys throughout the thirty-seven cultures in Buss's study. Among these are ambition and industriousness, obvious markers for an individual who possesses the abilities to accumulate resources. Because young females prefer males who are only a few years older than they are—an evolved desire possibly related to the higher chance of mortality

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<sup>105</sup> This study did not find female preferences connected to economic systems, suggesting the evolutionary logic of their desires. In fact, advanced capitalism seems to have muted somewhat the female preference for resources, for women in the Netherlands value resources only 36 percent more than their male counterparts. Buss concludes: "the sex difference remained invariant—women worldwide desire financial resources in a marriage partner more than men" (Evolution 25).

for an older mate regardless of his superior resources—they must be acutely aware of the sorts of qualities predicting future success, and ambition and industriousness are thus valued highly by females.<sup>106</sup> Also, females across all cultures rate dependability and emotional stability extremely high, for these qualities signal both the reliability of the partner in terms of resource and assistance provision as well as the probable absence of the emotional costs involved in having an emotionally unstable partner. Athletic ability and health are also high on the list of female mate preferences, as is status. In fact, as I pointed out earlier, status and social hierarchies are a human universal, and they even exhibit a marked amount of sexual differentiation, with males striving for and valuing status more than females, and with females consistently valuing the status of their mate more than males do (Buss, Evolutionary 110-111). As always, the presence of species-typical sexual differentiation in mate preference mechanisms points to a significant role in evolved mating behavior, and in functional terms the value of status in mate-worth determination explains both its development and its universality. As Geoffrey Miller points out, additional qualities valued by females are intelligence, wit, humor, and imagination, all qualities that he posits as the basis for the species wide human drive to create art.<sup>107</sup>

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<sup>106</sup> I feel compelled to explain this point lest the reader sense a contradiction with my earlier assertion that mating often proceeds in cycles of three or four years rather than in terms of lifetimes. In this age of advanced education preceding one's career, it is easy to forget that in our evolutionary past young males would enter into resource accumulation at a younger age than today, thus validating the female desire for young males displaying great talents over older males already possessing a comfortable supply of wealth but who might die sooner. Selection mechanisms have evolved in tandem with each other, and the goal is to maximize one's situation. Therefore, with enough status or resources, even older males become attractive to much younger females, despite the increased possibility of mortality. This example illustrates the difficulty of extracting one mate preference mechanism for examination without taking into account all others, and when I do highlight a single preference I always mean for it to be conceived as part of a network of interrelated desires all acutely context dependent.

<sup>107</sup> Miller's thesis is discussed at greater length in chapter four ahead.

It seems crude to state openly what is obvious, that preference mechanisms select not only for current stability—in terms of resources and support while rearing children—but also for qualities that will make one’s offspring reproductively successful. Looks, intelligence, ambition, talents—the heritability of all of these qualities drives women to select mates whose offspring will be reproductively successful because they possess the same desirable traits as the father, and males also select potential partners on the same principle.<sup>108</sup> Naturally, no parent is overtly aware that he or she is grooming a child with braces, piano lessons, and extra tutoring in order to get him or her laid by the best possible candidate, which is to say, to maximize future sexual access and copulatory opportunities, but even the accumulation of resources, which is a basic drive of members of all human cultures, can best be understood as in part a means to improve the reproductive opportunities of one’s offspring in addition to improving one’s own sexual access to higher value mates. Most importantly, research shows that women in all cultures exhibit consistent preferences, and just as beauty and symmetry encode extremely important information predicting the reproductive success of one’s offspring, so to do all of the other qualities detailed in the previous paragraphs. In addition, because of the temporal dimension of human mating behavior, it is possible to test mate preferences by examining preferences in long-term (generally monogamous, pair-bonded) relationships versus preferences in short-term (generally casual and sexual) ones.

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<sup>108</sup> Or at least all humans possess preference mechanisms shaped by the reproductive success of their offspring. One’s own mate value, alas, controls in a rather dictatorial fashion the consequent mate value of his or her partner. Given this unfair situation, it becomes clear how important it is to have a reliable assessment one’s current value on the market. This explains not only the sexualized and romantic play of adolescents, as well as the intense scrutiny that relationships come under from peers in high school, but also the general tendency towards promiscuity or profligate dating after the dissolution of a relationship; there is no other way for an individual to gauge his or her current mate value. Remarkably, as I’ve said before, most of us are quite content with where we wind up on the mating ladder, making the best of a less than ideal situation.

Women, not surprisingly, value looks far more in short term situations, and they value character more in long term ones that would presumably have a higher chance of involving the presence of offspring.<sup>109</sup>

For the evolutionary thesis to be accurate, it is essential that males of the human species share a different set of mate selection priorities, or at least have the same preferences weighted differently. Indeed, as I have insisted above, this is the case. What do men want? Above all, men must accurately determine the fertility of potential mates, which is very dependent on age, an unfortunate situation brought about by the much longer reproductive lifetime of males compared to that of females. Because of this, and because youth is such an important marker of fertility, signs of youth are highly valued by males. Also important to males was a female's reproductive value, or the average number of children she could be expected to have over the course of her remaining life. If fertility presents a healthy line on the graph at least into the early thirties of a female, the graph for reproductive value declines precipitously between the ages of twenty and thirty, further influencing the universal male preoccupation with youth.

Many primates are different, with males preferring older females who have proven their fertility through past pregnancies and successful births. Human males, however, have faced different adaptive pressures. The biggest difference involves the human institution of marriage, the codification in the social realm of the pair bond

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<sup>109</sup> See Paula Regan's "Minimum Mate Selection Standards as a Function of Perceived Mate Value, Relationship Context, and Gender." Given the general female strategy of strategic extra-pair copulations, the greater female preference for looks in short term situations probably involves the evolutionary value of acquiring the best possible genes from someone other than one's partner while maintaining a secure environment with longer-term partner possessing more character and dependability who will share resources. Women, indeed, almost always commit adultery with an individual of higher mate value than their own putative partner (Baker and Bellis). Another possible interpretation is that the general indiscriminate nature of male sexuality means that they will lower standards in short term mating situations, thus leading to possibilities exploited by females to enhance their offspring's chances. The two, I think, are interrelated.

between two mates. Marriage solves a lot of problems for males, especially the one presented by hidden estrous, for males must copulate throughout the estrous cycle of females to have a significant chance of conception (unlike in primates, where males are always certain of female fertility through the presence of estrous). Also, as David Buss points out, the unwillingness of females to consent to copulation without the clear willingness to commit resources on the part of the male would encourage the development of long-term mating customs, as would the necessity of males to demonstrate signs of such commitment in order to obtain the highest quality females possible (Evolutionary 132). Finally, offspring of pair-bonded couples would show higher survival rates, an adaptive force that would lead to reproductive benefits for couples in more stable reproductive pairings, and having women constrained within partnerships could enhance the stability of male coalitional sociability in situations requiring male-male cooperation. Marriage, therefore, presents a great illustration of cultural and biological co-evolution, for the cultural institution of marriage both emerges from and reinforces ecological pressures encouraging longer-term pairing. Within the framework of human marriage, however, intense pressure arises for men to value reproductive value—linked indissolubly with youth—above most if not all other concerns.

Virtually all research supports the existence of a human male preference for youthful partners. Indeed, human males universally prefer female partners younger than they are, and in terms of ideals—which is the world of pornography I will examine in chapter five—Western men are no different than the Yanomamö Indian men of the Amazon, who have a stated preference for “Females who are *moko dude*,” as they told

anthropologist Napoleon Chagnon, a term referring to their being just ripe, that is, post pubescent yet not yet having been pregnant (Symons, “Psychology of Human Mate Preferences” 34-35).<sup>110</sup> Just as one would expect given the evolutionary hypothesis, teenage males also desire females of highest reproductive value, preferring females older than themselves, though the situation reverses as they approach the age of twenty (Kenrick et al, “Adolescent’s Age Preferences”). Youth advertises itself in many ways, and human males are extremely sensitive to the various cues involved. Therefore, human males value clear, taut skin, full lips, shiny hair, and a youthful fat distribution, all part of what we normally consider “beauty.”<sup>111</sup> Regardless of the age or sex of the observer, subjects invariably rate facial attractiveness to be lower as the age of the model in question advances.<sup>112</sup> In addition, as Buss points out, males prefer other signs of youth, such as “a bouncy, youthful gait, an animated facial expression, and a high energy level” (Evolutionary 139). Many of these traits are linked to good health, as are the general categories of beauty and symmetry, and though social scientists like to bemoan our horrible fascination with unrealistic standards of beauty in the Western world, Steven Gangestad and David Buss actually found that people in other parts of the world often place more value on beauty than we do. Inhabitants of over one-third of the non-Western and non-American countries, for example, do so, and significantly these were just the

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<sup>110</sup> The link between fertility and male desire is seen in the fact that men find pubescent females equally as attractive as young adult females, whereas women find adolescent males far less attractive than older ones, presumably because age in males is more tied to status and resource control. See Quinsey et al; also, see Thornhill and Palmer 41.

<sup>111</sup> I refer the reader back to my previous discussion of WHR and fertility, since the connection between the two informs one of the deepest prejudices involved in male late preferences. Not surprisingly, WHR changes are age related, making them reliable cues to age as well as other factors (obesity, health problems, etc.) related to fertility.

<sup>112</sup> See, for example L.A. Jackson’s Physical Appearance and Gender. Although I haven’t seen it, David Buss also cites the unpublished “Perceiving Age and Facial Attractiveness in Facial Photographs” by R. Henss.

countries with the highest pressures from parasitic diseases, suggesting that the presence of disease organisms and not Victoria's Secret catalogs fuels the human obsession with beauty.<sup>113</sup>

There is one remaining aspect of human reproductive behavior that is central to evolutionary analyses of universal human psychological mechanisms, and that is the inevitable competition between males and females for reproductive advantages that has created different adaptive problems for members of the opposite sexes. Of all of the aspects of evolutionary psychology, the proposed sexual dimorphism involving reproductive behaviors is the most controversial, largely, as I will discuss in the following chapter, because it is seen to underwrite inequalities that discriminate against females in most human cultures. Under the older group selectionist theories, of course, competition between the sexes was all but invisible. Because reproduction seemed necessary for the continuation of the species, scholars tended to see only beneficent cooperation between males and females since their reproductive interests appeared absolutely congruent. With gene selectionist thinking in the seventies, however, the inevitable differentiation involved in male and female reproductive interests became highlighted.

I have already alluded to this competition, and even revealed some particulars about how it functions, but it is perhaps the most important principle involved in evolutionary models of human mating, so it seems worthwhile to conclude this chapter with a discussion bringing all of the details together in one place. At the heart of the model exists the peculiar human female trait of hidden estrous, without which the entire

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<sup>113</sup> For information regarding parasites and beauty, see Steven Gangestad and David Buss's "Pathogen Prevalence and Human Mate Preferences."



competitive enterprise of human copulation and procreation would be much simpler. There is plenty of evidence that estrous is not indeed completely hidden from either sex involved, for women actually undergo physical changes that are partly observable, from the vascularization of the skin to greater symmetry in breasts and even a possible decrease in WHR through the circulation of extra estrogens (Buss Evolution 247).<sup>114</sup> Furthermore, as I already pointed out, men rate the smell of t-shirts worn by ovulating women as more pleasing. Also, females at peak fertility are more likely to be more active and spend more time on their own and away from their partner, suggesting a psychological mechanism evolved in human females that takes advantage of an awareness of ovulatory cycles (Baker and Bellis 165).

This latter observation, of course, explains the general paranoia involved in male mate behavior. Females control sexual access, perhaps the greatest commodity in all of human existence—at least in biological terms—and consequently males have evolved a host of mechanisms meant to optimize their own reproductive success in the face of female control of such a valuable resource. Part of the sexual competition is influenced by ecological factors outside of the reproductive process itself, for sexual dimorphism in terms of organism size appears to be most related to manners of subsistence given the universal male role as hunter and protector in hunter/gatherer type societies. Along with greater size came a tendency, almost universal, for males to control material resources, and in response to the female preference for good providers, males developed mechanisms to accumulate and advertise their status and possessions. But given the uncertainty engendered by hidden ovulation, males needed additional mechanisms to

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<sup>114</sup> Also, in one recent study, ovulating women were more likely to be touched in singles bars, a situation that could involve both signals of sexual receptivity and the perception of physical cues on the part of males. See Grammer 1996.

protect their reproductive opportunities. One basic one of these is mate-guarding, seen in almost all cultures studied, as well as claustration and cultural controls of chastity and fidelity.<sup>115</sup>

Another is sexual jealousy, a very important mechanism that immediately mediates behavior in situations where reproductive benefit is threatened. Females, too, experience jealousy, though they experience jealousy that is less centered on sexual fidelity—the greatest fear of males due to the possibility of resource allocation in a situation of non-paternity—and more on the possibility of resource commitment elsewhere, so that Randy Thornhill and Craig Palmer insist that “Women’s sexual jealousy toward their mates could more accurately be called resource and commitment jealousy” (43). Male sexual jealousy is far more likely than female jealousy to result in violence, and it is reinforced by the nearly universal sense of proprietariness toward women, which Wilson and Daly locate in the necessity of paternity assurance in the previously mentioned article “The Man Who Mistook His Wife for a Chattel.”

If reproduction involves such a complicated game between males and females—and certainly the evidence is rapidly approaching the indisputable point—only certain of their desires can be met inside a long-term pair bonding, and then only some of the time. For a lucky few possessing the proper attributes, mating can be very kind. Thus higher status males marry younger and more attractive mates, for, as Buss asserts, “a man’s occupational status seems to be the best predictor of the attractiveness of the woman he

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<sup>115</sup> The psychological mechanism involved is reinforced by more than the obvious male value in being the first to inseminate a partner and thus being certain of paternity. Studies show that individuals who participate in premarital sex are, indeed, more likely to participate in extramarital sex as well. See “Extramarital Sex: A Review of the Research Literature” by A.P. Thompson.

marries” (Evolutionary 153).<sup>116</sup> Females will derogate rivals in terms of appearance, and males will derogate rivals in terms of status. Males will be extremely receptive to cues of sexual infidelity, just as females will be for signs of lack of commitment. Females will be less promiscuous, though they will tend to be sexually receptive in situations with higher value mates, even if this involves extra-pair copulations, and they will also make tradeoffs if necessary to copulate with higher value partners, as is shown by the fact that attractive men are less likely to be faithful and invest time and money in their relationships, yet they still find plenty of suitable partners (Thornhill and Palmer 50). Males are far more indiscriminate in sexual terms, and are actually chemically wired in a way to encourage promiscuity (as we have seen, both sexual arousal and elevated testosterone levels are linked to the mere sight of a potential partner, thus explaining the lure of pornography and strippers to so many men). Moreover, males are willing to trade resources through the institution of prostitution in order to gain sexual access to a larger number of individuals, just as the evolutionary model predicts. Nor did it serve our male ancestors well to miss copulatory opportunities, and therefore males are far more likely to read sexual receptivity in a simple gesture such as a smile than are females.

Donald Symons correctly observed that “everywhere sex is understood to be something that females have that males want” (Evolution 253). Symon’s statement

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<sup>116</sup> Satoshi Kanazawa, who delights in exploring the least palatable aspects of human mate preference mechanisms, has shown that the tendency for higher status males to attract more beautiful mates has led to a statistically significant correlation between beauty and intelligence because of the heritability of both traits. He has also studied the “contrast effect,” the psychological mechanism which causes males to rate females as less attractive immediately after viewing a photo of a more attractive female, something that doesn’t happen in females. He picked a career where males would be surrounded by unreasonably attractive young females—being a high school teacher or college professor—and showed that males in these professions are indeed twice as likely to be divorced, suggesting the action of the contrast effect in overall mate satisfaction. His study ignores political orientation, however, and since more teachers and professors self-identify as “liberal,” and individuals who do so are more prone to divorce across the board, more study is obviously needed to demonstrate this latter point.

locates the fundamental transaction of mate selection correctly, for human females do control mate choice and copulatory opportunities to a surprising extent, and males have thus responded with a series of strategies that, in past evolutionary environments, led to the greatest reproductive success. Furthermore, as I argued in the previous chapter, males have used their greater control of culture to construct cultural edifices that integrate seamlessly with biological factors in their attempt to maximize their reproductive fitness (that is, the maximum transmission of the particular alleles of genes contained in their genotype). Finally, all humans have specific assessment mechanisms that constantly function in the background, and just as easily as these lead individuals into reproductively beneficial relationships, they lead individuals out of them if greater reproductive benefit is to be found elsewhere. Of course it doesn't take too much awareness of one's surroundings to recognize that human reproduction is anything but a selfless and cooperative venture between tolerant and understanding males and females, but the value of the evolutionary model propounded above is that it both provides an explanation for discordance in human mating behavior and suggests new areas of research that will uncover additional human universals controlling the process.

### CHAPTER THREE: THE RESISTANCE TO BIOLOGICAL THEORIES

Although there are signs that the resistance to biologically-oriented theories in the humanities and social sciences is weakening—which is understandable given the solidity of the physical evidence involved—there still exists an undeniable prejudice against such projects, and the opposition is almost invariably grounded in politics. Such an instinctive reaction is natural, however, given the vast difference between the view of human nature and behavior presented in the preceding chapter and the one that I have been consistently taught in my many years of undergraduate and graduate education in anthropology, history, and literary studies. This is the world I was given. Humans were suspended in vast webs of culture, and though cultures around the world shared some basic constituent materials from time to time, they were all different and led to entirely different “subjectivities” for the individuals fashioned within those cultures. Furthermore, culture inevitably existed as a political force organizing hierarchies of power and production, a creative force wielded by individuals with greater access to resources or status in order to cement their own positions (although the process generally remained invisible, so most participants simply believed that how things were was the natural state of order).

Because of the inescapable ideological nature of culture, almost all fields of “knowledge” could be shown to exist primarily within narratives or economies of power that perpetuated the privilege of certain members of a given culture. Therefore, any disciplines seeking “truth,” such as the sciences, were not only striving for an

impossibility due to the indeterminacies involved in human perception but also making claims that altered or reinforced—usually the latter—the fundamental basis of human culture, right down to the interiority or essence that individuals mistakenly believed provided a stable and immutable self-identity for themselves. Because of the great influence of Marxism and materialism in the academy, systems of production and resource allocation were usually seen to provide the most reliable locus from which to examine how meaning was produced by cultures and how that meaning arose to reinforce particular ideological ends. Any claim of “truth,” therefore, needed to be treated with great skepticism and rigorously interrogated to reveal its hegemonic function. Much of the preceding seems pretty logical to me, for, as you know from my earlier discussion, I and am actually sympathetic to many of these ideas—despite my general skepticism about the constitutive nature of literature often propounded by modern scholars—but they have doubtlessly created a warped perception of human culture and the humans themselves who function within it.

As a Victorianist, I am of course very familiar with literary discussions created before the influx of twentieth-century refinements to literary theory. Indeed, even as recently as the fifties many formalist critics pursued interpretive strategies that seem naïve, to say the least, in light of more modern schools of literary thought. And though I do regret the passing of the grand tradition of literary studies where critics were unafraid to address the universal themes that have informed human existence from time immemorial and am admittedly nostalgic for the days when even respected critics pursued literary essays tracing their own subjective impressions of a given text, I still have difficulty reading earlier criticism without being at least a little distracted by the

genuine unawareness of ideological concerns exhibited almost universally throughout it. Therefore, it is in no way surprising to me that politically oriented critics attempted a wholesale transformation of the field in the sixties and seventies.

Because of the immense influence of New Criticism, as well as a general tendency to conservatism overall, literary studies as a discipline was very late in integrating political awareness into its methodology, preferring instead, for the first half of the twentieth century, to follow an aesthetic that tended to wall the object in question off from the material world around it and view it as a “special” creation, a work of “art.” When reformers emerged who took issue with the uncritical assumptions of earlier scholars, several disparate strands of intellectual knowledge and styles informed their pursuit, including feminism, Marxism, discourse theory, cultural history, psychoanalysis, and the wonderful liberationist philosophy typifying the early days of the gay rights movement. But one of the most mature fields influencing politically-aware criticism was anthropology, which had since the beginning of the century emphasized the contingent and prescriptive nature of culture. The message I learned as an undergraduate anthropology student was simple: humans, as individuals, simply do not exist outside of the cultures that create them. Moreover, cultures were all so different that it was pointless, even impossible, to understand one in the terms of another. The ethnographer’s job, as exemplified by Clifford Geertz, was primarily descriptive, and once enough description was accumulated to attempt an understanding of the inevitably unique worldview of the inhabitants of a certain culture, then perhaps cross-cultural comparisons might be possible. Thus, as Donald E. Brown details in Human Universals, the

fundamental impetus of anthropology was the discovery of differences, a methodological telos that naturally shaped the ultimate outcome of the research thus undertaken.

Nor was this an innovation newly minted by Geertz, for social and symbolic anthropology far pre-dated him. The displacement and negation of individual difference and innate human nature had been accomplished by the first generation following Franz Boas, for Boas's student Albert Kroeber had insisted that "heredity cannot be allowed to have acted any part of history," a statement that has a certain noble and idealistic striving to it but which nevertheless proved unable to rewrite the most basic tenets of human behavior (qtd. in Deglar 84).<sup>117</sup> At about the same time, Ellsworth Faris made a similar observation: "Instincts do not create customs; customs create instincts, for the putative instincts of human beings are always learned and never native" (qtd. in Pinker, Blank 24). And Margaret Mead observed that "We are forced to conclude that human nature is almost unbelievably malleable, responding accurately and contrastingly to contrasting cultural conditions" (Mead 1935/63, 280). The journey to Geertz seems quite short, then, as is demonstrated by the similarities between these statements and the famous quote from Geertz that I have already mentioned previously: "Our ideas, our values, our acts, even our emotions, are, like our nervous system itself, cultural products" (50).

If one of the major intellectual achievements of the twentieth century was to recognize the interestedness and political content of seemingly ideology-free inquiries, then the earnest and well-intentioned political desires of all of these scholars provide a fitting test case. But lest the ideological impetus of the above assertions still remain obscure, other social scientists of the era were more straightforward. Therefore, Otto

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<sup>117</sup> Boas's influence of the discipline, and his culturalist prejudices, cannot be overestimated. Alfred Kroeber, Robert Lowie, Edward Sapir, Ruth Benedict, and Margaret Mead—a short list representing the most significant leaders of cultural anthropology in the twentieth century—were all students of Boas.



Klineberg asserted in 1928 that “the environmental explanation was preferable, whenever justified by the data, because it was more optimistic, holding out the hope of improvement” (qtd. in Pinker, Blank 27). Likewise, Charles Ellwood observed that “Modern sociology and modern anthropology are one in saying that the substance of culture, or civilization, is a social tradition and that this social tradition is indefinitely modifiable by further learning on the part of men for happier and better ways of living together.” He continues: “Thus the scientific study of institutions awakens faith in the possibility of remaking both human nature and human social life” (qtd. in Pinker, Blank 27). If anything, the horrors of WWII only intensified the desires of social scientists to create a discipline that promised hope for a human future devoid of bloodshed, hatred, and prejudice, and the “culture is everything” paradigm inherited by literary scholars is clearly erected upon the worthy yet shaky edifice born from these desires.<sup>118</sup>

In addition, many early Darwinists, and scientists in general, did little to advance their own cause, and it is understandable why twentieth-century social scientists would want to distance themselves from the biological thinking of the time. Darwinism, indeed, quickly morphed into “Social Darwinism,” as formulated by Herbert Spencer, which viewed social stratification as the optimal result of Darwinian principles and promoted a eugenics-oriented ideology that discouraged aid to those in need because they were obviously less fit and thus needed to be left at a reproductive disadvantage. At the same

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<sup>118</sup> Because of the progressive politics held by many of those desiring social change—and thus politically motivated to adopt the culturalist position—the nature-nurture debate has often been miscast as an example of conservative versus liberal political orientation. Therefore, Ashley Montagu, in Sociobiology Examined, insists: “Those holding conservative political views strongly tended to believe in the power of genes over environment. Those subscribing to more liberal views tended to believe in the power of environment over genes” (4). In a way, this is a nice rhetorical gambit for Montagu, who attempts to discredit sociobiology in very unsubtle terms throughout the book, since it will presumably encourage political liberals to view the entire discipline as a conservative aberration. It ignores the central fact, however, that all of the founders of the discipline were life-long liberals, and therefore any ideologies involved are far too complex to balance upon a single reductive binary.

time, the “science” of craniology was busily measuring brains in the effort to prove the innate intellectual inferiority of women and blacks. Other scientists were forwarding theories attempting to constrict the activities of women, for example arguing that menstruation made women so weak that they should not be taxed with strenuous pursuits like education.<sup>119</sup> Likewise, as Londa Schiebinger details in “Skeletons in the Closet,” nineteenth-century anatomists misconstrued the female skeleton as essentially childlike, thus justifying and encouraging their inferior status in Victorian culture. Nor were these isolated pursuits, for nineteenth-century science clearly served the purposes of the dominant, white male culture a distressingly large portion of the time. Given the rather unsavory intentions of much biologically-oriented research of the period, the emergence of culturalist and behaviorist paradigms seems natural, and their ascendance was aided by the dissemination of Marx’s writing, for Marx also argued that human nature could be perfected through the alteration of the material conditions in which humans subsisted and interacted.

In the twentieth-century, then, biological explanations for human behavior became anathema, and anthropology, sociology, and, to a lesser extent, psychology, happily supplied counter-theories requiring no input from biology at all, and this was the substantial body of theory and knowledge that was to become so influential in the field of literary studies. As Steven Pinker points out, “the prevailing theories of mind were refashioned to make racism and sexism as untenable as possible” (Blank 16).

Unfortunately, the bizarre, misguided prejudices of early scientists also encouraged a

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<sup>119</sup> It goes without saying what the ideological desires of these white male scientists were, just as is still happening in many parts of the world where religion and other pernicious social forces attempt to deny education to females, often through violence (for example, several teachers in Iraq have recently been killed because they are now teaching girls at school). Claustrophobia is one of the most primary and recurrent male strategies in the male attempt to control the reproductive capabilities of females.

distrust of all “hard” science among social scientists that was adopted wholesale by the humanities in the twentieth century. Feminist critic Ruth Bleier explains the problems she sees with scientific pursuits:

The . . . important problem is that scientists, like everyone else, are born and raised in a particular culture of beliefs, biases, values, and opinions, and, to one degree or another, they will be affected in their work by what they hope, believe, want, or need to be true. When the area of research involves matters that touch very sensitively, indeed often explosively, on scientists’ own daily lives, it is even more difficult to maintain, or unrealistic to expect, a neutral, value-free, objective science. But this objective, value-free stance is precisely what our culture claims to be the characteristic both of the male mind and science. (4)

In a similar vein, Anne Fausto-Sterling has recently argued that “scientific knowledge is socially constructed and thus will always be part of a power struggle which is fundamentally social, not biological in nature” (“Feminism” 58). The attack on science by social scientists has remained strong since Thomas Kuhn’s The Structure of Scientific Revolutions in 1962, which was followed by even more radical assessments such as Jean-Francois Lyotard’s The Postmodern Condition (1979) and Paul Feyerabend’s Against Method (1975), and these works emboldened scholars in the humanities to dismiss outright the claims of objectivity and truth made by scientists, even when they quite often lacked any understanding at all of the knowledge they were dismissing. No one, truly, is denying that science has always been susceptible to the prejudices of the individual scientists involved, but unfortunately social scientists, and those they influenced so

heavily in the discipline of literary studies, consistently failed to recognize the value of a synthetic approach combining the strengths of objective, physical research with their own, more theory-driven explorations of human culture and human behavior.<sup>120</sup>

Instead, the social sciences adopted an almost entirely extra-somatic view of culture, a trend encouraged by one of the primary intellectual tendencies of the time, the drive to collectivist thinking. Culture was viewed as something that existed only in the shared realm of social experience, outside the organism, and it functioned to promote the survival of entire groups of people. In this intellectual climate, Darwinism was neglected as an explanatory paradigm guiding research at the macro level since the development of cultural formations was viewed as outside the reach of biology and evolution, and even studies of animal evolution tended to be narrowly focused on micro-evolutionary concerns involving specific traits and fitness landscapes rather than larger issues of speciation or gene-environment interactions. As Thornhill and Palmer point out, the focus on culture and group cohesion did present reasonable-sounding hypotheses about the functional value of group behaviors—for example Emile Durkheim’s argument that religion exists to bind together the social group—but it failed to provide any basis for determining why religion developed to serve this purpose instead of other political organizations or belief systems that could accomplish the same benefit (7). It also obscured the fact that culture inevitably arose as the result of adaptations occurring at the individual level.

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<sup>120</sup> I am not denying the fact that all science, even in the “hard” sciences, is theory driven. Rather, I am pointing out that the social sciences often exist, like literary criticism, almost entirely within the realm of theory (nor, alas, is my own study much different). The scientific method, with its demands for replication, ensures that sciences like physics and biology amass large bodies of concrete knowledge of the sort not often found in the social sciences, where observation is more susceptible to the theoretical perspective of the observer.

Although appearing quaint today, the scholarship of the early to mid-twentieth century relentlessly pursued the optimistic course charted by the founders of the modern disciplines of sociology and anthropology. A perfect example is the already discussed ethnographic work of Margaret Mead, where she presents an idyllic depiction of Samoan life lacking conflict, prejudice, or cultural controls of adolescent sexual behavior, a complete contrast to, in her words, the “maladjustment which our civilisation has produced” (qtd. in Wrangham and Peterson 101). Boas himself provided the forward to the book, describing Mead’s work as a “painstaking investigation” proving “the suspicion long held by anthropologists, that much of what we ascribe to human nature is no more than a reaction to the restraints put upon us by our civilisation” (qtd. in Wrangham and Peterson 102). Indeed, discovering “peaceful” hunting and gathering societies became a major project in anthropology, and the political nature of the project is evident in the UNESCO resolution sponsored by Ashley Monatagu in 1950 that asserts that biology supports the view that “nonviolence and peace were likely the norm throughout most of human prehistory” (qtd. in Pinker, Blank 307). The entire project of discovering peaceful “natives,” free from the corruption and violence that researchers found endemic in Western societies, illustrated the researchers’ desire to validate their own utopian desires for an unspoiled, peaceful human nature that could be recuperated under the right circumstances. Nor did animal biologists escape the prejudice, for primate studies also tended to present images of peaceful, cooperative bands of animals free from such undesirable human traits as murder, rape, and genocide. Jane Goodall’s famous depiction of peaceful life among the chimpanzees dominated the public imagination in the sixties,

and in The Territorial Imperative, published in 1966, Robert Ardrey described Goodall's conception of chimpanzee society as an "arcadian existence of primal innocence" (222).

Nevertheless, the search for affirmations of human goodness was rapidly derailed. Napoleon Chagnon's thirty year study of the Yanomamo in Brazil detailed levels of murder and rape that would make the inner city of Detroit look like a retirement community, nor were the Yanomamo an isolated case. As I have already described, even Samoan culture, depicted in such idyllic and romanticized terms by Mead, contained substantial numbers of rapes and murders when viewed by an ethnographer willing to learn the language and stay long enough to actually witness the general functioning of society there.<sup>121</sup> And as for primates, they are definitely not strangers to violence. Gorillas fight rival males, often killing the loser and any infants there may be, the latter a strategy common throughout the animal kingdom to ensure that females become fertile again as quickly as possible and to avoid squandering resources on non-relatives.<sup>122</sup> And chimpanzees routinely commit planned acts of violence on rival social groups that lead to actual genocide. For example, among the chimpanzees studied by Jane Goodall were the Kasakela and Kahama bands. In January 1974 several members of the Kasakela band

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<sup>121</sup> I am of course talking about Derek Freeman, whose Margaret Mead and Samoa: The Making and Unmaking of an Anthropological Myth details the substantial differences in his own research, conducted over the length of several years, compared to that of Mead, who had spent twelve weeks making her observations, although in her overly optimistic judgment she insisted that "a trained student can master the fundamental structure of a primitive society in a few months" (qtd. in Wrangham and Peterson 99). For a complete analysis of Mead's ethnography, see Wrangham and Peterson, pages 97-107. See also Freeman's more recent The Fateful Hoaxing of Margaret Mead: A Historical Analysis of Her Samoan Research.

<sup>122</sup> Naturally it is dangerous to make the connection to human behavior too explicitly, but it is true that stepfathers are far more likely to kill their stepchildren than fathers are to kill their own children, and the killing is concentrated in the first two years of age. Buss, citing the research of Daly and Wilson, asserts that "the risk of a preschool-aged child being killed ranged from 40 to 100 times higher for stepchildren than for children living with two genetic parents" (Evolutionary 203). The Human Relations Area Files (HRAF) contain limited data, but infanticide is mentioned in thirty-nine societies, and in fifteen of them uncertainty in paternity was grounds for infanticide. In three of the societies, it was permissible for a male to kill offspring displaying suspicious physical features, and in two, the Tikopia of Oceania and the previously mentioned Yanomamo, men could demand the killing of any offspring from a previous partner as a condition for marriage. See Daly and Wilson's Homicide for additional analysis of the HRAF data.

moved silently into Kahama territory, pulled down a male member of the Kahama group, then physically brutalized him, leaving him behind to die. Nor was this an isolated incident. Over the next several years, such attacks, characterized by skill and planning, wiped out almost the entire Kahama tribe. The brutality of the lethal raiding surprised all of the researchers who witnessed it, for up until that point humans were considered unique in their violence against members of their own species. In these days of modern cultural self-awareness, biology is certainly not destiny, but if we are to find models for peaceful coexistence they will not be, as so many twentieth-century intellectuals believed, drawn from human hunter-gatherer societies or the social behavior of our closest primate relatives.

But there is more to the twentieth-century aversion to biological explanations of human behavior than an overly optimistic desire to ameliorate the readily apparent horrors of human brutality and an intellectual perspective privileging group-level interaction and analysis. Ever since the days of Spencer, evolutionary positions were considered dangerous because they seemed to validate the current state of affairs, a viewpoint that is known as the naturalistic fallacy. In short, the naturalistic fallacy is the mistaken view that what exists is natural or right, and that evolution has created the optimal state of affairs both in human and animal existence. The Social Darwinism movement did indeed use arguments to this effect, so there is a precedent for such concerns, but no modern day scientist tries to justify undesirable behavior through proffering evolutionary explanations, nor do evolutionary theorists pursue anything at all resembling a theory of optimality, for evolutionary constraints lead merely to the contingent and practical, not the perfect. Still, as I will show shortly in my discussions of

the reactions to sociobiologically-influenced works from Wilson's Sociobiology to Thornhill and Palmer's A Natural History of Rape, the naturalistic fallacy is alive and well in the social sciences, with critics as esteemed as Marshall Sahlins and Stephen J. Gould insisting that evolutionary explanations somehow excuse those exhibiting undesirable behaviors.<sup>123</sup> Typical are the comments of biologist (and Women's Studies scholar) Zuleyma Tang-Martinez, who, in her 1997 "The Curious Courtship of Sociobiology and Feminism," insists that sociobiology "serves only to justify and promote the oppression of women by perpetuating the notion that male dominance and female oppression are the natural outcomes of human evolutionary history" (117). Nevermind scientific data, or the fact that all sociobiologists I have encountered in no way promote the oppression of women. Rather, most evolutionary theorists would instead agree with William Hamilton: "We may have good reason to consider some aspects of human character inappropriate in the modern world and to wish certain traits would disappear. If we decide we need policy for assisting the disappearance, it will be well to understand how human nature was constructed" (Narrow Roads 191).

In my experience of the academy, there is an unspoken ideological foundation that is antipathetic to sociobiological explanations for behavior, and this is actually distinct from the more pointed and comprehensive criticisms of all scientific knowledge forwarded under the guise of post-structuralism. Rather, it is a broadly-fashioned hope that intellectual endeavors can shape culture in ways that will bring about a more

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<sup>123</sup> See, for example, Sahlins's The Use and Abuse of Biology and the famous "The Spandrels of San Marco and the Panglossian Paradigm" by Gould and Lewontin. A recent example is Louis Menand's 2002 critique of Steven Pinker in The New Yorker, titled, appropriately enough, "What Comes Naturally." And if that doesn't relay his drift sufficiently, he later insists that "Evolutionary psychology is. . . a philosophy for winners." Indeed, Menand's primary fear seems to be that, through pointing out that some undesirable behaviors have been rewarded by natural selection, the entire edifice of human moral philosophy will be eviscerated. Never mind that long gone are the days when moral philosophers look for immutable natural categories upon which to justify their claims.



enlightened populace less bent on pursuing violence and more committed to equality and egalitarianism. This is certainly not new—witness the criticism of Lionel Trilling and Harry Levin in the forties—but it didn't gain a theoretical basis until the infusion of culturalist beliefs from the social sciences beginning near mid-century. After that time, a remarkably consistent collection of ideological biases has characterized fields as disparate as anthropology, history, sociology, and literary studies.<sup>124</sup> And who can deny the desirability of the shared goals found in all these disciplines, for I trust almost all of my colleagues, myself included, desire just such things. Unfortunately, however, many practitioners in these fields find sociobiology inimical to their own, often unstated, political desires, and therefore resistance has been consistent and harsh.

The initial protest greeting Wilson's Sociobiology is instructive. As I have already mentioned, the subject wasn't exactly new when Wilson applied his considerable intellect to it; I have already discussed many important precursors, including William D. Hamilton, George C. Williams, and Robert Trivers, all of whom had combined natural selection theory and the study of social behavior prior to the appearance of Wilson's book.<sup>125</sup> Indeed, it is impossible to understand the vituperative onslaught that Wilson faced without looking at the political situation outside the academy at the time that Sociobiology was published. Wilson in fact discusses the unique political climate into

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<sup>124</sup> This is the point in time, naturally, when conservative scholars like Joseph Carroll believe that the field of literary studies began to lose sight of the very literary texts that it was supposed to be analyzing, instead beginning to concentrate of extra-textual details surrounding a given work of art's production and consumption.

<sup>125</sup> And moreover, around the same time there was a literal onslaught of works aiming at a newer synthesis of biology and behavior, including John Alcock's Animal Behavior: An Evolutionary Approach, Jerram Brown's The Evolution of Behavior, Eibl-Eibesfeldt's Human Ethology (2<sup>nd</sup> ed.), all of which were published in 1975, and two that were published the previous year, Michael Ghiselin's The Economy of Nature and the Evolution of Sex and Robert Hinde's Biological Bases of Human Social Behavior. Nevertheless, Wilson's Sociobiology overshadowed all of these and became the defining text in the field. It was not alone in gaining political censure, however, for even the rather reclusive William Hamilton, the pioneering figure in the mathematics of inclusive fitness, inspired protests when he was hired by the University of Michigan in the seventies.

which his book was thrust in his 1994 work Naturalist. Above all, the Vietnam War had served to politicize American campuses, and much of the incredible energy then circulating on college campuses was focused squarely on the left, a situation intensified by the perceived criminality of the Republican Nixon administration. Furthermore, the “second wave” of feminism was well underway, and for a brief time the interests of many radical groups—Marxists, feminists, people of color, gays and lesbians, those fighting to relieve poverty, environmentalists, you name it—seemed to be united in one radical cause united against the “establishment.”<sup>126</sup> As it turned out, many of Wilson’s own colleagues at Harvard, including Stephen J. Gould and Richard Lewontin, were very diligent in their pursuit of Marxism. In addition, previous works had muddied the water. For example, in 1969 Berkeley professor Arthur Jensen had argued in “How Much Can We Boost IQ and Scholastic Achievement” that there might be a genetic component to racial differences in IQ levels, an idea that created a huge firestorm of protest, and in 1971 Harvard psychologist Richard Herrnstein had proposed that stratification in future society might be based on IQ-classes rather than the normal socioeconomic classes now involved, another idea that seemed repugnant to the prevailing norms of enlightened political thought.<sup>127</sup> In this political environment, it behooved one to watch what he or she said.

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<sup>126</sup> This was still the situation when I first attended college in the early 1980s, so that as a hard-working member of the Democratic Socialists of America I rubbed shoulders with political activists of all stripes and with bizarrely disparate aims. Some of the idealism has worn off the counter-establishment underground by now, however, and much of the apparent unity has evaporated in the more fragmented politics of the early twenty-first century.

<sup>127</sup> Recently, Mike Judge’s film Idiocracy explored the same territory, though the point of the film was that lower IQ individuals far out-procreated more intelligent ones, thus leading to a precipitous dumbing down of society. In all of the reviews of the film, which were very few because the film was actually buried by its distributor Fox in the market—presumably because it made great fun of the powers that be at Fox—I was surprised to see no mention of the film’s central thesis, that intelligence was a substantially heritable quality. Oh, and the film was super, by the way.

Wilson has always claimed that he had no idea that the final chapter of Sociobiology devoted to human behavior would create such an uproar. This is probably disingenuous of him, though it is true that much of the work was specialized and ostensibly intended for readers within his field. Certainly the first reviews upon its publication in early summer 1975 were largely positive, including one by C.H. Waddington in the New York Review of Books. By November, however, a group calling themselves the Sociobiology Study Group was formed, and their first public response was a letter of protest to the New York Review of Books characterizing Wilson's work as "biological determinist" and extremely dangerous:

These theories provided an important basis for the enactment of sterilization laws and restrictive immigration laws by the United States between 1910 and 1930 and also for the eugenics policies which led to the establishment of gas chambers in Nazi Germany. The latest attempt to reinvigorate these tired theories comes with the alleged creation of a new discipline, sociobiology. (Allen et al)

The intervening years have made these claims look more than a little ridiculous, but at the time, and given the current political climate, they carried great weight, especially since the letter had among its signatories Wilson's influential colleagues at Harvard Stephen J. Gould and Richard Lewontin. Wilson immediately responded with his own letter demonstrating the various ways that his words had been taken significantly out of context by the protesters. Despite his well-founded protests, however, the critics of Sociobiology clearly won the first round, and Wilson's work was considered as all but discredited by most academics in the social sciences, having been connected with events as horrific as

Nazi genocide and sterilization laws. Partly, of course, this was due to the fact that few in academics actually read the book. As Ullica Segerstrale acidly observes, “the price of \$25 for the big book may have been unattractive, and the prospect of reading it even more daunting for someone who had no interest in evolutionary biology as such” (14). Because the protestors numbered among them so many distinguished college professors, and their conclusions fit so neatly with the ideological prejudices of the day, few bothered to investigate the matter further. Sociobiology had been thoroughly discredited, and that was that. Indeed, even to defend it within the humanities and social sciences immediately identified one as being horribly racist and sexist.<sup>128</sup>

But the “science wars” had been initiated. Notably, even though there were genuine scientific arguments against sociobiology being forwarded from the beginning—as would be the case with any new theory or mode of investigation, especially ones so endangering the institutional prestige of many within the academy committed to opposing viewpoints—the prominence of the Sociobiology Study Group and its protests largely obscured the science involved.<sup>129</sup> The opposition only gained in political stridency when the Sociobiology Study Group joined forces with Science for the People, and both groups shared members with the even more radical Committee Against Racism. The strength of the opposition to sociobiology became especially evident at a two-day symposium on sociobiology sponsored by the American Association for the Advancement of Science held in Washington, D. C., in February 1978. Indeed, the support for the anti-

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<sup>128</sup> This was the state of sociobiology when I first discovered the discipline in the nineties. It was mentioned only in passing as an idiotic and repugnant theory believed in by those who ardently desired the perpetuation of patriarchal male privilege and sexual violence against women.

<sup>129</sup> Though it should be pointed out that, ultimately, the scientific criticism of sociobiology accomplished just what debate is supposed to accomplish in scientific discourse—it encouraged further research into problem areas, and that further research has largely validated the sociobiological thesis.

sociobiology cause surprised even members of Science for the People, and two of its leaders, Jonathan Beckwith and Robert Lange, reported after the conference that they had not actually expected “the extent of the spreading negative reaction to sociobiology” (qtd. in Segerstralle 23). Although much of the conference passed without incident, and must have seemed, at first, anticlimactic to many attendees, one of the later sessions featured Wilson and Gould on the same panel, and the auditorium was packed. Gould had already spoken when Wilson took the stage, but before he could speak almost a dozen people—one of whom was bearing a placard with a swastika drawn on it—rushed the stage shouting, “Racist Wilson you can’t hide, we charge you with genocide!” While several took over the microphone and denounced sociobiology, others rushed up behind Wilson with a pitcher of water they had grabbed off the table and, dousing Wilson, exclaimed, “Wilson, you are all wet!” As order was restored, Wilson dried himself off and, after receiving a standing ovation from the startled audience, proceeded to give his talk detailing evidence supporting his argument. Ironically, this temporarily made Wilson’s cause more sympathetic, though it does illustrate how strongly political critics opposing sociobiology felt about their mission to discredit the field.

The controversy was well under way, even reaching very conspicuously into the popular press, when British evolutionary theorist Richard Dawkins published his now classic The Selfish Gene in 1976. Specifically, Dawkins considered Wilson to harbor group selectionist tendencies—and, indeed, Wilson did think gene selectionism too narrow—and so Dawkins wanted to elucidate new concepts like inclusive fitness and kin selection in terms of the survival of specific alleles of specific genes. Dawkins of course hindered his cause when he described humans as “lumbering robots” swarming with

genes that really were the vehicles of both survival and transmission, for the dehumanizing metaphor only incited greater opposition from those who found all evolutionary endeavors to be deterministic. Nevertheless, Dawkins accomplished such a persuasive exposition of gene-selectionist thinking—much of it built upon the brilliant work of William Hamilton in the previous decade—that his work attracted many converts.

Naturally, the work's popularity only heightened the strength of the protest against it, much of it totally unfair. For example, at one point in the text, Dawkins discusses two different contrasting survival strategies, one involving philandering and the other involving faithfulness. The point of Dawkins' discussion was that strategies of this sort are ecologically contingent—that is, particular strategies will be favored by selection in different conditions, and that populations could contain competing strategies as determined by environmental conditions. Nor did Dawkins even mention human mating behavior in this discussion, but that was of course how it was read. In a review of a different work, Wilson's On Human Nature, Steven Rose manages to slip in remarks demonstrating his disdain for Dawkins: “although he does not go as far as Richard Dawkins. . .in proposing sex-linked genes for ‘philandering,’ for Wilson human males have a tendency towards polygyny, females toward constancy (don't blame your mates for sleeping around, ladies, it's not their fault they are genetically programmed)” (qtd. in Dawkins Extended 10). This of course demonstrates the naturalistic fallacy in rather unmistakable terms, and in The Selfish Gene Dawkins had specifically tried to diffuse such a logical error in his critics:

That brings me to the first point about what this book is not. I am not

advocating a morality based on evolution. I am saying how things have evolved. I am not saying how we humans morally ought to behave. I stress this, because I know I am in danger of being misunderstood by those people, all too numerous, who cannot distinguish a statement of belief in what is the case from an advocacy of what ought to be the case. (3)

Dawkins' attempts to ward off attacks like Rose's, however, proved insufficient, for Rose's own political orientation held vast sway over how he read works of sociobiology.

But if Rose was guilty of exaggeration and dubious interpretation, philosopher Mary Midgley wanders into unmistakable misrepresentation when she insists that Dawkins' "central point is that the emotional nature of man is exclusively self-interested, and he argues this by claiming that all emotional nature is so" (439). In conflating "selfishness," as Dawkins used it in purely behavioral terms, with "emotional nature," Midgley errs greatly, but even more striking is her attribution of the process through which Dawkins describes the successful transmission of genes to the "emotional nature" of the organism itself. Dawkins was sharp in his reply, arguing that Midgley "raises the art of misunderstanding to dizzy heights" (qtd. in Segerstrale 75). He elaborated on Midgley's complete mischaracterization of his definition of "selfishness" in "In Defence of Selfish Genes": "Did Midgley, perhaps, just overlook my definition? One cannot, after all, be expected to read every single word of a book whose author one wishes to insult" (564). But, no, it can't be that, Dawkins concludes, for the definition is in the very first pages of the book (564). Rather, Midgley's response must have been a calculated move aimed at discrediting Dawkins's work, for Dawkins himself stresses that all behavior,

even altruism, reflects selfishness at the level of genes, and thus it is senseless to assert that the process involves selfishness at the level of the organism.<sup>130</sup>

But the political project to discredit Wilson and his followers often involved outright lies. One of the greatest criticisms leveled at sociobiologists is that the entire discipline is deterministic—that is, propounding a view of the human organism where genes control human behavior without the mediation of environmental forces. As I've already pointed out, there are no sociobiologists or evolutionary psychologists who hold such an untenable position, but it was a favorite criticism for opponents since it proved so antithetical to modern sensibilities, especially those in Western cultures so imbued with the concept of free will. Moreover, the charge of determinism joins seamlessly with the naturalistic fallacy to inspire fears that all sorts of human behaviors will be excused if they are indeed an original part of a particular individual's genetic constitution. Knowing this, Lewontin, Rose, and Kamin, in their 1984 book Not in Our Genes, provide the following quote from Dawkins's The Selfish Gene: "They [the genes] control us body and mind" (287). This is indeed a startling quote, or at least would be were it accurate. But what Dawkins really said was that genes "created us body and mind" (20). The accuracy of the quote, however, seems less important to Lewontin than its efficacy, and Steven Pinker, in The Blank Slate, details five different locations where Lewontin used the same misquotation to bolster his case against Dawkins and sociobiology (114).

Apart from the obvious distortions, however, it might be useful to address the actual scientific objections presented by sociobiology's enemies from within the

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<sup>130</sup> Segerstrale calls Midgley's enterprise of mischaracterization a case of "moral reading," that is, reading in a distorted way either as a result of one's moral stance or to bolster one's moral desires or projects, in this case "to criticize Dawkins to such an extent that no philosopher would ever want to use him as scientific backing for philosophical theorizing" (77). Segerstrale's insightful term is very useful in discussing the arguments of those opposing sociobiology.



scientific discipline lest it seem that I'm being unfair to their cause. Within a few years of the publication of Sociobiology, the opposition matured to encompass more than hysterical political posturing, and serious enquiries into the correctness of using adaptationism and optimization as heuristic devices to guide evolutionary reasoning emerged in the works of Gould, Lewontin, Rose, Sober, and others, most spectacularly in Gould and Lewontin's famous "The Spandrels of San Marco." Because I have already addressed this work, I will not repeat myself here, but it is worth pointing out that, in the course of my research, I haven't discovered a single reference to this work within a scientific article unless it is to highlight it particularly before refuting it in unconditional terms. Indeed, as I have argued, the article's reputation—enhanced even greater by the laudatory collection of scholarly evaluations in Selzer's 1993 Understanding Scientific Prose—is upheld solely within the social sciences and humanities. It could be that all, I repeat since it is so staggeringly improbable, *all* scientists within the evolutionary sciences have been misled by ideological bias into an acceptance of adaptationism as the basic explanatory paradigm in the natural sciences, but to argue this seems to place one rather on the fringe.

The scientific attack on adaptationism, indeed, has been spectacularly unfruitful. All of Gould's claims to fame—"exaption," "punctuated equilibrium," "hidden constraints," etc.—aren't really revolutionary at all, nor do they propound ideas at odds with adaptationist thinking.<sup>131</sup> The famous philosopher of science Daniel Dennett describes the common response to his work:

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<sup>131</sup> "Exaption" is Gould's term for design features that exist because they either arose with a different function in response to a previous environmental condition or which originally emerged as a non-adaptive accident. "Punctuated Equilibrium" is the theory that saltation—or the emergence of new species—is a rapid process not involving the gradualist perspective normally found in evolutionary theory. "Hidden

My frequent appeals to Darwinian reasoning have been bluntly rejected as discredited, out-of-date science by philosophers, psychologists, linguists, anthropologists, and other who have blithely informed me that I have got my biology all wrong—I haven't been doing my homework, because Steve Gould has shown that Darwinism isn't in such good shape after all. Indeed, it is close to extinction. (263)

And though one might think that Dennett has indulged in exaggeration, I too have been told roughly the same thing in discussions of my current project. Clearly, if Gould's work hasn't accomplished any noticeable transformation of the scientific acceptance of adaptationism, then the constant use of his name by social scientists and humanities scholars wishing to discredit Darwinism involves more than intellectual exactitude. I would argue, in fact, that the process involves a certain amount of ideological wish fulfillment.

A more recent controversy that deals more specifically with up-to-date theories of gender construction centers around Randy Thornhill and Craig T. Palmer's A Natural History of Rape. Few recent works have encountered such dismissive anger from social scientists, and the almost universal horror engendered by Thornhill and Palmer's study does much to illuminate the political opposition that must be overcome if a project like mine, devoted, as it is, to unifying biology and the social sciences in literary criticism, is to succeed, especially since one of the central works in my study, My Secret Life, prominently features rape in a pornographic context clearly meant to participate in the

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constraints" are constraints in design space—encompassing both environmental constraints and those found in the morphology of individual species—which are intimately involved in the final product appearing through adaptation. All of these, it should be noted, are accepted by evolutionary scientists and, moreover, they in no way strike at the heart of the adaptationist paradigm.

economies of lust and sexuality more than those of power and violence. For those who have read A Natural History of Rape—and it did sell in huge numbers—I will get right to my stand on the subject it treats. In this book, two competing hypotheses are presented, with Thornhill arguing that human males possess specific, genetically transmittable psychological mechanisms encouraging rape within situations where the cost to the individual—in the form of threats of violent resistance or retribution from friends or relatives—is less than the genetic benefit possibly accrued by carrying out the rape. In contrast, Palmer believes that genetically transmittable psychological mechanisms are involved—as they are in all behavior—but not adaptations specifically leading to rape. Although I do not buy into the existence of a *specific* evolved adaptation promoting rape by human males, an adaptation that emerged because such behavior was rewarded through enhanced survival benefits, I do believe with Palmer that evolution and evolved psychological mechanisms are intimately involved in human rape. The standard sociobiological position described by John Alcock seems extremely reasonable: “rape is partly the product of evolved male psychological mechanisms, including those that promote ease of sexual arousal, the capacity for impersonal sex, the desire for sexual variety for sexual variety’s sake, a desire to control the sexuality of potential partners, and a willingness to employ coercive tactics to achieve copulations under some conditions” (Triumph 209).

If the response to Sociobiology and The Selfish Gene—replete, as it was, with references to big issues like sterilization and Nazi eugenics—depicts the larger intellectual context into which I am submitting my study, the response to A Natural History of Rape details more specific objections I am bound to encounter from social

constructionists and gender feminists once I start examining human mating behavior and Victorian pornography in the coming chapters. Thornhill and Palmer begin their study with a sensible proposition: since current social policies regarding rape seem to have little effect, perhaps a more comprehensive modeling of rape and why it occurs might lead to more effective deterrents. The first thing that strikes the non-biased reader of this work is how balanced and rational it sounds, and the tone of the work contrasts sharply with the response it fostered. After a very effective discussion of proximate and ultimate causes—terms that I trust will be very familiar to my reader by now—Thornhill and Palmer address the fundamental issue of their work. They explain:

The fundamental scientific debate about the evolutionary cause of human rape concerns whether rape is a result of rape-specific adaptation or a by-product of other adaptations. That is, does rape result from men's special purpose psychology, and perhaps from associated non-psychological anatomy, designed by selection for rape, or is rape an incidental effect of special-purpose adaptation to circumstances other than rape. (12)

It is important to note that both of these categories, either purpose-specific adaptation or by-product, involve evolved psychological mechanisms, for this was one of the points of resistance that the work would encounter from those considering, in the face of substantial evidence to the contrary, rape to be an entirely “learned” behavior.

Equally annoying to culturalists is the authors' assertion—a correct one, I think—that the dichotomy often drawn between “culture” and “biology” is fundamentally incorrect. In their discussion they quote feminist biologist Victoria Sork, who refers to “gender differences in human society—some of which are biologically based, and some

of which are culturally based” (qtd. in Thornhill and Palmer 24). I have already discussed the concept of gene-culture coevolution, and that is what the authors have in mind in their arguments against Sork’s line of reasoning. Therefore, whereas Sork views the transmission of cultural features like language to occur solely in the realm of culture, Thornhill and Palmer point out that the acquisition of language involves a large number of quite specialized neural features that are anything but cultural, and that therefore it is pointless to discuss language as if it exists solely in the symbolic realm of culture. They expand this point to a very comprehensive but fundamentally correct conclusion, that all cultural features have emerged dependent upon the specialized neural capacities of the human minds that have begat them and that evolved psychological mechanisms involved in social learning render all ostensibly “cultural” behaviors at least partly dependent upon biology. Throughout their work, then, Thornhill and Palmer attempt a synthesis of evolved psychological mechanisms and cultural features that yields great insights.

Thornhill and Palmer’s book, in its unflinching commitment to applying science to a field notably lacking in empirical data, presents much data supporting the authors’ arguments that rape is essentially a reproductive act and thus could possibly involve adaptive elements. For starters, the universal aspect of rape argues for some sort of species-typical mechanisms since it seems unlikely that all societies would develop the same structural elements encouraging rape. Moreover, the presence of coerced copulations in many animal populations suggests a reproductive function that involves widespread, convergent adaptations whenever females are the limiting factor on sexual activity and males enter into mate competition. Also, rape usually involves females of peak fertility, thus pointing to a situation where reproductive benefits—and the

consequent selective pressures—could be involved. As the authors point out, rapists seldom use more force than is necessary to achieve the act, again fitting with an adaptive model since bodily injury would decrease the possible reproductive benefits of the act. Furthermore, the mental trauma of the rape victim is related to the nature of the act involved, with genital intromission and possible conception causing the most anguish to victims.<sup>132</sup> The reproductive nature of the act is also suggested by the fact that rapists tend to be young males, a time when sexual competition is very strong. Finally, conception rates are actually very high for rapes, almost twice as high as they are in normal copulatory events, though as David Buss points out in his discussion of Thornhill and Palmer's book, this could quite possibly be because men respond to fertility cues when choosing rape victims and hence achieve higher conception rates through the choice of optimally fertile individuals.<sup>133</sup>

As far as the specific psychological mechanisms involved, they propose and evaluate several. One is a psychological mechanism that evaluates the potential vulnerability of a victim and the possible costs, or lack thereof, of committing a rape in a particular context (a mechanism that explains the very high presence of rape in war situations, when victims are especially vulnerable and the risk of retribution-costs are low). Other mechanisms might encourage males to commit rapes when their chance of

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<sup>132</sup> Females in relationships with investing partners also experience increased levels of anguish and trauma, presumably because of evolved psychological mechanisms recognizing the greater loss possible if the partner, as is unfortunately often the case, is suspicious and attempts to withdraw support (see Thornhill and Palmer 192). Interestingly, the more physical injury is involved, the more supportive the partner and the smaller the mental trauma, a counterintuitive situation underscoring the unfortunate presence of male suspicion and jealousy in evolved male sexual psychology and the possible presence of a corresponding "mate-suspicion-detecting" mechanism in female psychology. See Margo Wilson and Martin Daly's "The Man Who Mistook His Wife for a Chattel," page 306.

<sup>133</sup> As Thornhill and Palmer point out, this could also be because of "psychological and/or physiological mechanisms that result in differences between the sperm counts of ejaculates produced during rape and those of ejaculates produced during consensual copulation" (65). As they point out, the research on this particular topic is virtually impossible to do.

gaining sexual access to females through other means seems low or when they are lacking in sufficient resources to attract a mate. Also, Thornhill and Palmer postulate the existence of mechanisms that lead to different standards when evaluating the sexual attractiveness of possible rape victims compared to the standards used when evaluating possible mates, so that maximum reproductive fitness is more important than maximum reproductive value.<sup>134</sup> Additional mechanisms might alter the arousal response to depictions of—or even the possibility of—rape as compared to consensual sexual relations. Finally, there could be specific psychological mechanisms that motivate males to employ coercive sexual methods when encountering situations of possible sperm competition (for example, a male may force copulation in situations of suspected infidelity). The authors proceed to offer evidence concerning each of these, though even they admit that the constellation of evolved psychological traits influencing male sexual behavior is so complex that definitive pronouncements about rape-specific mechanisms are, at this stage of research, difficult to make.<sup>135</sup> Rather, the book was an attempt to focus future research in a manner consistent with the principles of evolutionary studies.

Evolutionary thinking, however, has little to do the current study of rape in most disciplines, and Thornhill and Palmer clearly stepped on many toes when they published their project. For starters, indeed, even their reliance on statistical studies and replicable scientific investigation was alien to the field of rape studies, just as, of course, it is in my

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<sup>134</sup> For example, peak victim rapes are for women in their twenties, whereas male psychological mechanisms involving reproductive value—that is, the lifetime ability to produce offspring—lead to standards of beauty valuing younger individuals.

<sup>135</sup> In his discussion of Thornhill and Palmer's book in the second edition of *The Evolution of Desire*, David Buss cautions that the psychological mechanisms involved—like, say, the desire for women displaying maximum fertility cues—may function in a more general sense than in a manner pointing to rape-specific adaptations. Therefore, the project of attempting to delineate rape-specific mechanisms is going to be extremely difficult (though in no way, in his opinion, impossible). For his discussion, see pages 270-275.

own field of literary studies.<sup>136</sup> More importantly, most examinations of rape occur in the social sciences, where any discussion of biologically-based sex differences are anathema. Social scientists have absorbed from feminist ideology the idea that any mention of sex differences will merely, in the words of feminist scholar Cheryl Travis Brown, strengthen “long-standing cultural biases” and reinforce the “unequal political privilege that goes along with these gender differences” (“Talking Evolution” 11). In fact, a prominent criticism of Thornhill and Palmer’s book forwarded by Brown in the introduction to the sharply critical volume that she edited is that “nothing [in the book] offers a way for women to feel a greater sense of agency and entitlement” (21). Those who have stuck around this long in my discussion will recognize my deepest desires for women—and indeed all minorities—to feel a greater sense of agency and entitlement, but to criticize a scientific work for failing in this regard is nothing short of laughable. As I indicated earlier, I truly desire a politically actionable criticism that will help weaken inequalities in our society, but to fashion such a criticism while ignoring—or even contradicting—rather obvious and replicable facts will lead to a hollow and ultimately ineffective critical practice.

Even more central to my analysis of rape and male sexual arousal in the discussion of My Secret Life ahead, there has been a persistent effort among gender critics and social scientists to redefine rape as a non-sexual act. The classic statement of this position occurs in Susan Brownmiller’s 1975 work Against Our Wills: Men, Women,

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<sup>136</sup> In a 1994 study, Thiessen and Young surveyed published studies on rape and discovered that nine out of ten of them failed to test hypotheses or pursue scientific methodology. See their article “Investigating Sexual Coercion.” Thornhill and Palmer sum up their view of most current rape “studies”: “Not only is the bulk of the social science literature of rape clearly indifferent to scientific standards; many of the studies exhibit overt hostility toward scientific approaches, and specifically toward biological approaches. The message of these studies is clearly political rather than scientific” (148).



and Rape, where, in some of the most quoted lines ever written on the subject, Brownmiller describes rape as “nothing more or less than a conscious process of intimidation by which all men keep all women in a state of fear” (15).<sup>137</sup> The totalizing nature of this statement—despite its affirmation by legions of later scholars—immediately reveals its weakness.<sup>138</sup> Indeed, the idea of a monolithic and unified plot signed onto by all men is thoroughly ridiculous, and even if rape does actually function in the regulation of power between women and men, as I think it possibly could, Brownmiller’s ascription of intentionality to the process is completely unwarranted. For starters, the concept of rape as an altruistic act conferring benefits to other members of one’s group—the mistaken dogma of group selection, essentially—flies in the face of any sort of sensible evolutionary logic. Far from being only “an exercise of power,” rape clearly exists in the arena of human relations as a sexual act, even if it is one that exploits the distribution of power in human society. Nevertheless, any mention of sexual desire in connection with rape—despite the fact that in Victorian erotic literature the two are clearly inseparable—is seen to be promulgating the dangerous forces of patriarchal oppression.

The point of this chapter is to demonstrate the odd distortions that biological criticism must overcome, and the debate over rape contains many explicit instances of very peculiar flights of fancy on the part of politically motivated critics. Therefore, Brownmiller, in her classic text, insisted that “No zoologist, as far as I know, has ever

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<sup>137</sup> The quote is actually more spectacular in its entirety, for Brownmiller begins this statement with the observation that “Man’s discovery that his genitalia could serve as a weapon to generate fear must rank as one of the most important discoveries of prehistoric times, along with the use of fire and the first crude stone ax” (15).

<sup>138</sup> But it has become profoundly influential. In a 1993 statement, the United Nations declared the “primary objective” of rape to be “to exercise power and control over another person” (qtd. in Pinker 360). In the same year, Buchwald, Fletcher, and Roth’s editor’s preface to Transforming a Rape Culture declared that “Brownmiller’s book established decisively that rape is a crime of violence rather than passion” (1).

observed that animals rape in their natural habitat, the wild” (12). One can only assume, then, that Brownmiller’s reading in the biological sciences was quite shallow, for forced copulations were known even in the seventies to be common throughout the animal kingdom, including in the primates, and orangutans actually seem to possess specific, evolved adaptations involving rape as a reproductive strategy.<sup>139</sup> Furthermore, the “rape is not about sex” faction has always depended upon ethnographic reports of cultures in which there occur no rapes, like in the Samoan culture so fancifully described by Margaret Mead. In a variety of works, from Griffin’s 1971 Rape: The All-American Crime to Jackson’s 1995 “The Social Context of Rape,” the same faulty ethnographic data is repeated over and over. In her 1981 study, Sanday claimed to have found that 45 of the 95 societies in her study were “rape free,” and, furthermore, insisted that rape primarily occurs in patriarchal societies that have lost touch with nature.<sup>140</sup> A star culture in her account were the Mbuti Pygmies from Africa, who are less patriarchal than many other cultures and thus would greatly corroborate her account were they indeed rape free. Alas, even in Turnbull’s 1965 ethnography, which she cites as evidence for her case, Turnbull actually acknowledges that the males speak of the permissibility of forcing young girls “to their will” (qtd. in Thornhill and Palmer 141). Nor has more modern ethnography been any kinder to Mead’s faulty descriptions of rape free Samoan and Arapesh cultures, though they are still cited in the social science literature as

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<sup>139</sup> Orangutans have been known to rape human females. Some males remain smaller than other mature males and depend upon forced copulations, which they engage in frequently, for reproduction, often stalking females for days until they have a chance to attack them and attempt copulation. These males may, given the proper ecological conditions, proceed on to regular-sized adulthood later in their lives. For a discussion of forced copulation by orangutans, see Buss, Evolution, 271.

<sup>140</sup> Though, paradoxically calling attention to her own inconsistency, she admits that she has included as “rape free” cultures where rape is described as “rare” (9).

demonstrating the connection between Western patriarchies and rape.<sup>141</sup> In truth, even if rape were present only in “most” cultures, the biological basis for the act would be readily apparent, but the fact that it occurs in every culture completely undermines the social science explanation for rape.<sup>142</sup>

One can sense already the response that my evolutionary readings of Walter’s coercive sexual encounters in My Secret Life will elicit. The frustrating thing for a critic like myself is that I share the same goals as others who are completely unhinged by the concept that rape involves sexual desire, that males often possess specific desires concerning coerced sexuality, and that evolved psychological mechanisms in males fashion, through culturally specific contexts, male sexual behavior.<sup>143</sup> The well-meaning “rape is only violence” school can easily be explained through an invocation of the naturalistic fallacy, since they clearly are afraid that the discovery of a biological basis for rape will somehow excuse those who do it, but it does lead to an extremely skewed view of the subject.<sup>144</sup> A perfect depiction of the inevitable response of those in the

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<sup>141</sup> Buss points out that rape rates in Samoa are “two to five times as high as those within the United States” (Evolution 270)

<sup>142</sup> Occasionally points must be made that seem too significant to bury in footnotes, but here the necessity of good textual flow overrides common sense. It is important to note that patriarchy itself, as I argued earlier in my manuscript, has emerged from evolved biological differences between men and women, so I am in no way inferring any sort of strict dichotomy between “culture” and “biology” in my discussion of rape. Rape is indeed intricately involved in patriarchy insofar as genetic and cultural coevolution have culminated in a situation where individual males possess evolved psychological mechanisms designed to manipulate and circumvent the generally superior position of women when it comes to mate choice (for example, through status displays or promises of commitment that may or may not be truthful; appropriately women seem to possess specific “deception detection” mechanisms designed to protect them from deceptive mating practices). The value of an approach like mine is that the ideological force of patriarchy can be re-integrated into a biological model that can begin to acknowledge and trace the way that cultural forces both alter and reinforce biological imperatives. But any discussion of one without the other is bound to lead into falsification.

<sup>143</sup> Females of course also have an extensive, evolved sexual repertory, including rape avoidance mechanisms. Intriguing studies show that women, though they are most active in their period of peak fertility, also employ a greater number of rape-avoidance practices at this time. For a discussion of this research, see Buss, Evolution 278 and 279.

<sup>144</sup> Of course the naturalistic fallacy informs a great number of public policy debates. It is undoubtedly efficacious at times, as in the current debate over gay rights. Taking a cue from the identity politics of the

social sciences and humanities occurs in the aforementioned volume edited by Cheryl Travis Brown, Evolution, Gender, and Rape. Steeped in contemporary gender politics, this volume shows what can go wrong when politics take precedence over scientific methodology. For starters, the volume often seems to be arguing about something entirely different than Thornhill and Palmer's book, and Brown insists at the outset that "the persistent misapplication and misuse of evolutionary principles generated an understanding of human maleness and females as categorically opposite, universal, and invariant" (5). I, too, forwarded this criticism in my gender critic days, so I understand Brown's concerns, but they arise from a misunderstanding of how science works.

I am not denying that the process that Brown decries happens in the popular press, where scientific studies are reduced to headlines that do, indeed, participate in economies of power reinforcing male privilege (or, in certain cases, the opposite). But science works differently. No scientist is unaware that sex-based differences function on a continuum, and that a host of influences, from pre-natal hormones to genetic endowment to family environment, control exactly how a particular individual will exhibit them. In fact, the study of intersexed individuals, who supposedly undo the binary, has proven exceptionally fertile territory for researchers trying to discover precisely how individuals become sex-differentiated into the two standard categories created by past reproductive

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civil rights movement, the current mantra of the gay community seems to be, "hey, I can't help it, it's genetic and I was born this way." This tactic has proven very effective, though it has little to do with the appropriate response to homophobia, which should be—as it was in the Queer Nation movement that I took part in—"fuck you, get over it, I'll do whatever I want with my body." The latter approach, though really fun, didn't fit well into the format of talk radio and print media and political business as usual, and so we now have endless debates of the biological basis of homosexuality, as if that has anything to do with human freedom and self-expression. Likewise, the biological basis of rape—or violence, cheating, stealing, lying, etc.—has little to do with establishing norms for human intersocial behavior.

pressures.<sup>145</sup> Science, however, works in the realm of statistics and averages and accurately, I think, infers that qualities shared by large pools of individuals are the justified targets of scientific research. And for all the similarities between males and females of the human species—after all, evolutionary constraints have ensured remarkable similarities, from simple morphology to complex immune system functions—it is undeniable that research into certain areas, including reproductive behavior, uncovers distinctions that do usefully inhabit dichotomous poles that are more than perceptually based.

At other times, it seems as if Brown and her cohorts read the wrong book. For example, she speaks approvingly of Christine Drea and Kim Wallen’s essay, included in her volume, which uses primate data to “demonstrate the significant role that females play in reproductive decisions.” She continues: “Females are vested with significant sexual control. They are not only active agents with respect to their own sexual behavior, but it may be argued from empirical data that female interests and strategies also have a significant role in shaping and controlling male sexual behavior” (17). What makes this statement so remarkable is that Thornhill and Palmer argue the same thing throughout their volume, and never more so than in their discussion of the origins of rape, which indeed would not even exist were females not firmly in control of the male/female sexual dynamic. In fact, the entire sociobiological analysis of sexual behaviors hinges upon the manner in which female interests and strategies have shaped male mating tactics; mate

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<sup>145</sup> The examples I could include here are endless, but a great one involves females born with congenital adrenal hyperplasia so that their bodies overproduce androstenedione. Even if treated with hormones shortly after birth these individuals still grow into tomboys who participate in male, rough-and-tumble sorts of activities, and if not treated until later in childhood they, as Steven Pinker relates, “show male patterns of sexuality when they become young adults, including quick arousal by pornographic images, an autonomous sex drive centered on genital stimulation, and the equivalent of wet dreams” (Blank 348). Cases like these allow researchers to analyze how hormones—themselves under the control of genes—contribute to the categories that we define as “male” and “female.”

competition is greater among males because females, after all, are always in control of the supply of sex. One wonders exactly how Brown could have missed such an essential and omnipresent aspect of Thornhill and Palmer's research, or the sociobiological enterprise as a whole. This odd blindness must have ideological origins. If sociobiology is merely the recapitulation of repugnant patriarchal lies, it couldn't postulate something as novel as ascribing special power to female mate choice. And furthermore, to admit that it did would seriously weaken Brown's tireless efforts to smear and denigrate sociobiological works like A Natural History of Rape. Better to ignore the work entirely and claim its insights as one's own. The fact that many of the authors in Evolution, Gender, and Rape agreed substantially with the concepts presented in A Natural History of Rape did not go unnoticed to and Palmer and Thornhill, and their response to Brown's volume, cleverly titled "A Posse of Good Citizens Brings Outlaw Evolutionists to Justice," begins with several pages of citations with page numbers where the ideas involved were presented by both works.

I'm actually more interested in the intentions of the authors in Evolution, Gender, and Rape to discredit Thornhill and Palmer than I am in the accuracy of their criticisms, but overall the volume does not hold up well to closer scrutiny. For starters, most of the authors ignore the fact that Thornhill and Palmer did not specifically argue that rape was an adaptation, for they insisted instead that "the question whether rape is an adaptation or a by-product cannot yet be definitively answered" (84). Nevertheless, the substantial treatment of the by-product hypothesis in A Natural History of Rape is almost completely ignored by the collection of critics eager to discredit it. Jerry Coyne, in his "Of Vice and Men," acknowledges its presence, but asserts that after the appearance of the direct-

selection theory in chapter four—he’s in error here, for it appears in chapter three—the remainder of the book deals only with the possibility of specific rape selection mechanisms, a misreading that suggests that he simply failed to comprehend Thornhill and Palmer’s argument. Furthermore, the naturalistic fallacy is omnipresent, and Michael Kimmel, whom we’ll see more of in a few minutes, describes A Natural History of Rape as “the ideological fantasies of those who justify sexual coercion” (222). Likewise, Emily Martin describes the book as “insidious because, their protestations to the contrary, their account actually amounts to an incitement to rape” (378). Throughout there is a general lack of comprehension about the differences between ultimate and proximate causation, so that for Drea and Wallen, for example, the only sexual acts that can involve adaptations concerning reproduction are those where the participants are “expecting progeny” (32).<sup>146</sup> Finally, the contributors throughout the volume infer that Thornhill and Palmer ignore the influence of cultural forces in shaping human behavior—after all, that

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<sup>146</sup> Thus, once the condom goes on, or the vasectomy is completed, the involvement of evolved reproductive behaviors ends, for the proximate mechanism is disabled. This is as silly as arguing, as one fearless scholar did, that rape can’t be about sex because sometimes rapists wear condoms. Palmer and Thornhill forward a fascinating theory as to why their book was so distorted in “A Posse of Good Citizens”:

We hypothesize that people have a psychological adaptation whose function is to disable the mind’s reasoning and thereby prevent personal acceptance of ideas that are perceived contrary to the ideology of the perceiver’s community. This hypothetical adaptation is the “knowledge destroyer.” Its functional design is to prevent acceptance of an idea that is not consistent with one’s ideology by garbling the logic and evidence that the idea entails. Thus, humans may be designed as a result of evolution by selection to think illogically and unreasonably about politically loaded topics such as rape in biological perspective. The existence of the knowledge destroyer would be supported by evidence that people with various ideologies that most oppose evolutionary ideas being applied to people’s behavior would show significantly greater lapses of reason when evaluating a sequence of logic in an evolutionary vignette involving human behavior than when evaluating logic in other types of vignettes. It may be that the knowledge destroyer also is behind the great difficulty many people have understanding the fact that culture and biology are not a dichotomy and that in reality culture is biology. Culture is the behavior of people in a place and time and biology is the scientific study of all life, including all behavior.

Though clearly a bit tongue in cheek, I do indeed believe that adaptations do exist that encourage the acceptance of ideological beliefs of those in your same group, what evolutionists call “in-group morality.”

would hinder their strident accusations that the two are biological determinists—when in fact the model presented by Thornhill and Palmer prominently features the role of the environment in shaping human behaviors.

But most spectacular of all is the dismissive tone throughout the volume, and this is what interests me here the most, for it underscores the resistance to biologically oriented explorations of human mating behavior of the sort that I believe are necessary in order to truly understand pornography and other literature involving human sexuality and mating practices. In their response, Palmer and Thornhill describe the most obvious attribute of Brown's volume:

the contributors appear to be in competition with each other to come up with the most disparaging adjective. Kimmel clearly wins the insult contest with his rampage that includes the words silly, unwarranted, preposterously reductionist, vainglorious and self-promoting, preposterous, narcissistically self-aggrandizing, nonsense, dreadfully poor, ideological fantasies of those who justify sexual coercion, bad science, bad history, bad politics and appallingly badly written (pp. 221-222). Kimmel's moral indignation over ANHR is so great that he is even compelled to speculate on the authors' personal lives, including how often they've had sex (p. 225).<sup>147</sup> ("A Posse of Good Citizens," citations in original, np)

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<sup>147</sup> Kimmel's actual assertion was: "I would bet that neither Thornhill nor Palmer has more than three children each, and that both have made love more than three times. I hope their partners would tell a story of two men who know sex is not only about reproduction" (225). Again, Kimmel seems to have missed Thornhill and Palmer's exceptionally well written explanation of proximate and ultimate causation, nor is he too good at biology, since on average having three children would involve at least one hundred copulatory events.



I hate to go into the remainder of my volume expecting this sort of response—after all, Brown’s volume appeared only recently, in 2003, so things couldn’t have changed much since then—but Evolution, Gender, and Rape aptly illustrates the tenor of the response to those foolhardy souls possessing the temerity to forward biological explanations for human behavior.

What is the moral of this chapter then? Clearly, it is that one should not undertake a revision of accepted notions in the social sciences and humanities lightly, especially when those positions involve long-standing ideological beliefs. In response to Napoleon Chagnon’s work with the Yanomamo, in which he demolished the belief that primitive societies were oases of incredible peace and love, Chagnon was charged with actual genocide in Patrick Tierney’s Darkness in El Dorado. Anthropologists Terrence Turner and Leslie Sponsel used the opportunity to charge Chagnon with deliberately infecting the natives with measles, making up data, staging deadly fights for the cameras, inciting violence, and forcing the villagers to provide him girls for sex. Of course none of this turned out to be true, and naturally Sponsel is on record as being committed to “the anthropology of peace,” hoping that science can lead to the “more nonviolent and peaceful world” that is “latent in human nature” (qtd. in Pinker 118). Oh well, at least we know where he stands. In a similar incident, Derek Freeman, for daring to challenge Mead’s falsified ethnographies, was censured by the American Anthropological Association, who officially pronounced Freeman’s Margaret Mead and Samoa “poorly written, unscientific, irresponsible, and misleading” (qtd. in Pinker 115). Never mind that the validity of the work was later established by other researchers. Of course an official apology was never issued. Moreover, as we have seen, Wilson was branded a

racist and Nazi, and Thornhill and Palmer were repeatedly declared, in Evolution, Gender, and Rape, to be “like the nineteenth-century Social Darwinists” (Rosser 416). Obviously, the turf wars are on, and a large amount of institutional prestige is at stake in the denial of a biological and genetic component to human behavior. Fortunately the evidence involved is becoming so overwhelming that those attempting an exclusively non-biological critical practice are certain to fade into irrelevance. The task at hand, then, is to make sure that evolutionary readings of literature don’t become the sole province of right-wing critics attempting to forward their own peculiar vision of cultural stability and knowledge.

## CHAPTER FOUR: EVOLUTION AND THE ORIGINS OF ART

By now, I hope that even the skeptical reader has conceded the possible utility of examining human behavior through the lens of evolutionary theory. Indeed, the evolutionary paradigm possesses so much explanatory power that it is an astonishingly powerful heuristic device appropriate across a broad continuum of intellectual pursuits. Nevertheless, I have yet to talk much about literature and art, which, at least in the Western tradition of aesthetics, constitute a special realm of human creation seemingly divorced from the world of sexual reproduction and psychological mechanisms I have been concentrating on so far (though, of course, the human behavior depicted within works of art, and the motivations of authors and experiences of readers all occur within the neuropsychological realm detailed in chapter two). As I stated earlier, a handful of critics have attempted analyses using insights gained from evolutionary theory, but the results have been mixed at best, for, as Tony Jackson points out in his fine article “Issues and Problems in the Blending of Cognitive Science, Evolutionary Psychology, and Literary Study,” “just claiming *that* a cognitive universal is operating may be true but will not usually be an act of literary *interpretation*” (italics in original, 170). Presently, I will attempt to explain what makes art so resistant to evolutionary analysis, and what modes of interpretation constitute “literary” interpretation, though I should point out first that, as a critic working within the areas of criticism usually labeled as “political,” many of the difficulties involved in evolutionary analyses of literary works do not affect me.

Rather, my aim is to determine which aspects of a given work reflect biological forces so that a more accurate model of the cultural forces involved—both in the creation of a work and its consumption—can be devised.<sup>148</sup> At that point political stratagems may be undertaken that will not self-destruct in the face of advancing refinements in the fields of biology, psychology, and genetics.

Literature certainly is a peculiar species of art, and one integrating a host of evolved human mental capabilities, but at base it participates in the same symbolic realm as all cultural knowledge, though it in addition possesses the remarkable ability to produce actual physiological effects upon witnesses to it (for example, the universal presence of comedy and laughter clearly involves adaptive benefits to individuals through enhanced group cohesion, and laughter is even present in primate societies). It is impossible to examine art in an evolutionary context without confronting its origins, though doing so naturally involves a certain amount of speculation. Nevertheless, although written forms of art are obviously a more recent invention, we do have a wealth of early visual art to study, and this rock art, as it is termed, communicates greatly about the central role of artistic expression in human societies from a very early time. There has always been an ongoing debate about the origins of human intelligence, with theorists like Sherwood Washburn, in his classic “Tools and Human Evolution,” insisting that the use of tools was the catalyst that created modern man: “It follows that the structure of modern man must be the result of the change in the terms of natural selection that came with the tool-using way of life” (3). The other side of the debate is characterized by

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<sup>148</sup> I have read Pierre Macherey’s A Theory of Literary Production and recognize the capitalist overtones of this simplified model of production and consumption. Nevertheless, it does seem accurate in that it correctly delineates the two major poles of literary experience (which are, so to speak, where all the action is as far as my purposes here go).

scholars like Leslie White, who in the equally influential The Science of Culture insisted that “It was the introduction of symbols, word-formed symbols, into the tool process that transformed anthropoid tool-behavior into human tool-behavior” (45). Therefore, in White’s model, the “creative faculty, that of freely, actively, and arbitrarily bestowing value upon things, is one of the most commonplace as well as *the* most important characteristic of man” (italics in original, 29).

It is unproductive to get too hung up on what precise forces led to the startling neural advances in *Homo sapiens*, though it is worthwhile to point out that many factors could have been concurrently involved, and tool use, social interaction, language, and other symbolic expression could easily function as mutually reinforcing encouragements for enhanced neural capabilities and the concomitant survival benefits they were sure to bestow upon their possessors. Nor, as a literary scholar, am I particularly offended by the possibility that tool use could have been the prime catalyst for cranial capacity in our ancestors that actually predated the development of symbolic expression. Still, virtually everyone is in agreement that humans are distinguished from their ancestors by remarkable and unique symbolic capabilities, and that art presents an unmistakable depiction of these capabilities at work. In his book The Mind in the Cave: Consciousness and the Origins of Art, the great rock art expert David Lewis-Williams argues that, based on the physical evidence available to us, sometime between 50,000 and 75,000 years ago our ancestors developed what he terms “higher order” consciousness and began to conceive of realities beyond the limiting physical realities registered by the primary consciousness we share with other animals. Cave walls, then, served as membranes between the material world and the immaterial world beyond them, and the

“art” that Cro-Magnons painted on them was outside our modern, Western notions of art, for it directly participated in the spiritual realm in a way that modern art, with its more hollow symbolism that privileges technique over content—or at least is always aware of its own inherent falsification—does not.<sup>149</sup> Whether or not Lewis-Williams’s other main thesis, that the inspiration for rock art arose from shamanism and mind-altering states, is unimportant here, for the important thing is his entirely plausible observation that novel neurochemical brain processes spurred the development of a new means of symbolic expression that was distinctly different from the more literal, one-to-one type of representation characterizing simple language use.

A similar theme is forwarded by New York University anthropology professor Randall White in Prehistoric Art: The Symbolic Journey of Humankind, where he warns the reader that any attempts to interpret ancient cave art from a modern perspective are sure to fail, for Cro-Magnons possessed a relationship to the physical world that is entirely unknown to us. White’s book is especially valuable in the way that it foregrounds the phenomenal sophistication of early symbolic expression—including musical instruments and thus, presumably, singing and dancing—in the absence of complex social structures, which supports the functional reading of the origins of art that I will be pursuing throughout this chapter. Also, White stresses that, contrary to the mistaken notion that art was somehow invented in Europe, rock art of supreme

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<sup>149</sup> This is a difficult concept that I must admit that I am in part superimposing on Lewis-Williams’s work, but there is something entirely self-conscious and artificial about “art” when viewed through the lens of Western culture. I will expand this concept considerably in the exposition of my theory concerning “neurochemical directness” and the aesthetic experience ahead, but for now I only need to point out that the interpositioning of reflection and intellectual comprehension between the work and the specific neurochemical reaction it elicits in the brain of the observer creates a distancing that is, though not unique to Western aesthetics, paradigmatic within it. In his work, Lewis-Williams reminds us that even the painted surfaces of caves would have presented the appearance of a shifting, veiled membrane in the flickering light provided by fire.

sophistication exists throughout all human cultures of that period, some of it predating the more famous European examples. Therefore, any evolutionary analysis of art can safely assume the same universality of its existence in times past that it exhibits today, suggesting a fundamental relationship between evolving brain features and the desire and ability to create symbolic representations through artistic creations.

However, the argument over the adaptive function of art is far from universally accepted. Indeed, even the argument over the evolution of language is still quite heated, with luminaries as famous as Stephen Jay Gould and Noam Chomsky arguing that language, rather than being the product of natural selection, is merely a side effect of other evolutionary products, like, for instance, brain size.<sup>150</sup> One thing that is pretty clear, thanks to the research of Chomsky, is that the human brain possesses a complexly organized, innate generative grammar, and that this grammar involves specialized computational modules that individuals are born with already in place. Steven Pinker, among others, has forwarded an extremely convincing refutation of Gould and Chomsky's byproduct theory, and he does so in an argument that will stand as the perfect model for my subsequent argument about the adaptive value of art. Steven Pinker and Paul Bloom, in "Natural Language and Natural Selection," begin their argument—after demonstrating the baseless nature of Gould's anti-adaptationist stance—by hypothesizing adaptive problems that language might be a *specific* evolved response to. They point out, for example, that when dealing with environmental contingencies second-hand knowledge would prove invaluable: "By tapping into the vast reservoir of knowledge accumulated by some other individual, one can avoid having to duplicate the possibly

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<sup>150</sup> Given the strength of the evidence against Gould and Chomsky on this issue, their motivation here must be partly political. For more on this, see the previous chapter.

time-consuming and dangerous trial and error process that won knowledge” (460). Also, they continue, knowledge of the internal states of others within one’s group would be equally valuable.

After locating their adaptive problems, they hypothesize what contents these problems would render most valuable to communicate. The list is long, but includes: referring to individuals and classes; distinguishing among “basic ontological categories” (times, places, events, things); talking about “events and states, distinguishing the participants in the event or state according to role”; expressing “distinctions of truth value and modality (necessity, possibility, probability, factivity)”; commenting on “the time of an event or state including both its distribution over time (continuous, iterative, punctate) and its overall time of occurrence”; and talking “about the intentional states of ourselves and others” (461). Once they have established these invaluable and inevitable linguistic concerns, Pinker and Bloom demonstrate that all human grammars are constructed with “substantive universals” that appear tailored specifically to these adaptive problems, thus strongly suggesting that the universal neural structures that control human grammar are adaptations and not by-products. The two anticipate the charge that they have constructed “just so stories,” especially since languages possess a surface appearance of great diversity, but they provide many examples showing that “surface diversity is often a manifestation of minor differences in the underlying mental grammars” (446).<sup>151</sup> After a lengthy analysis of competing theories, Pinker and Bloom conclude that natural selection is the only process that could explain the development of an organ displaying such a

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<sup>151</sup> This is Pinker’s home turf, for he has presented a much longer version of this argument in his [The Language Instinct](#). Interestingly, Pinker even pulls Chomsky into his argument here, for Chomsky himself insisted that there are no unique linguistic features, and that anything that can be found in one language will be present in all others (thus underscoring the oddness of Chomsky’s anti-adaptive stance).



“complex design for the communication of propositional structures” (486). Throughout, they provide an excellent example of the methodology developed by George Williams in his Adaptation and Natural Selection for distinguishing between adaptations and byproducts.

What is so interesting about Pinker’s argument, and why I have discussed it at length here, is that he has elsewhere strongly argued that the human use of art is not an adaptation but is rather a by-product.<sup>152</sup> As Pinker detailed in his argument about the evolved nature of language discussed above, selection only works if a given trait confers fitness advantages; even if selection only slightly favors a trait—say by as little as 1%—then it will still be selected for. Given these criteria, Pinker feels that art in and of itself must be a by-product of other psychological mechanisms. He argues that instead humans evolved pleasure responses to beneficial environmental stimuli—sugar, fat, salt, a productive plot of savannah grassland, a fertile face, oaths of friendship, protestations of undying love from one’s partner, etc.—and that art arose as a more ephemeral discovery that exploits these pleasure mechanisms. In this model, for example, the capacity for laughter, which is found even among the primates, arose because it confers fitness benefits upon individuals by functioning to mediate interpersonal relationships, and only later did byproducts like funny stories or role playing appear to elicit the pleasure of laughter in novel and non-adaptive situations. While not tailored to please those of us in the humanities, Pinker’s argument does have its own peculiar logic to it, especially since art does indeed seem to exploit emotional responses that must have predated it in the neurochemical history of mankind. Nevertheless, a neurochemical epistemology of pleasure that grants precedence to ancient limbic functioning does not necessarily rule out

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<sup>152</sup> See, for example, Pinker’s 1997 How the Mind Works, pages 524-25.

the role of natural selection in further developments involving previously existing brain structures, and an argument just as compelling as Pinker's argument for the evolution of language can be made for art, too. Furthermore, because most evolutionary analyses of literature will have a functional component, this is actually an important issue to consider.

Indeed, just such an argument has been forwarded by a variety of scholars. For example, evolutionary psychologist Geoffrey Miller insists that art arose as a fitness indicator through the process of sexual selection. If you remember from my first mention of Miller, sexual selection is a theory—actually forwarded early last century by Ronald Fisher—that recognizes mate preference to involve actual biological traits that can be inherited and thus are under the influence of natural selection. Because the positive-feedback mechanism involved can work very strongly on the traits that are preferred, sexual selection can work very rapidly to spread genotypic variances across a population. The problem for every organism, Miller argues, is that it must somehow recognize what specific traits indicate a sufficiently fit partner for copulation and possible reproduction. Certainly in some instances the process is easy, for a fitness indicator like a peacock's tail, if perfect, advertises both a healthy genetic heritage through its size and symmetry, but also great health since a tail of such size is a real handicap in terms of actual survival because it makes the possessor a much easier target for biological enemies (including parasites *and* predators).<sup>153</sup> Humans respond to a large number of visual fitness indicators—witness the entire concept of “beauty”—and even some that are less

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<sup>153</sup> This handicap theory is also used by evolutionary psychologists to explain the prominent, squared jaw preferred by female humans in their mates (and the preference is even stronger, interestingly, when females are at peak fertility). Because such a jaw requires levels of hormones that are actually detrimental to the immune system, the possessor is accurately advertising his good health through the possession of such a characteristic.

obvious, like male preferences for a lively gait and playful spirit that indicate youth and thus higher reproductive value, but, given the massive importance of the human brain in the survival of human individuals, humans needed a way to ensure that their potential partner was relatively free of harmful mutations.

For Miller, this is the genesis of art, and his “healthy brain theory” postulates that the brain is an aggregation of many fitness indicators, with creative intelligence perhaps the primary one:

Once sexual choice seized upon the brain as a possible fitness indicator, the brain was helpless to resist. Any individuals who did not reveal their fitness through courtship behavior were not chosen as sexual partners. Their small, efficient, ironclad, risk-averse, mutation-proof brains died out with them. In their place evolved our sort of brain: huge, costly, vulnerable, revealing. (105)

Although complex behaviors are used by many species as fitness indicators, for example among birds with very complex songs, human courtship behavior reveals far more about our minds than that of all other species, and the behaviors involved are not only indicative of genotypic value, but they are also condition-dependent in that they communicate the current state of an individual’s health.<sup>154</sup> With fitness indicators playing a central role in courtship behaviors, advertising one’s worth becomes the central obsession; and, in addition to the more obvious markers of physical fitness, Miller insists that mental fitness “may be revealed by creative story-telling, intelligent problem-

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<sup>154</sup> Miller correctly sees all of these concepts interrelated: “genetic mutations influence fitness, fitness influences condition, condition influences the state of fitness indicators, fitness indicators influence mate choice, and mate choice influences evolution” (111). Fitness indicators, furthermore, must be both easily perceptible and hard to fake.

solving, skillful socializing, a good sense of humor, empathic kindness, [and] a wide vocabulary” (111).<sup>155</sup> A final key in Miller’s theory explains the centrality of artistic pursuit throughout all known human civilizations, and this is the innate human sensory bias that creates pleasure in the presence of environmental stimuli that promote survival and reproductive success. The experience of pleasure, along with emotions that act as hedonic amplifiers, actually evolved as part of an adaptive, basic motivational system, and Miller insists that “sexual selection for pleasure and entertainment explains why so many sexual ornaments like the human mind are pleasing and entertaining” (158).

Viewed through the lens of sexual selection and fitness indicators, art becomes part of an individual’s extended phenotype, the expansion of a particular genetic endowment into the surrounding environment, like a spider’s web or the African bowerbird’s nest meant to signal exceptional fitness to a choosy potential mate.<sup>156</sup> Miller’s theory, therefore, is quite comprehensive in its explanatory power, and even, as we shall see shortly, very useful in the attempt to define a biologically based aesthetics, but the functionalism involved appears rather restricted since it views all art only through the lens of mutually evolving sensory biases and fitness indicators.

A broader sort of functionalism has been postulated by other scholars more intimately involved in the arts, and though the concomitant institutional bias that they

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<sup>155</sup> Of course for this theory to work, these fitness indicators must be heritable. Fortunately for Miller, all research available so far says “yes.” For example, though it is in very poor form to point it out—of course the intellectuals who object the loudest are no doubt very proud of their brighter than average kids—intelligence is actually quite heritable. Heritability, as Steven Pinker elegantly defines it, “is the proportion of variance in a trait that correlates with genetic differences” (Blank Slate 374). Pinker quotes behavioral geneticist Matt McGue: “That the IQ debate now centers on whether IQ is 50% or 70% heritable is a remarkable indication of how the nature-nurture debate has shifted over the past two decades” (376). Many of the traits involved are difficult to measure, although some traits, like musical ability, are well known to be at least moderately heritable.

<sup>156</sup> The concept of an “extended phenotype” is defined and discussed at great length in Richard Dawkins’s The Extended Phenotype.

possess—shared by me, naturally, as a literary scholar—makes me suspicious, I tend to agree that the fitness benefits of art seem to encompass a greater range of behaviors than those specifically targeted at mate selection.<sup>157</sup> One of the best neo-functional arguments about the origins and evolution of art is Paul Hernadi’s “Why Is Literature: A Coevolutionary Perspective on Imaginative Worldmaking,” and in it he establishes a model wherein literature provided fitness benefits by increasing each individual’s ability to navigate increasingly complex social environments: “Frequent participation in protoliterary transactions may have made some early humans more astute planners, more sensitive mind readers, and more reliable cooperators than their conspecific rivals, thereby increasing their chances to become the ancestors of contemporary men and women” (21). Hernadi begins his argument, as I do, in approaching literature in a manner that emphasizes creativity over textuality, for literature has existed “outside of texts,” in Hernadi’s description, for most of human evolutionary history. Likewise, Hernadi’s sense of aesthetics, though he doesn’t explicitly say so, focuses on the active participation of the observer in the cocreative act of artistic reception, and his viewpoint is useful in that it opens up for examination the inherently biological basis of the artistic experience.

The problem, of course, is proving that “frequent playful traffic in literary flights of the imagination could actually assist our ancestors in their deadly game of differential survival” (Hernadi, “Why” 26). Although the coevolution of language and the brain has left extensive evidence in the form of specifically targeted modules, the search for such a

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<sup>157</sup> The possibility exists, though, that Pinker is right and that all artistic expression is a byproduct, or that Miller is right and that art originally emerged within the context of mate choice and that subsequent functional benefits were byproducts. Fortunately, neither scholar is denying the genetic basis for particular sensory biases or modes of artistic expression, so the reader does not have to choose sides to agree with the argument in the following chapters.

coevolutionary role for literature is admittedly more difficult. Hernadi points to similarly specialized discursive modes that are virtually universal in human cultures, the thematic, narrative, lyric, and dramatic, and points out that they correspond with four basic cognitive modalities: “In forming or embracing opinions we *categorize* experience; through selective retrospection we *narrativize* it; by attending to its flux we continually *monitor* what is happening in, to, and around us; and by verbally interacting we *situate* our experiential stance within a framework of multiple subject positions attributed to other people” (italics in original, 29). The remainder of his argument is more functional, and argues that the varieties of emotional responses triggered through the literary experience—laughter, crying, joy, awe, fear, etc.—would render the participant more able to monitor both his own and others’ emotional states and even encourage an introspective awareness that could usefully shape future conduct.<sup>158</sup>

Like Hernadi, Ellen Dissanayake also shares an adaptive view of art that is less oriented toward content—as exemplified in the theories of Miller—and more focused on art as a universal “behavior” that arose directly in response to human needs. As I discussed earlier, Dissanayake sees the primary defining characteristic of art to be what she terms “making special,” a distinctly human and species-wide drive to “intentionally shape, embellish, and otherwise fashion aspects of their world to make these more than

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<sup>158</sup> A stance, I must point out, that closely mirrors the pragmatic literary philosophy of scholars like Richard Rorty. I actually agree with Hernadi’s functionalist reading, though I don’t possess his slightly exceptionalist stance: “Only the future will tell whether the friends of literature can succeed in sustaining mental orientations and cultural conditions that are hospitable to literary worldmaking. All we and our descendants can do is promote the poetic making and directed cocreating of virtual worlds that are diverse enough for at least some of them to remain selectable to play life-enhancing roles in as yet unforeseen phases of the ongoing coevolution of human nature and cultures” (40). In his own model, the emotional experience engendered by reception is one of the main fulcrums of selective pressure, yet, in its ability to produce “de-coupled” emotional experience, literature has been far surpassed by recent innovations like cinema and television (both of which are, naturally, far more popular than “literary wordmaking”). Therefore, I would guess that the “literary” will become much more of a fringe occupation as technology inexorably alters the human experience of the world, and that the “friends of literature” club will continue shrinking regardless of the efforts of critics like Hernadi.

ordinary” (“Making” 30). Dissanayake complains that other evolutionary psychologists are too focused on the individual reproductive benefits of specific behaviors, and she forwards a remarkably communal theory concerning the adaptive benefits of art.<sup>159</sup>

Because members of a social group often share the same interests and goals, human behaviors—like, for example, the formation of in-group moral codes—are often aimed at promoting the benefit of the social group as a whole. The reinforcement from selective pressures still is exerted at the level of individual reproductive success, yet individual fitness is enhanced by the participation in larger social processes.<sup>160</sup>

Dissanayake presents several selective benefits arising from the process of art: First, “making special is therapeutic to individuals in that it provides something to do in uncertain or troubling circumstances”; Also, “making special those objects and activities (e.g. tools, weapons, ceremonies) that have abiding human concern leads to their being treated with care and consideration, thus helping ensure that they will be successfully achieved”; Furthermore, “the arts are everywhere used in multimedia group events or ritual ceremonies. . . which confer benefits to the social group as a whole and mean that any individual member in such a group will similarly prosper”; Finally, “insofar as ceremonies inculcate group values and promote agreement, cooperation, cohesiveness, and confidence, they also enhance survival” (“Making” 36-37). Dissanayake has refined

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<sup>159</sup> Art, she insists, has always had the adaptive benefit of promoting “communality and one-heartedness” (“Making” 33). This veers perilously close to new-age cant, yet humans *have* evolved an unmistakable instinct for participating in group activities and identifying with specific aggregations of peers. Still, it is usually best to view social behavior in terms of social exchange, and, as Tooby and Cosmides demonstrate in “Cognitive Adaptations for Social Exchange,” humans possess various domain-specific psychological adaptations (for example, social contract algorithms) that function to monitor the individual benefits that one receives from social participation and detects those who may be contributing less yet claiming the same benefits (“cheaters”). It is important to remember Tooby and Cosmides’s argument as an antidote to Dissanayake’s “one-heartedness.”

<sup>160</sup> In her argument she looks to Richard Alexander’s *The Biology of Moral Systems*. For her discussion, see *Homo Aestheticus* page 12.

her thesis over a series of books, and in *Homo Aestheticus*, as the title indicates, she insists that art isn't just some quality or capability that is learned or was recently added to the repertory of human behaviors; rather, it is, in her own words, "the way we *are*, *Homo aestheticus*, stained through and through" (emphasis in original, xix). In her close examination of the adaptive benefits of art, and thus her integration of art into a coevolutionary process that also contains language and brain function, Dissanayake highlights, as I will show, a number of characteristics of art that should be central to any evolutionary analysis.<sup>161</sup>

At this point, it might be best to summarize what parts of the previous scholars' work will inform my own examinations ahead. From my own reading of Darwinian theory, I am very sympathetic to Miller's argument, for it provides a very simple mechanism that persuasively explains a large expanse of evolutionary history, and it certainly fits with the extensive research that explores the remarkable centrality of mate choice in the entire range of human behavior. Moreover, there is no doubt that showing skill and cleverness in artistic pursuits affords individuals the sort of status and recognition that greatly enhances their sexual access to potential mates. As Dissanayake points out, however, the fact that artistic expression is used in mate status advertisement

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<sup>161</sup> The weakness of her work, of course, arises from her earnest pleading about the rather marginalized conception of art in modern culture. In this, she is even more insistent than Hernadi: "What is far more timely and relevant than its intrinsic sanctity or freedom should be the awareness that art, as the universal human predilection to make important things special, deserves support and cultivation—in schools, communities, and indeed the lives of everyone, not just artists in an artworld. Not only the National Endowment for the Arts, but federal, state, and local departments of education and community development should, in my view, be exploring ways to enable all people to make their individual and collective lives more significant through art" (*Homo* 225). There are so many things wrong with this that I don't know where to start. For one thing, if art is indeed part of who we are, as the whole book argues, it shouldn't need so much support and cultivation. Also, Dissanayake has let her own biases cloud her application of Darwinian theory. Just because "art"—unfortunately she seems to have adopted a restrictive and "academic" definition here—was adaptive and conferred fitness benefits in the past, that in no way means that it still is in our modern technological environment, so if it does disappear that will undoubtedly be why (though television and movies seem to be going nowhere any time soon!).



and competition doesn't necessarily mean that it arose expressly due to its utility in that arena, for many other human activities, including basic ones like hunting, arose for other functional reasons but invariably became involved in status displays. The question, then, is whether or not the usefulness of the creative intellect, especially to our ancient ancestors, was sufficiently strong to cause natural selection to encourage its emergence as a universal human trait. I think so, and actually find the arguments of Dissanayake and Hernadi—especially the latter—extremely convincing, though from the very beginning this new human capability must have been co-opted by psychological mechanisms involved in mate selection. Just as humans possess a “language instinct,” to borrow the title of one of Steven Pinker’s books, they also possess an instinct that encourages myth, ritual, and art, and just as language was put to immediate use in mate competition, so too was art.

What this all means is that there are various interrelated methods for examining literature and art through the lens of biology, for art and literature have existed throughout the vast majority of human history not only as social instruments inextricably linked to their functional context, but also as pursuits enhancing individual fitness through shaping and modulating emotional experiences connected to important aspects of the participants’ external world. One will immediately sense that I am straying from the traditional paths of literary criticism. I do believe that there are uses for content-driven criticism, and there will be plenty of it ahead as I examine literary representations of Victorian sexual behaviors, but all too often traditional critical modes create the sense of a transcendent text that demands intellectual analysis and reflection in order to produce meaning, when in fact the entire process of “meaning production,” as undertaken by

trained scholars, removes art very far from its evolutionary origins and traditional human uses. Therefore, I would first like to propose an evolutionary model of art that emphasizes the role of brain chemistry in the process of reception, for, although the twentieth century especially made it unfashionable to think so, one of the most remarkable things that art has always and everywhere been capable of is genuinely affecting the emotional states of its observers.

I'm not sure how unusual I am, but I have always been intensely aware of the real physical effects wrought upon my body by the reading of certain works of literature. I have always insisted, especially when exasperated by criticism that seems totally irrelevant to the work it is examining—in short, a great deal of it—that the reason that I like to read Keats's poetry is that it makes the hair stand up on the back of my neck and my stomach tighten and flip as if I am heading down the steep, far slope of a rollercoaster. Also, even as a child, I was aware when reading Poe that my palms were especially sweaty, my breath held, and my shoulders stiff. These are, I believe, normal human reactions, and if they are, in our day, more likely to be experienced by the majority of the public in movie theatres than when reading poetry, that is merely a sign that technology and capitalism have found a superior way to exploit one of the most basic facets of human experience, that of “decoupling,” to use the term again, from the physical “real” around us and temporarily experiencing the hypothetical or fantastic. In fact, I believe that the universal ability to experience genuinely altered emotional states in the presence of the “non-real”—be it depictions of successful hunts to come on cave walls, the peculiar Eucharistic ritual of the modern-day Catholic church, or a Tom Hanks

blockbuster—tells us much about the evolutionary origins of art and its centrality to human culture for at least the last fifty to seventy thousand years.

One great strength of Dissanayake’s writing is that she attempts to revive the concept of “aesthetic emotion,” which, as she details, is quite out of fashion now, having been demolished especially effectively, for example, by George Dickie’s “Defining Art” in 1969.<sup>162</sup> Again, we have reached a paradox of sorts. I will wager that most of my peers in our department read literature, and indeed entered the less than fantastically remunerative field of literary studies, because they receive pleasure from reading. At some point, however, the emotional experience of literature became off topic, as if subjectivities were too fractured, distant, and far apart to usefully discuss such things, and simultaneously the supposedly more stable and universal category of intellectual consideration was instituted instead.<sup>163</sup> I do believe, with Dissanayake, that the pleasure of art is a key to understanding its universal presence in human cultures, for pleasure is always a sign that whatever inspires it has been, at least in previous environments of evolutionary adaptedness, beneficial in terms of human survival (or, more specifically, gene replication). As Dissanayake points out, the emergence of modern art and the exploration of art from other cultures at the beginning of the twentieth century produced a situation where a cultivated aesthetic taste became required for aesthetic comprehension, and, with the consequent decay of folk aesthetics targeted at traditional qualities like beauty and representation, the experience of art transformed into an intellectual process

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<sup>162</sup> For Dissanayake’s excellent discussion of the historical travails undergone by empathy theory, see *Homo Aestheticus*, pages 140-147.

<sup>163</sup> During the summer session at our university, many high school teachers return to take graduate classes as they pursue advanced degrees, and much to the dismay of the more “sophisticated” regulars, they are prone to statements that begin with “I really enjoyed this book.” Although I have heard others complain, I’ve always found their presence in classes refreshing. At least they aren’t afraid to say why they are here.

concerned with formal elements. Moreover, as in most human endeavors, the overwhelming status concerns inextricably bound up in the whole process of creating and experiencing art decreed in Western cultures that difficulty, dissonance, and abstraction should be the dominant modes of expression—anything to scare away the masses who did not possess the rarified taste of the elites.<sup>164</sup>

Fortunately for the modern critic, the cognitive sciences have reached a point of sophistication that the study of emotions and art can again be brought to the forefront of literary study, and terms like “aesthetic emotion” can be resurrected. The difficulty, I should point out at the beginning, arises from the fact that emotions, even at the basic level of pleasure, are inseparable from cognition, and they may appear at any stage of the interpretive process. Therefore, deciphering the obscurity of a particularly thorny essay about an equally difficult modern work does produce pleasure in some individuals—I myself am one of them—but the pleasure in the process is of a secondary sort, an epiphenomenon of the mentation involved, probably at its base at least as concerned with status as it is with the subject being presented (though, naturally, the status-seeking psychological mechanisms operate at the ultimate level and thus are virtually invisible to the individuals involved).<sup>165</sup> Likewise, discussing the remarkable formal attributes of a

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<sup>164</sup> Marxist criticism supplies many insights here. For starters, modern production techniques undoubtedly encouraged this shift in artistic expectations. With the photograph effectively nailing down accurate representation, and reproductions cheap and effective, artists were forced into new forms of expression in order to protect their status as producers of “special” items. Also, the adoption of mainstream art by the status-conscious middle class effectively demolished any status that might be had through consuming it, creating an ever-spiraling arms race to create an art completely resistant to their appropriation. The process is still going on, and though occasional works of remarkable beauty are produced—like Serano’s “Piss Christ,” which is absolutely stunning in person—much modern art has devolved into mere parody or conceptual cleverness.

<sup>165</sup> Human existence is filled with examples of satisfaction and pleasure felt at the successful completion of a difficult task. In my model, “pride” provides a basic psychological mechanism that rewards status-enhancing behaviors, whether the perfect catch on the football field or a particularly nuanced critical explication for an audience of ten specialists at a scholarly conference. I realize here that I am in danger of forwarding a model of intellectual pursuit that is as comprehensive as Geoffrey Miller’s theories

Kandinsky painting creates its own species of pleasure, but again much of the emotion involved results from the intellectual consideration of the work rather than its immediate reception. In terms of evolutionary psychology, the explanation is straightforward, for humans do indeed possess a pleasure-rewards system that encourages intellectual activity, and even in pre-scientific societies much effort goes into explanations for material phenomena, even if they are far-fetched, and the human mind seems specially designed to impose order and causation on often quite unrelated external events.

This is a recent concept of art, however, and I would like to explore a different sort of aesthetic experience before I discuss the specific brain features involved and speculate as to specific, fitness-enhancing benefits conferred on individuals by the pre-modern artistic experience. The remarkably consistent thing about art—and I am speaking cross-culturally here—is that it possesses, as both Hernadi and Dissanayake point out, the ability to directly inspire emotions in the observer. Although I envision that someday soon functional magnetic resonance imaging will be done to objectively nail down the specific timing and nature of the cognitive processes involved, even without such data it can be easily observed that, in opposition to the intellectual model of aesthetic experience detailed in the previous paragraph, some artistic experiences inspire an immediate neurochemical reaction in the brain, and that, furthermore, the aesthetic comprehension involved usually centers around relatively universal aspects of human experience. I have elsewhere termed this concept “neurochemical directness”—for lack of any better term—and with it I mean to emphasize the remarkable susceptibility of the brain to environmental stimuli when it comes to producing feelings and to point out that

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concerning art and mate fitness, but the human awareness of status hierarchies, as well as the possession of psychological mechanisms designed to negotiate one’s place within them, appears to be one of the most basic, universal qualities shared by all humans in all cultures.

there are different types and degrees of pleasure and emotions from aesthetic experiences, with some arising from a coinstantaneous manipulation of brain chemicals and aesthetic observation. The latter, I would argue, typifies the experience of art by humans for the majority of their history, when art, myth, and ritual were actually far more central parts of human individuals' everyday lives.

My distinction might seem an oddly arcane point to spend time on here, especially since all aesthetic experience—indeed *all* experience—arises from chemical transactions in the brain, but I think that evolutionary thinking is especially valuable in assessing the immediate biological nature of the literary experience (in contrast to the intellectual, reflective process of reading literature that seems the sole purview of modern literary studies). The payoffs are considerable. For example, critics can begin to fashion an argument about how literature developed and why literature and other “special” verbal forms are characteristics of human culture everywhere. Moreover, in conjunction with a recognition of the primary emotions that infants are born with (happiness, sadness, anger, fear, disgust, and surprise) and secondary social emotions that soon follow (guilt, pride, and envy, all present by the age of three), criticism can usefully talk about concepts like “aesthetic empathy,” for the aesthetic response does indeed involve the universal emotional grammar of all human beings, even when the aesthetic object itself is constructed entirely within culturally-bounded media.<sup>166</sup> The latter would be especially

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<sup>166</sup> What I mean here is that my own peculiar subjectivity, as an awkward child of overly bright intellectual parents, has led me to respond to Keats's poetry in a way that is, in present times, unusual (though I do think that my response to Keats's poetry—the indistinct awe and sadness, even vague panic in the presence of such incredible beauty and heavy sentiment—would have been fairly typical in Keats's earlier audiences; *pace* the New Historians, there are actually remarkable continuities over so short a space in time, with the most significant alteration being a modern-day audience who are held at a distance by the very form of what has become obsolete poetic structure). Today, Baz Luhrman can accomplish the same thing—at least in terms aesthetic emotion—with a movie like *Romeo and Juliet*, though again formal characteristics that are culturally-bounded, in this case the super quick edits favored by those of us raised

beneficial to political critics, for a recognition of universal emotional psychologies could lead to more insightful commentaries on both the authoritative weight of culture and the specific techniques—including literature and other arts—that cultures employ to enforce desired behaviors.

Ultimately, however, my interest in neurochemical distance arises from the fact that in my arguments in the following chapters I am analyzing one of the most neurochemically immediate of all literary forms, pornography. I'm not denying that there is plenty of neat cultural data in pornography, nor that it occasionally exhibits sophisticated formal attributes in spite of its completely single-minded nature; I am only saying that the purpose of pornography is at base pretty simple—to inspire sexual arousal in the reader or viewer. In this realm, overly fussy formal concerns or occasions of self-consciously literary adornment actually hinder the function of the work and create humorous collisions of intent and style (witness the often insipid and oddly stilted output in sophisticated and “literate” pornography magazines like Yellow Silk).<sup>167</sup> In a way, pornographic writing, as well as pornographic visual representations, represent a “purer,” more ancient species of art, one allied to shamanistic and mystical productions designed

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on MTV, render the work inaccessible to those who are acclimated to older styles of visual media. Finally, across cultures works are obviously articulated in vastly different forms, but nevertheless I do think that evolutionary biology presents a real framework for comparative functional studies, for there are large universal themes and basic formal categories that are expressed everywhere.

<sup>167</sup> As I will accentuate later, I will be examining pornography designed for men, the only kind that I have discovered in Victorian times, and therefore my statements apply mostly to male audiences (as I detailed above, human sexual response exists on a continuum that in no way automatically excludes females from the quick sexual arousal more typical of males, but it does make it far less likely). Female humans have always practiced masturbation and sexual fantasy, but at base female sexuality appears less easily engaged by the obsessively repetitive nature of pornography designed for males (I am not denying that access to the means of cultural production also influenced the general absence of explicit female sexuality in the past). In modern times, a small but growing industry has emerged producing pornography for women, and nowhere is the inherent, sexually-dimorphic nature of human sexual response more obvious. I was recently talking to a female friend—one reasonably familiar with a wide variety of pornographic expression—about some examples of pornography I had recently uncovered where an overly literary form and the extensive discussion of feelings approached the level of comedy. She quipped back, “oh, you mean pornography for women.”

to produce physiological changes in the viewer in the complete absence of intellectual reflection, and one great benefit of this aspect of pornography is that scientists have developed very sophisticated means of measuring both the sexual arousal of males and the neurochemistry involved. Also of special interest to the evolutionarily-informed literary scholar is the way that, once the immediate function of pornography is recognized and its universal qualities explored, sexualities can be compared across time and the portions of male sexuality under the mediation of culture and environment can more easily be delineated.

But if art has, for most of human history, existed to inspire specific emotional responses in participants, how does it do so? And, furthermore, what can this process tell us about the evolutionary origins of art and the continuing functional role that art plays in human cultures? Fortunately, just as the cognitive sciences have allowed scholars like Mark Turner and Robert Story to pursue a rhetoric that is based on universal human neuro-physiological features, so too have they enabled a description of human emotional response that is startlingly comprehensive. Before discussing specific environmental features that elicit emotional responses in humans, however, a basic overview of what emotions do is in order. The first important thing to remember from chapter two is that feelings are, as I discussed there, “emergent” properties. What this means is that human neural organization has evolved in such a way that our brains register important data from our surrounding environment and combine them to create an apparently unified consciousness that is a unique attribute of the organism possessing it.<sup>168</sup> Moreover,

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<sup>168</sup> In my discussion, I am very much in the “wet cognitive science” (WCS) school, as opposed to the “dry cognitive science” (DCS) approach, which views the brain only as a computer made up of specially formulated modules that register external events and pursue, through adaptive algorithms, decisions dictated by the ‘software’ they came loaded with (though, naturally, the programming is seen to come from



human consciousness is best understood from a functional perspective, for it presents a distinctly “non-linear” representation of the external world, with many physical phenomena—high pitches within the hearing range of dogs, for example—completely invisible, and others of greater biological importance actually exaggerated. Therefore, as psychologist Victor Johnston points out, a pin prick causes a pain reaction in humans far out of proportion to its significance as a source of real biological harm, for the human sensory system was shaped through natural selection to make certain that no important cues would be missed by the organism involved. Through the lens of functionalist analysis, it becomes clear that feelings, far from being mere epiphenomena, are actually a sophisticated motivational system indispensable to human survival.

“Pain,” which I used as an example of a feeling in the previous paragraph, is a particular sort of feeling known as an “affect,” for the brain produces the motivating sensation before any more complex cognitive activity occurs (though of course additional cognitive activity can modulate the original sensation). Other examples of affects include hunger, thirst, and sweetness. The myriad emotions felt by humans make up the other main category of feelings, and though they possess the same motivational properties as affects, they arise in the human nervous system in conjunction with significant cognitive

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environmental forces as well). The DCS model is an exceptional guide for research—hence its popularity—and Steven Pinker’s [How the Mind Works](#) is an essential compilation of current research pursuing the DCS strategy. Furthermore, DCS is invaluable in that it captures, in great detail, the structural attributes of the human brain and the functions of each neural feature. Nevertheless, as Victor Johnston points out, the DCS model provides little explanatory power when examining feelings or subjective experience. Johnston argues: “From a DCS viewpoint, our subjective conscious experiences are reduced to meaningless events that play no functional role: epiphenomena” (5). WCS, in contrast to DCS, pursues a research strategy targeted at real brains—hence the “wet” part—and provides a greater role for the physical structure and chemical transactions in the brain that create sensations and feelings, sometimes even in the absence of environmental stimuli, as happens in dreams or hallucinations (events very difficult for DCS models to analyze). Obviously, any study of the role of feelings as a feedback mechanism in human evolutionary history—which is what I will attempt here—requires a full recognition of emotions and the way they alter the “computations” performed by the mental modules involved, so a WCS approach is more conducive to my analysis and, in addition, more complete.

activity. Above all, the most important facet of feelings, when viewed in evolutionary terms, is that they *always* possess one of two hedonic tones, either positive or negative. Whether of the positive or negative sort, feelings are also extremely difficult for humans to ignore, and they actually seem to be one of the most recognizable and omnipresent human characteristics, exhibiting remarkable continuity across all human cultures. In his study of human emotions, Victor Johnston makes two essential observations about feelings. The first is that they are not learned. Certainly cultures may control the context of their occurrence and expression, but the feelings themselves are relatively stable categories of human experience that have remained so throughout all of recorded human history.<sup>169</sup> Johnston's second observation is that the pleasantness or unpleasantness of feelings is "closely related to whether the events that evoke them are, or were, likely to enhance or decrease the survival of our genes" (64).<sup>170</sup> To Johnston, the fact that hedonic tone is invariably linked to gene survival constitutes the most compelling argument for the central role for emotions and affects in any model of cognition and its evolutionary development.<sup>171</sup> Indeed, I too believe that the universal vocabulary of feelings, in addition to the spectacular control they exert over human behavior through their

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<sup>169</sup> At the very beginning of my study, I described my response to the Medieval lyric "Alison," where the speaker is clearly experiencing emotions that are very familiar to modern day lovers. Indeed, cognitive psychology shows us that the emotions conveyed within the poem *are* the same that humans still experience, and, in this case, even within an identical cultural context. I am not saying that readers should uncritically accept continuities between such radically separated points in history, but neither should they be embarrassed to discuss the emotional content of earlier works, for emotions form an immediately recognizable, universal and transhistorical human language.

<sup>170</sup> Remember that adaptive behaviors in the past are often maladaptive in this age of French fries and super-powerful synthetic drugs to abuse. Therefore, we must look to past environments to construct functional models for certain feelings possessing both positive and negative hedonic tones. Also, causation occurs at the ultimate level, so that it doesn't follow that individuals will necessarily be aware that their behaviors or emotions have anything at all to do with gene survival.

<sup>171</sup> Johnston's model provides an additional selective feedback loop besides mere survival: "Life and death serves as the value system for directing biological evolution (the outer genetic algorithm), but it is the 'omens' of life and death, positive or negative feelings, that direct the learning process (the inner genetic algorithm)" (75). Literature and art, I will argue, are intimately connected with "the inner genetic algorithm" of Johnston's model.

inescapably hedonic nature, argues for their integral position in the hierarchy of evolved human attributes, and I also believe that literature and art have been a major part of human cultures because they exploit feelings to provide a variety of evolutionarily adaptive benefits through their ability to shape human behaviors.

The human brain is structured in a way that accentuates the role of feelings in human behavior, for it possesses a simple yet elegant motivational system involving the release of dopamine. Evolution has nowhere left a greater mark than on the human brain, for it possesses a distinct morphology that demonstrates the previous evolutionary stages of the development of human cognition. The central portion of the human brain appears to be the oldest, hence its nickname as the “reptilian brain,” and it performs many of the essential, unconscious motor functions of everyday human survival. A newer part of the brain, the limbic system, appears to have arisen early in the evolution of mammals, and it provides a basic motivational system through the mechanism of feelings to motivate behaviors enhancing survival. The newest part of the brain, the neocortex, is responsible for reasoning and higher intelligence. Researchers have learned that there are actually multiple ways that sensory inputs can be processed by the brain to produce feelings, for there is a direct pathway that circumvents the cortex, producing emotional responses by traveling straight from the thalamus to the amygdala in the limbic system, and also a slower and more discriminating pathway that travels through the cortex on its way to the amygdala.<sup>172</sup>

Furthermore, the amygdala communicates with the reptilian brain through a concentration of nerve cells called the medial forebrain bundle, which, on account of the

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<sup>172</sup> This model is drawn from Victor Johnston’s Why We Feel: The Science of Human Emotions. For a similar model that I will be discussing later in this chapter, see Helen Fisher’s Why We Love, pages 69-72.

major role it plays in human emotions, is called the “pleasure pathway.” Various parts of the limbic system use the medial forebrain bundle to communicate directly with the nucleus accumbens in the oldest portion of the brain and, through the stimulation of a release of dopamine across the nucleus accumbens, produce pleasure (indeed, the addictive nature of most drugs, and especially cocaine and amphetamine, arises from their ability to directly stimulate the nucleus accumbens with dopamine). Also, the same neural pathway stimulates dopamine to different receptors in the nucleus accumbens to produce a negative hedonic tone, so that the rewards system in the human brain, both positive and negative, is under the control of the same neural mechanism. What this indicates about human evolutionary history is that long ago, before the more sophisticated neocortex evolved, the limbic system arose through natural selection because it aided organisms in learning what behaviors provided survival benefits. Feelings with negative hedonic tone, for example hunger, inspired action, which was then rewarded with pleasure if successful.

A model of this nature places human feelings correctly at the center of human evolution and current human behaviors, and it also tells us much about the possible functional role of literature in human evolution, which is the subject with which I began this chapter. Art and literature have undoubtedly always possessed, as they do now, the ability to manipulate the chemical rewards system in the brain, and it seems highly probable that such a powerful motivational medium, early in the evolutionary process, became an integral coevolutionary force promoting fitness-enhancing behaviors. Moreover, the existence of different levels of neural activity, as well as pathways of greater and lesser complexity for sensory inputs to manipulate the release of dopamine,

demonstrates the neuro-physiological basis for the concept of “neurochemical distance” that I forwarded earlier. Art can thus function through different levels of cortical activity, either through the direct stimulation of the limbic-nucleus accumbens pathway or by initiating a cognitive loop involving the limbic system and neocortex, with the motivational rewards being supplied as events in the newer portion of the brain are evaluated by the dopamine system in the oldest part of the brain (with the limbic system functioning as a messenger and catalyst). Even music, it has been shown, produces emotional responses through the stimulation of dopamine production at the nucleus accumbens, though in a process that requires little if any intervention by the more recent parts of the brain devoted to reasoning and logic.<sup>173</sup>

Throughout our evolutionary history art could have performed many tasks. A major one, of course, involves the most basic levels of motivation through inspiration. Just as modern employees seem easily swayed by motivational speakers preaching teamwork and dedication, so too would early humans have been susceptible to messages encouraging courage in the hunt or loyalty to one’s group.<sup>174</sup> We all are familiar with paintings of beautiful women, stern-looking kings, or the tortures awaiting sinners in hell. These could all initiate immediate emotional reactions—ranging from desire to fear—but they also inspire activity in the newer parts of the brain that could lead to quite sophisticated and nuanced generation and testing of hypotheses (for example, whether sleeping with the neighbor’s wife who reminded one of the woman in the painting was worth the risk of legal punishment or an eternity of having odd items partially inserted in

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<sup>173</sup> See, for example, Vinod Menon and Daniel J. Levitin’s “The Rewards of Music Listening: Response and Physiological Connectivity of the Mesolimbic System.”

<sup>174</sup> I should stress again, however, that individual participation in group activities like pre-hunt ceremonies and religious ritual was rewarded in selective terms because individuals who participated had greater genetic success.

one's anus, as in the famous Bosch painting). Literature, however, could have provided an even more complex template for learning reinforcement and hypotheses testing, for it routinely activates chemical activity in many areas of the brain at once. It is well known that strong emotional states strengthen the permanence of memories as they pass into the long-term storage areas of the brain, and literature, with its ability to directly manipulate human emotions, could easily possess an adaptive function in this regard. Furthermore, by eliciting emotional responses connected to previous experiences, literature could have aided in the storage and recall of environmentally and reproductively relevant information.

Lest all this sounds overly abstract, I will briefly demonstrate how an awareness of universal human brain chemistry can open up new areas of literary analysis. Take, for example, a particularly well-loved type of art, the love lyric (or, conversely, the sad tale of lost love). Whereas pornography, as we will see in the next chapter, inspires the immediate release of both testosterone and dopamine, creating a pleasurable sensation that can, at times, prove very addictive to susceptible individuals, love functions in a slightly more oblique fashion, yet one that also involves specific chemical transactions in the brain that can be equally pleasurable and addicting. I will argue that the great power of a love poem like the aforementioned "Alison," or Petrarch's sonnets, or even a Nat King Cole song or Harlequin Romance, arises from a specific sort of affective recall in the brain. It is a truism that until one has fallen in love no amount of love poetry can convey its genuine essence to an individual, and I think this is the case (those of my young students who have never been in love often seem mystified by anything other than simple lust). Much literature depends for its force upon the preexistence of

environmental stimuli and experience related to the subject being explored. I don't mean to be overly restrictive, but it should be remembered that the human emotional vocabulary is relatively stable and not incredibly large, so in most situations readers will not have problems experiencing the appropriate emotional responses, at least in more traditional genres.<sup>175</sup>

Through the work of Helen Fisher that I introduced in chapter two, we have a very good idea of what happens to the brain in love, and this explains the absolutely universal and transhistorical nature of the experience and highlights one of the sources of pleasure for readers when they read about love. As you recall, Fisher and her colleagues used functional magnetic resonance imaging technology to document specific dopamine transactions involved in the wonderful buzz and euphoria of being in love. The brains of Fisher's subjects, when they were gazing at pictures of their beloved, showed great activity in the caudate nucleus, a region receptive to dopamine deep in the primitive part of the brain, and in the ventral tegmental area, a very rich, dopamine producing region connected to the nucleus accumbens by the mesolimbic pathway (and connected to the

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<sup>175</sup> I don't want to make all literature one-dimensional and flat, however, for much of my favorite literature—like that of my favorite playwright John Webster—presents a peculiar collision of styles that invokes in me, all at the same time, dread, sadness, and general hilarity. Yet my emotional responses are there and are based on my past experiences, even if they are of the “meditation on the impermanence of mortal existence” sort, which, I might add, was completely absent from my emotional repertory until I reached my twenties. I don't want to seem, however, to be saying that the emotionally-coded nature of artistic reception means that one can say “this is what this work means,” when clearly the meaning depends upon the variable experiences and interpretive strategies of the reader. The film *Happiness* is one of my favorite examples of how an individual's past emotional experiences invariably affect one's perception of a piece of artwork. For my part, I thought the film was hilarious, as did most of the student audience when I saw it at Cinefest, our university theatre. One of my closest advisors in the department (who had, significantly enough, raised children and been a father) thought the film was a complex and touching depiction of a man who was really trying extremely hard to be a good father but nevertheless still had his one huge problem—his pedophilic desires—that thwarted his best intentions. I experienced the film very differently; lacking a sufficient frame of reference, I didn't identify with the father at all, and instead saw him as a shallowly drawn but very funny comic figure. But I want my description here mostly to focus on the *potential* of literature to invoke specific emotional responses, which would have made it very useful in reinforcement and learning in earlier human evolution.

cortex through the mesocortical pathway). Thus humans experience the pleasure of love, a pleasure, furthermore, intimately tied to reproductive success; as we have seen, the pleasure of orgasm is significant, but human parents motivated to pursue longer-term pair bonding would be more successful at raising offspring to reproductive age and hence would pass more of their genes into the next generation. In related studies, Fisher is also studying what happens when individuals are spurned by or lose their objects of desire, and these experiences also involve chemical reactions, from amygdala-centered rage to elevated stress hormones, dopamine, and norepinephrine.<sup>176</sup>

Although, unfortunately, my status as a literary scholar doesn't provide me with easy access to functional magnetic resonance imaging technology, I'm still pretty sure as a life-long consumer of art that the chemical reactions inspired in the brains of readers by specific works of literature are analogues of actual ones previously experienced by the readers in question. What this means is that it is possible to pursue a form of reception theory that analyzes the real biological implications of aesthetic experience and accurately accounts for the important neuro-physiological modifications that art brings about in its viewers, a genuine return to the scientific concept of "aesthetic emotion" as floated by nineteenth-century critics, yet one that allows for real science this time. Put more simply, the pleasure that one gets from Love Story arises at least in part from the same brain chemicals that one experiences when in love, in addition to, if one is currently out of love, the chemical craving of the brain's motivational system desiring to get back to that pleasurable, giddy, and reproductively valuable state (the latter also, it should be

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<sup>176</sup> The latter three combine, as any spurned lover soon discovers, to render sleep impossible and to focus non-stop attention upon the object of one's affection (or, more accurately at that point, "obsession"). Fisher's research on this subject is still underway, so her models are less specific than the ones she has been able to construct for love itself, but for her discussion see the chapter "Lost Love" in Why We Love, pages 153-180.



noted, a reaction conferring real fitness benefits). Likewise, I am willing to bet that the same neural pathways from the amygdala to the nucleus accumbens that create the sensation of fear and dread when one encounters a snake in everyday human life are involved in a reader's experience of Lovecraft or a viewer's response to The Shining. Although the research remains to be done, this is one area where Fisher's previous findings would allow literary scholars to escape the indeterminacy of rhetorically based scholarship and nail down specific, replicable processes that inform literary enjoyment. Obviously, my suggestions are quite different from the current critical dogma, yet if such research were undertaken it would mean that literary critics truly could talk about universal themes and explore similarities shared by all humans because of our closely shared evolutionary past.<sup>177</sup>

I return, then, to how I began this chapter. Evolutionary theory suggests both a functional role for literature in the development of human culture and a possible course of action for critics to take that explores the universal adaptations in humans that make them so receptive to it. One thing to remember above all is that humans, from the very beginning of recorded culture, cared enough about art that they would expend great effort creating it deep in caves where the technical obstacles would have been especially great, suggesting an aesthetic receptivity and obsession that emerged very early in human development. Furthermore, humans possess a remarkable ability to de-couple, to experience action presented through art as a real biological experience, complete with unconscious physiological adjustments in heart rate and frequency of breath as well as intellectual processing as the sensory inputs cycle through the cortex back to the

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<sup>177</sup> And better yet, that those of us who already speak about the universality of human responses to art would look a little less like kooks, though, as my previous chapter demonstrated, all the scientific data in the world is incapable of swaying certain partisan critics.

emotional centers of the brain. The fact that the ensuing chemical reactions in the brain supply a hedonic tone for every contemplated event, whether it is sadness when the lovers die in Shakespeare's Romeo and Juliet or happiness and excitement—accompanied by the appropriate dose of adrenalyne—when Keanu Reeves leads his team to victory in The Replacements, suggests that humans have evolved to use the hypothetical world of art as a tool in fashioning their own behavior and rewards systems, yet possibly in an even more fundamental and comprehensive way than Hernadi and Dissanayake assert.

Far from being a byproduct, therefore, we should see art and literature as aspects of the human experience that reveal much about our past. As advertisers and propagandists realize, humans possess a bizarre predilection to be moved by images—movie stars at awards shows, politicians at podiums, beautiful women in clothing commercials, super-tough men in truck commercials, star receivers performing chicken dances in the end zone—and though these certainly are animated by and articulated within the ideological forces of culture, biology has placed an innate chemical susceptibility to such things within us because such a response provided real fitness benefits in the past. I realize that this model of human motivation makes things much more complicated for the cultural critic. It is easy to make blanket statements about unhealthy attitudes in girls wrought by the proliferation of super-skinny models, and such a pat assertion earns by its oversimplification the ability to inspire very concrete political goals, but the real picture is infinitely more complicated. Humans are endowed with a susceptibility to respond to visual images with genuine modifications of their own belief and rewards systems; to worry obsessively about status; to compete for mates and to

derogate others in the process; and to value a physical appearance that presents maximal fertility cues.<sup>178</sup> What I hope to do in the following chapter is to begin unraveling such myriad forces when it comes to the “construction” of sexuality in Victorian pornography.

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<sup>178</sup> Through the lens of evolution, indeed, capitalism and free market economies seem uniquely able to discover and exploit almost every innate aspect of human behavior, and indeed an evolutionary model is quite useful when examining how they do so. The more effectively an advertiser or marketer identifies and targets a widespread aspect of human nature, the greater the economic reward, so not only does that product and its commercial representations flourish, but so do scores of secondary commercial forces, until the presentation is fine tuned to near perfection by religious hucksters on television or in fast food commercials.

## CHAPTER FIVE: MY SECRET LIFE

At this point in my project a brief summary might be in order, not only to highlight and unite the specific aspects of the previous discussion that are most central to my continuing argument, but also to help out those readers despairing of interminable pages of scientific and theoretical terminology who flipped ahead to the good parts about “pricks” and “cunts.” In the preceding chapters I have proposed, and will develop even further in the coming pages, a model of human sexual behavior that incorporates evolutionary insights to explain species-typical psychological, hormonal, and neurochemical processes that are requisite to any discussion of human sexuality. Many of these mating mechanisms arose through the inevitable *inter*-sexual competition inspired by a system of reproduction involving substantially differing amounts of male and female parental investment in offspring, but an additional significant force shaping species-typical human mating behaviors is the inescapable presence of *intra*-sexual competition as members of the same sex jockey for sexual access to the most desirable—in terms of fitness and fertility—members of the opposite sex. As previous portions of the text detailed, cross-cultural surveys reveal a host of psychological mechanisms, from sexual jealousy to fitness-indicator detectors, that are part of the cognitive wiring of all humans. Not only are these universal human features ethnographically observable in the outward aspects of human behaviors around the world, but recent laboratory research has begun to

uncover the actual psychophysiological and neurochemical mechanisms inspiring specific human behaviors.

Furthermore, an awareness of the actual mechanisms involved in the shaping of the human mind by evolution is very helpful in the daunting task of conceptualizing the way that culture and biology interact. One of the most important facets of evolutionary theory to remember is that selective pressures occur at the level of the individual, not the level of the group. Cultural critics tend to examine discourses and ideologies as if they exist in an entirely autonomous realm, formulated and enforced by a massive, undifferentiated collective of shared wills. A biological theory, however, more accurately points one's attention to the forces that generate and perpetuate cultural narratives in the minds of individuals themselves. Rather than *creating* "subjectivities," as the commonly held view asserts, culture actually emerges from the interaction of evolved human psychologies and environmental forces. In contrast to the groundbreaking models of Judith Butler, a great deal of the apparently "outside" is irretrievably "inside," and the various discourses that make up the apparatuses of culture are at least as reflective of evolved human psychology and mentation as they are active in shaping them, and probably more so.

I am not saying that humans are "controlled" by genes, but their genes do in fact impact every aspect of their consciousness; even the environmentally influenced cognitive mechanisms that allow plasticity in psychological development—best visualized as algorithms with various points of environmental input—are invariably shaped by evolution and transmitted from generation to generation in the form of genes. Although the extensive circulation of energy involved in the interaction between

individual human psychology and larger cultural structures is at times maddeningly difficult to unravel, any approach that attempts to delineate culture as a realm distinct from biology is doomed to fail. The biologically-oriented concepts I am propounding are alien to most discussions of sexuality on the humanities and social science side of the institutional divide—and even, as I have shown, engender outright scorn—but the amount of data involved is so significant that older models more concerned with ideological pressures than scientific fact are certain to become even more marginalized in future discussions of human sexuality.<sup>179</sup> On the other hand, sexuality is always deployed within historically contingent and culturally specific contexts, and therefore the critic studying sexuality, as I am in my analysis of the remarkable work of Victorian pornography My Secret Life below, must attempt to sort out the interconnected worlds of biology and culture in order to come to terms with what exactly is going on in the text. Furthermore, because literature, and especially erotic literature, possesses the ability to exploit evolved brain chemistry mechanisms through the manipulation of the brain's hedonic and sexual arousal control centers, the recognition of biological forces helps to refocus the critic's attention on human subjects—where, as they say, all the action is—rather than on the disembodied realm of social organization that exists only as a convenient abstraction for scholars that disappears as soon as the human subject is removed from the equation.

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<sup>179</sup> It is not uncommon for feminist researchers to defect—just as I have done—to a viewpoint recognizing the importance of biological factors in human behavior. As Neil Malamuth relates, his introduction to the field came when several of his feminist peers asked him to review an evolutionary discussion of rape to detail the biological determinism present in the work (Malamuth is one of the world's leading experts on rape and aggression against women). To his surprise, he found no biological determinism at all; rather, he found a series of sensible and plausible mechanisms that provided a powerful heuristic in his own explorations of how environmental factors interacted with a genetically-based developmental psychology to produce aggression against women in certain individuals and ecological contexts. For his excellent discussion of how biology and developmental psychology interact, see “The Confluence Model of Sexual Aggression: Feminist and Evolutionary Perspectives.”

My Secret Life makes an excellent topic for discussion in this context—a comparison of critical methodologies—because it has collected a substantial reputation and inspired an impressive amount of discussion since its initial publication in the years leading up to 1894. The initial print run was to be of only six copies of nearly 2,400 pages each, printed on handmade paper and split into eleven volumes, with the type broken and destroyed afterwards (though the printer certainly reneged on his promise and printed a few extras because a very limited number of additional copies showed up on the market). The price, as would be expected, was astronomical, but pornography, at least of the nicely printed variety, was extremely expensive and largely the province of well-to-do collectors.<sup>180</sup> Opinions of the literary value of the text vary, but the writing is actually quite engaging and holds the interest as well as thousands of pages devoted to the repetitive description of one and only one thing, the physical mechanics of sex, could be expected to. As I will describe ahead, the world of Victorian pornography was very sophisticated and varied, and My Secret Life is no exception, and in it one can encounter almost anything found in current pornography, from threesomes, foursomes, anal sex, and watersports, to girl-on-girl, guy-on-guy, S/M, and rape scenes. All of the action, however, takes place within rigidly demarcated class structures, and it is impossible not to be constantly aware of the way that Victorian social ideology impacts virtually every aspect of the work.

Before I proceed to a consideration of pornography and the various approaches to its study, one preliminary controversy needs to be recognized. The form of My Secret

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<sup>180</sup> As Walter Kendrick details in The Secret Museum, “The Young Person” in Mid-Victorian England was shielded from pornographic works “by their limited circulation and, especially, high price” (77). As an example, he discusses the 1882 work The Mysteries of Verbena House, published in a run of 150 copies at four guineas apiece. This would have been two weeks salary for the average lower-middle-class English worker (Kendrick 77).

Life is that of a confessional autobiography, and many critics have analyzed it as if it actually presented, in the words of Steven Marcus, its most famous champion, a “real, secret social life” (100). Similarly, Michael Mason, in The Making of Victorian Sexuality, considers it a factual account of one individual’s sexual experience (44).

Other critics, like Ellen Bayuk Rosenman, sidestep the issue: “Whether Walter really sleeps with over twelve thousand women (and a number of men) or merely fabricates the most fulfilling sex life he can conceive, My Secret Life shows what form his desires take when he sets out to rewrite or escape ideological mandates” (170). More persuasive to my mind, however, are arguments made by critics like Jerome Meckier and, especially, Ian Gibson, who insist that the entire work is fictional.<sup>181</sup> Gibson’s extended discussion of the matter of authorship in his biography of Victorian England’s most famous bibliographer of pornographic works, Henry Spencer Ashbee, is especially convincing, and there is something in the good-natured buffoonery of the fake narrative frame, the mismatched dates, the constant intrusions where pages have supposedly been destroyed, the bogus editorial commentary, and the hyper-detailed index that signals to my mind a complete fabrication, and Ashbee presents almost the only possible candidate who could have written it.<sup>182</sup>

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<sup>181</sup> See, for example, Jerome Meckier’s “Never in Lapland: A Clue to the Nature of My Secret Life.”

<sup>182</sup> Gershon Legman first forwarded the “Ashbee” theory in his introduction to the 1966 Grove Press edition, although Gibson supplies the argument with the detail it needs to be convincing (and seems to be the one modern scholar in the best position to render a judgment). As far as humor in the text is concerned, the index is my favorite aspect. The heading for “Fucking” takes up nearly four double-column pages and contains entries of the following sort (in order): “is most exquisite when prick and cunt fit”; “is most exquisite when both spend together”; “is most exquisite when both are quite naked”; “pleasure being increased by being looked at when”; “belly to belly”; “belly to belly at bedside in dog fashion”; “belly to bum kneeling”; “woman sitting on prick facing man”; “woman sitting bum to his belly”; “woman sitting bum to his belly whilst another licks her clitoris”; and such other descriptive entries as “wheelbarrow fashion” and “cheap,” “dear,” and “on credit” (2330-2331). I suppose some critics might just see in this the cultural expression of the Victorian mania for taxonomy—and his discussion of “types of cunts” on pages 2078 to 2080 probably does conform to this cultural obsession—but the index, complete with the requisite



For many critical approaches, the subject of veracity isn't really all that important, though were it a genuine autobiography that in itself would naturally introduce its own set of necessary considerations into any analysis. As a work of fiction, however, it presents a remarkably solipsistic world—one man's fantasies and desires—and this greatly impacts how the biological critic reads the text. I do wish that the work presented a factual account of Victorian sexual experience, as some other critics insist, for then the behaviors of all the participants could be examined to determine the peculiar admixture of biological and cultural elements that informs their actions. For example, one of Walter's early conquests involved the daughter of a charwoman who was employed by the family as a servant. Walter coaxed and cajoled, even offering money, but despite frequently feeling her "bum, belly, and legs," he never got his "finger on to her slit, so as to feel the moisture; for she closed her little legs and wriggled, or got away from me somehow" (172).

A few years later, after he had "gotten" his fortune, he encountered her on the road. She was by then married to a gardener, and had a child accompanying her; predictably, given the single-minded nature of My Secret Life, they went into a nearby barn where he "fucked her on the hay" (173). Their parting conversation is especially interesting, for he tells her, "You will have a boy out of this," and she replies, "I hope I shall" (173). This is Walter's fantasy, but one that, if it had actually happened, would be valuable to the biological critic, for it displays a remarkable amount of autonomy on the part of the female and illustrates my earlier assertion that female mate choice is the strongest shaping force in the evolution of human mating behavior. Tangled up in the

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editorial explanation of its incompleteness at a mere forty-three pages long, strikes me as a splendid and intentional joke.

complex of class privilege and sexual access aiding Walter in the eventual completion of his conquest is the real fact that the female involved made a (very) strategic extra-pair copulation, resisting Walter's advances until she was in a relationship with a male to assist with raising any resulting offspring and then eagerly taking the opportunity to mate with a higher status male who displayed, with his wealth and desirability to other females, genuinely meaningful fitness indicators. As study after study has shown, this is the statistically prevalent pattern for extra-pair copulations on the part of females, and a knowledge of this typical pattern of behavior definitely decenters what might otherwise be a fairly straightforward reading of the scene, one in which Walter's newly-acquired wealth functioned within the coercive economy of wealth, class, and privilege to render refusal on the part of the female as hopeless.

Unfortunately, the doubtful veracity of virtually every encounter in My Secret Life means that every additional character besides Walter must be viewed through the lens of Walter's own sexual desire and is a figment of his sexual imagination. Perhaps the dialogue above was added merely to provide verisimilitude, but the author is not ordinarily so shrewd, so the scene must primarily be read as Walter's own generative fantasy, yet even that is steeped in self-centered reproductive expediency, for he has gained through his status and privilege the opportunity to foist his own offspring off upon an unwitting male to be raised, a valuable reproductive feat. Therefore, even as fiction this scene illustrates both the inter-sexual *and* intra-sexual competition that shape so many of the evolved psychological mechanisms involved in human mating behavior, and any attempt to interpret it as a mere expression of cultural power is bound to miss a vital clue to its comprehension. Remember, too, that the special nature of My Secret Life

provides an especially tight linkage to the author's actual desires, for it is literally the creation of something that turns him on, and thus we would be surprised not to find clear evidence of both ultimate and proximate mechanisms governing human mate choice. As I argued in the previous chapter, pornography is really valuable in that it typically is designed to produce sub-cortical neural and psychophysiological reactions in its participants and therefore provides an especially revealing depiction of the psychological mechanisms influencing human mating behavior.

Fiction or not, My Secret Life is indisputably a work of pornography, and at some point or other everyone writing about "pornography" must attempt a definition of the highly contested term. Up until this point I have been using the term uncritically, and as will become apparent, my meaning diverges somewhat from that of other scholars. Walter Kendrick, for example, argues in The Secret Museum that "by overvaluing both sex and representations, the nineteenth century created a category which had not existed, or only in rudimentary form, in any past age" (53). Technically, I do recognize the veracity of Kendrick's claim, for the term did emerge in tandem with rigorous efforts to control access to sexually suggestive materials, and thus any definition must recognize the regulatory intentions incorporated in the very existence of the concept. Kendrick's formulation has become the standard one in the "cultural studies" camp, which, like Lisa Zigel in Governing Pleasures, tends to stress the cultural contingency of the category based in the regulatory project of reserving such materials for "those in positions of dominance, like wealthy white men," and denying access to those who might be "corrupted," chiefly "women, children, the poor and the foreign" (157).

Other scholars, especially those influenced by feminism, have forwarded definitions more like mine and are more concerned with what pornography *does* than how it is regulated. The most famous definition of this sort is that forwarded by Andrea Dworkin and Catherine Mackinnon, who in Pornography and Civil Rights describe pornography as “the graphic sexually explicit subordination of women through pictures and/or words” (36).<sup>183</sup> Most of these scholars go to great pains to distinguish the pornographic from the merely erotic, the latter being, in their judgment, a healthy human pursuit.<sup>184</sup> In Dangerous Relationships, anti-rape researcher Diana E. H. Russell, for example, defines pornography as “material that combines sex and/or the exposure of genitals with abuse or degradation in a manner that appears to endorse, condone, or encourage such behavior,” which she contrasts with “erotica,” which “refers to sexually suggestive or arousing material that is free of sexism, racism, and homophobia and is respectful of all human beings and animals portrayed” (3). With the admission of “obscenity” into the discussion, things get even more complicated, for both of Russell’s categories clearly exhibit this quality, which was defined by the Supreme Court in a landmark ruling in 1957 that attempted to distinguish between different categories of sexual representations: “Obscene material is material which deals with sex in a manner appealing to prurient interests. The portrayal of sex, e.g., in art, literature, and scientific

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<sup>183</sup> Both of these influential scholars have forwarded elaborations of their basic argument. For example, in Letters from a War Zone, Dworkin insists that “in the subordination of women, inequality in itself is sexualized: made into the experience of sexual pleasure, essential to sexual desire. Pornography is the material means of sexualizing inequality; and that is why pornography is a central practice in the subordination of women” (264-65).

<sup>184</sup> Of course many feminists—and I hate confining them to a footnote because their arguments possess much value—recognize pornography as a site where, in the words of postmodernist feminist Nicola Pitchford, “readers occupy complex and multiple positions in relation to any text.” She continues: “A feminist postmodernist theory of readership can challenge monolithic constructions of the act of reading pornography as the duplication of male oppression and, in the process, suggest how various groups of diverse and perverse others might turn texts to their purposes without having to resort to asking the state to intervene” (7).

works, is not itself sufficient reason to deny material the constitutional protection of freedom of speech and press” (qtd. in Kendrick 201).

For the remainder of my study, however, I will be using the term “pornography” with a meaning that I think foregrounds especially what I find most interesting about the category, the fact that it is designed to stimulate sexual arousal on the part of the observer. This is of course the radical end of the “what pornography does” end of the definitional spectrum, but though the attempts at regulation clearly exhibit evolved psychological mechanisms in the attempts of individuals to control the sexual behavior of others, and thus are not at all beyond the purview of the biologically oriented critic, what I consider most singular about pornography is the amazingly personal and localized economy of desire and satiation that it engages the user in. From my point of view, then, the erotic and pornographic are subsumed into a single category, and an object enters into the category when it inspires sexual arousal or is used in a sexual manner. The reader will notice that in one sense I have broadened the category considerably: the fully clothed model in the Urban Outfitters catalog becomes pornographic as soon as she (or he) inspires sexual desire on the part of the observer, and so does the juvenile model in Vogue Bambini as soon as she or he enters into the erotic fantasy of the boy-lover or girl-lover.<sup>185</sup> On the other hand, my definition generally excludes obscenity used in a political manner, as was perfected by the Romans and resurrected in seventeenth-century England. Thus when Catullus fumes in Carmen 16, “I will bugger you and I will fuck

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<sup>185</sup> And, actually, the elements of porn have seemed to invade all aspects of our culture, including the sexualized poses of six year olds in Vogue Bambini, so more and more elements of our environment will find themselves situationally involved in my category of the pornographic. Brian McNair terms this process the “pornification” of culture and has written extensively about it. See, for example, his Striptease Culture: Sex, Media, and the Democratization of Desire (London: Routledge, 2002) and Mediated Sex (London: Arnold, 1996).

your mouths, / Aurelius, you pathic, and you queer Furius,” we are definitely in the presence of obscenity, but it is unlikely that the passage has inspired all that many bouts of masturbation (though, when and if it ever has, it has entered into the conditional realm of “the pornographic”).<sup>186</sup>

By defining pornography primarily in terms of sexual behaviors, I have of course landed right in the middle of intense controversy within the field of Victorian studies, for studies of sexuality have long been the primary economic enterprise among academics specializing in this period. Part of valorization of studies of sexuality within Victorian culture arises from long-standing prejudice, for Modernist authors early in the twentieth century sought to define themselves in opposition to the supposed prudishness and sexual repression of the Victorians, so that Victorian sexuality became an omnipresent subtext in all discussions of sexuality up to the present day. Much of the scholarship in Victorian studies has been based around the often-misleading trope that modern sexualities were “invented” in that period through the intervention of medico-scientific discourse and state apparatuses of regulation, a concept floated by Michel Foucault in his extremely

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<sup>186</sup> The translation is Amy Richlin’s, and is quoted from Kendrick’s *The Secret Museum*, page 43. The original is, “*Paedicabo ego vos et irrumabo, / Aureli pathice et cinaede Furi,*” and, as Kendrick’s discussion reveals, the problem has always been in translating “irrumabo,” which earlier translations, like that of C. H. Sisson in 1967, sometimes have mistakenly translated as “suck your pricks,” precisely the opposite of the correct “fuck your mouths” (Kendrick 43). Interestingly, this word has almost never been used in English, though it does appear in *My Secret Life*, where Walter observes of H.’s friend Harry: “He did not irruminate me with skill” (2098). This is the sort of situation where cultural criticism has much to offer, for the author’s introduction of such an obscure term into the text, known only to those who had had a splendid classical education and an adventurous reading list, is an exclusionary, coded marker of the privilege of the author and the expected audience. The sex part—having one’s penis sucked—is a pretty universal experience and one that lends itself readily to biological explorations, even when it involves two males, but the vehicle of the narrative is heavily freighted with cultural meaning (although—and there is always an “although”—it would be wrong to view the symbolic coding of social class as autonomous from evolution and biology, for status markers are a human universal and probably originated through sexual selection as human females demanded reliable markers of resources and success before they granted sexual access to human males).

influential History of Sexuality in 1978.<sup>187</sup> Therefore, the impression is that modern sexualities can only be fully understood through examining their origin in Victorian England, a project that, in truth, has inspired a substantial body of valuable scholarship even if its initial premise is at least a little misguided.

The enemy, most of these critics proclaim, is an “essentialist” concept of sexuality like mine, that is, a concept of sexuality that admits the presence of species-typical and trans-historical elements in the experience and practice of human sexuality. One of the most influential early works espousing the anti-essentialist view of sexuality, written by British sociologist Jeffrey Weeks, was Sex, Politics, and Society: The Regulation of Sexuality since 1800. Sex is not, Weeks argues, “a definable and universal experience” (1). Essentialist theories fail in the way that they conceptualize sex as “an overpowering force in the individual that shapes not only the personal but the social life as well,” and they are mistaken when they see sex as “a driving, instinctual force, whose characteristics are built into the biology of the human animal, which shapes human institutions and whose will must force its way out” (2). Weeks identifies three distinct strands of intellectual thought that offer refutations of sexual essentialism. The first of these is interactionism, as developed in works such as John H. Gagnon and William Simon’s Sexual Conduct: The Sources of Human Sexuality. Another is psychoanalytic criticism, as developed through Lacan’s reinterpretation of Freud, in which, as Weeks observes, “sexuality, or rather sexual desire, is constituted in language: it is the law of the Father,

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<sup>187</sup> I use the term “trope” here very self-consciously, and merely for lack of a better term. “Concept,” I suppose, would be the term expected by the reader, but it doesn’t capture adequately the phenomenally loose and impressionistic body of literature inspired by Foucault’s description of “the invention of homosexuality,” which supposedly occurred around 1879. I suspect that future critics will find the expression more valuable in the examination of the mindsets of late-twentieth-century scholars than those of the late-Victorians.

the castration fear, and the pained entry of a child into the 'symbolic order,' that is the world of language and meaning, at the Oedipal moment, which instigates 'desire'" (4).

The third is discourse theory as established in the previously mentioned works of Foucault. Weeks identifies them all as rejecting "sex as an autonomous realm, a natural force with specific effects," as recognizing the "social and historical sources of sexual definitions," and as denying that the history of sexuality can "fruitfully be seen in terms of 'repression'" (3-5).

It will become obvious in the coming pages that I depend on both interactionist and discourse theory a fair amount in my own criticism, for both have great insights to bring to bear upon the analysis of human sexual behavior. Indeed, one of the most important surveys of American sexual behavior ever undertaken, the National Health and Social Life Survey, was headed by the interactionist-oriented team of Edward Laumann, John H. Gagnon, Robert T. Michael, and Stuart Michaels, and the introduction to the work in which they published their findings, The Social Organization of Sexuality, contains a persuasive presentation of their perspective. In this work, the authors insist that "human sexual behavior is only partly determined by factors originating within the individual," for "a person's socialization into a particular culture, his or her interaction with sex partners, and the constraints imposed on him or her become extremely important in determining his or her sexual activities" (4). The mode of transmission that they postulate are "sexual scripts," and these scripts "specify with whom people have sex, when and where they should have sex, what they should do sexually, and why they should do sexual things" (6). In their analysis, then, there is no such thing as a specific realm of human experience that can be termed "the sexual"; rather, sexuality emerges



only through the social interaction of humans, and any human behavior can arbitrarily be invested with sexual meaning depending upon its social context. Interactionism provides an especially valuable tool to explain changes in sexual practices over time, such as the increase in oral sex and anal sex in younger birth cohorts in their study and the finding that oral sex—or at least fellatio—was most likely to occur in shorter term relationships and that anal sex was more likely to occur in long-term relationships like marriage. Moreover, the occurrence of both of these practices is correlated in a very significant fashion with educational level, so that the greater the educational level attained by individuals, the more likely they are to have participated in them.<sup>188</sup> Clearly, there are socio-cultural forces influencing the sexual behaviors of the respondents in their survey, and the concept of “sexual scripts” provides a convenient conceptual heuristic with which to examine them.

Like all scholars dependent upon defending their own piece of academic turf, however, interactionists often pursue their methodology to the point of significant

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<sup>188</sup> The survey divided educational level into five categories, “less than high school,” “high school graduate or equivalent,” “some college or vocational school,” “finished college,” and “Master’s or other advanced degree.” The data is unmistakable; for example, whereas only 12.7% of females with less than a high school degree had at some point in their life participated in anal sex, a remarkable 28.6% of those with advanced degrees had. For the data on oral and anal sex, see pages 98-101. Nevertheless, I am at times skeptical of their data, for in their survey of masturbation, only 59.6% of males with less than a high school education report that they “usually” or “always” have an orgasm during masturbation, whereas 94.7% of males with graduate degrees do (82). Aside from the inevitable humor involved in the speculation that students actually *do* learn how to do something in graduate school, the data suggest that the survey either asked questions in terms that less-educated respondents didn’t understand or were less comfortable talking about, and I think this could be involved in questions about oral and anal sex as well. Furthermore, apparent changes in sexual behaviors don’t always involve exclusively social explanations. Certainly better hygiene, which is at least partly social, could explain increases in oral sex, and so too could modern depilatory practices, but in a way that specifically involves evolved human sexual desires. James Vaughn Kohl and Robert T. Francoeur observe in The Scent of Eros: “Today’s high standards of personal hygiene reduce the amount of pheromones secreted by apocrine glands and trapped by the pubic hair. Shaving underarms also removes axillary hair that would normally trap human pheromones. Might this depletion of natural pheromones create a subliminal yearning for the stimulation and excitement of human pheromones, which liberated modern adults satisfy by engaging in oral sex?” (83). Kohl and Francoeur’s speculation points out the way that social organization, cultural mores, technology, and evolved biological desires are all intertwined in the practice of human sexuality, and should caution any scholar against the solipsistic promulgation of his or her own paradigm to the exclusion of all others.

reductionism. Thus, in The Social Organization of Sexuality, Laumann et al follow up their sensible observations presented above with the insistence that, “although biological factors may indeed affect sexual behavior, they play at most a small role in determining what those specific behaviors will be and how they will be interpreted” (6). Actually, as much of the research in the second chapter of my study shows, the effect of biology can be quite extensive, though this is lost in most interactionist writing. Especially striking is the preemptory dismissal of biology in Judith Long Laws and Pepper Schwartz’s Sexual Scripts: The Social Construction of Female Sexuality, in which they argue that “biological events, or ‘facts,’ do not have a direct effect on sexual experience in humans”(3). Laws and Schwartz also integrate discourse theory into their model, for they postulate a linguistic basis for human identity, arguing that “sexual identity is built upon the foundation of all identity. The basic mechanism is the same for the construction of all identity: young children learn to use verbal labels for themselves and their behavior, as well as for others and their behavior” (9). Laws and Schwartz view women as victims of a coercive, dominant sexual script that defines women’s sexuality, and they clearly have in mind a sort of technology of control similar to that explained by Foucault in Discipline and Punish, where he argues that “there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge, that does not presuppose and constitute at the same time power relations” (27).

Nevertheless, as Foucault’s assertion demonstrates, discourse theorists seldom press their arguments in terms as particularistic and literal as those of Laws and Schwartz, for they see the forces involved to be far more complex than “verbal labels,” and a more typical analysis of how cultural meaning is generated would be that of

Jennifer Harding, who in Sex Acts contends that “sexuality has no inherent essence but must be understood as a configuration of cultural meanings which are themselves generated within matrices of social (power) relations” (9). Harding’s work is an excellent illustration of both the strengths and weaknesses of discourse theory, as well as why discourse theory has been so influential in the study of Victorian sexuality. Indeed, the Victorian period is undoubtedly the origin of what we could term the “modern” study of sexuality, and the process of scientific discovery has completely altered the way that scientists and laypersons alike view human sexuality. Echoing Foucault, Harding describes the emergence of a “biotechnical gaze” in the Victorian period that literally restructured material reality, and a concomitant “biomedical discourse” that has “elaborated a definitive range of sex characteristics and stipulated the ways in which sexuality and physical, psychological, and social attributes and conducts follow directly from a body which is already anatomically female and male” (45).

Harding’s assertion demonstrates the primary obsession of discourse theory—and indeed most contemporary studies of Victorian sexuality—the processes of cultural meaning production through which human males and females are separated into entirely opposing categories and heterosexuality is defined as the “natural” and inevitable sexuality for humans to practice. All “knowledge” is implicated in regulatory regimes structuring the creation of human subjectivities, and, as Harding argues, “the specific regime of contemporary heterosexuality, far from being the natural outcome of biologically given sex, produces sex as its (heterosexuality’s) origin and imperative” (45). Victorian texts, then, especially sexually explicit ones like My Secret Life, are seen to inhabit an unmistakable divide, with older views of sexuality flourishing before them

and newer views authoritatively achieving a comprehensive transformation of human sexuality after them. Much of recent Victorian studies, as a result, involves a sort of “where’s-Waldo” game searching for convincing before and after contrasts, and there are plenty of them, from the sexologists’ pathologizing of non-traditional sexual behaviors to Freud’s groundbreaking (and usually completely mistaken) models of “healthy” human sexual development. I will examine the accuracy of many of the bold and unequivocal claims forwarded by scholars influenced by discourse theory in my discussion of My Secret Life ahead, but I do want to point out here that their overarching theory, as displayed in Harding’s assertions above, is that eighteenth and nineteenth-century medico-scientific discourses created rigid distinctions between males and females in order to underwrite and enforce a system of compulsory heterosexuality. At times, the observations have been exceptional and original, as in Thomas Laqueur’s discussion of the disappearance of hierarchical conceptions of male and female anatomy in the eighteenth century, before which both males and females were seen to possess the same anatomical features but with the female simply being less developed.<sup>189</sup> What Lacqueur describes undoubtedly did occur, and it is impossible to consider nineteenth-century conceptions of human sexuality without incorporating the alterations in cultural discourse brought about by the emerging field of nineteenth-century scientific exploration and, as Laqueur describes it, the “radical Enlightenment political reconstitution of ‘Man’” (1). Nevertheless, Laqueur pursues his topic to a conclusion that is far too comprehensive:

Instead of being the consequence of increased scientific knowledge, new

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<sup>189</sup> Laqueur explains in “Orgasm, Generation, and the Politics of Reproductive Biology”: “Thus the old model, in which men and women were arrayed according to their degree of metaphysical perfection, their vital heat, along an axis whose telos was male, gave way by the late eighteenth century to a new model of difference, of biological divergence. An anatomy and physiology of incommensurability replaced a metaphysics of hierarchy in the representation of women in relation to men” (3).

ways of interpreting the body were rather, I suggest, new ways of representing and indeed of constituting social realities. . . .The new biology, with its search for fundamental differences between the sexes and its tortured questioning of the very experience of women's sexual pleasure, emerged at precisely the time when the foundations of the old social order were irremediably shaken, when the basis for a new order of sex and gender became a critical issue of political theory and practice. (4)

I would argue that Laqueur is shortsighted in his analysis, for he proposes a far too simplistic model in his supposition that political power—which he uncritically assumes unites a vast assortment of scientists and other thinkers into a unified project of discursive redefinition, which is, to say the least, exceptionally improbable— completely controls naturalist observation and the dialogue of science. Still, Laqueur remains in the arena of slight plausibility, though the same impulse that informs his exploration of cultural narratives has led other scholars into the realm of utter nonsense. Jennifer Harding, for example, following the same general methodological drift, actually has the temerity to announce that “hormones are a major twentieth-century invention” (57).<sup>190</sup> I realize Harding's point, that discussions of hormones sometimes have been constructed in ways that accentuate female difference and instability, and indeed it is true that many of the same hormones, but in different levels and combinations, are involved in both male and female human physiology, so it is possible to speak of the political construct of “the hormonal body” (6). Moreover, as any reader of the preliminary chapters of my study knows, I am as fascinated as Harding by the way in which scientific knowledge is shaped

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<sup>190</sup> This is not, I realize, original to her, for she was misled by Nelly Oudshoorn's *Beyond the Natural Body: An Archeology of Sex Hormones* (New York: Routledge, 1994).

and distorted by ideological forces as it passes into general culture—witness the preposterous intrusion of “intelligent design” into contemporary discussions of evolution—but to adopt an intellectual stance that fails to recognize the influence of the underlying validity of the scientific discovery in question necessarily misses a large part of the picture. If one is going to adopt such a “hard relativist” position, one might as well pronounce germs a major nineteenth-century invention, and the earth’s orbit around the sun a major seventeenth-century one.<sup>191</sup> Both of these discoveries, just like hormones, have inspired a vast social discourse that indeed does participate in and respond to ideological pressures—witness the AIDS panic and the “social” construction of the disease as an adjunct to homophobia—but any analysis must start with a recognition of the actual material fact or body being distorted and restructured through the articulation of discourse about it.

And, whether discourse theorists recognize the existence of hormones or not, they must face the inconvenient fact for them that hormones are integral to the reproductive development of humans, and that such reproductive development invariably proceeds along a binary path that arose long ago in the development of human life. By the fourth week of pregnancy, the Gonadotropin-Releasing Hormone (GnRH) neurons are arrayed according to the biological sex of the fetus, with the males having more GnRH neurons in

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<sup>191</sup> I have not actually researched this assertion, so someone probably has already, at least besides the daffy religious folks at “fixedearth.com” who believe that science is wrong and the Bible is right in positing the earth’s central position in the universe. It is, naturally, very revealing that Jennifer Harding is rubbing shoulders with this ilk. As far as the dating of these scientific discoveries, Nicolaus Copernicus actually posited the revolution of the earth around the sun in 1543, and his views were strengthened by the brilliant observational work of Tycho Brahe and Johannes Kepler later in the same century. Still, I use “sixteenth century” as the date because the work of Galileo and Isaac Newton in the sixteenth century actually created consensus among astronomers about the fact. As far as germs go, they were of course visible from the time of the invention of the microscope in the seventeenth century, though the germ theory of disease transmission was not proven accurate until the experiments of Robert Koch and Louis Pasteur in the late eighteenth century.

the hypothalamus, and thus more luteinizing hormone and testosterone (Kohl and Francoeur 58). And for the remainder of each human organism's life, hormones play essential, sex-differentiated roles, often, as in the case of females, influencing social behaviors, as is revealed by the almost certain connection between the hormone surge experienced by women just before ovulation and marked changes in their behavior, from greater sexual desire to more thoughts about someone other than their current partner, greater mobility, and increased rape avoidance precautions (Buss, Evolution 240-41).<sup>192</sup> Finally, as I have argued before, the spectacular and irremediable importance of hormones in human development is often best seen when they are deployed in unconventional patterns. Some individuals with a male chromosome pattern (XY) are born with a recessive gene causing the lack of 5-alpha-reductase enzyme, which converts testosterone to dihydrotestosterone. Therefore, they have internal male anatomy, but their external anatomy resembles a female's until puberty, when the clitoris-like phallus develops into a small penis and the labia fuse into something resembling a scrotum. They also develop male secondary sex characteristics and sexual attraction to females at this point, and in the three rural villages in the Dominican Republic where this genetic alteration is common enough for it to be studied, all of the individuals who were raised initially as females assumed male identity and life patterns in adulthood. I would not argue that discourse does not impact the identity of these individuals, for they do get taunted with terms like *quevote* ("penis at twelve"), but there are some pretty obvious

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<sup>192</sup> Furthermore, the human hormone system is designed in a way that responds to environmental stimuli to encourage fitness-enhancing behaviors. Therefore, testosterone levels rise in athletes when they win, which, presumably, leads to continued status-enhancing behaviors, and testosterone is released in men when they view sexual images. Also, remember the research of Helen Fisher in the previous chapter, in which she discovered that even the sight of a picture of one's beloved releases a wash of neurotransmitters and hormones in the observer's brain.

hormonal functions involved here leading to sex-differentiated identity and behavior, and they operate at a level completely beyond the reach of discourse or verbal labels.<sup>193</sup>

Because of the massive influence of discourse theory—what I have at other times termed the “culturalist” paradigm—in Victorian studies, especially among scholars examining pornographic works like My Secret Life, I think it is important here to highlight the specific nature of my objections, which must have become quite obvious by now. Above all, the model of culture as an authoritarian regime residing somehow outside individuals and invested with special power through the collusion of those whose hegemonic desires it promotes is simply wrong. Discourses, per se, may be able to influence the behavior of those who perpetuate them through the mechanism of belief, but they are far more reflective than Foucault, Weeks, Laqueur, Harding, and a host of additional scholars pursuing the same line of reasoning admit. Much discourse, indeed, depends upon a direct transaction with the psychology and desire of individuals for its propagation, and therefore any attempt to analyze it at a higher level than the individual is bound to fail. This is especially true for works discussing sexuality and sexual behavior, for though there may be discourses about sexuality at the level of culture, and though they may attempt to wield normative force over how sexuality is deployed within social networks, non-coercive human sexuality always reflects the functioning of desire at the level of the individual, and the species-typical, innate aspects of that desire invariably shape the form that cultural discussions of it take.<sup>194</sup>

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<sup>193</sup> For a further discussion of 5AR deficiency and the research in the Dominican Republic, see Kohl and Francoeur, The Scent of Eros, 105-106.

<sup>194</sup> The term non-coercive here involves a certain amount of slipperiness. I primarily mean it to distinguish sexual acts that do not involve rape or forced copulations, though many social structures routinely force individuals into sex acts with desire only existing on one side, as in prostitution or the compulsory inclusion of young males into cross-generational, passive homosexual roles in cultures such as those in Melanesia and ancient Greece.



The “discourse,” indeed, often seems completely disconnected from the sexual practices it concerns. Michael Mason, for example, in The Making of Victorian Sexuality, at times seems puzzled by how completely different the normal Victorian experience of sexuality was from the discourse of sexuality usually considered by scholars, including Foucault, as the “standard” for the period: “Perhaps the men and women who voiced a moralistic code in the nineteenth century lived by it, but this code had little impact on behaviour because they only composed a small, if salient, minority” (43-44).<sup>195</sup> As he details, even middle class girls were fast and flirtatious, women seemed very interested in sex, and Victorian husbands considered bringing their wives to orgasm during sex very important, leading him to speculate that “hypocrisy or ‘cant’” might have existed as a mechanism that “served to decouple sexual practices and beliefs specifically in the Victorian period” (43). I am not saying that there are not discourses about real sexuality occurring at the level of specific groups of individuals, nor that sexual desire is not impacted, sometimes significantly, by environmental forces, but I do think that many scholars, obsessed as they are with the search for oppressive mechanisms and political power, tend to pursue their studies as if there is a one-to-one relationship between “official” discourses and the sexual desires and experiences of individuals, and often there actually seems to be little evidence to back up their assumptions. The search for discourses creating and enforcing heterosexuality is definitely one of the key academic projects of our time—witness Stevi Jackson’s forthrightly titled “Heterosexuality as a Problem for Feminist Theory”—yet the innate nature of so many aspects of human mating argues strongly against the idea that malleable and polymorphously perverse

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<sup>195</sup> Mason states at the beginning of his study: “It seems to me that most studies of the ‘Victorian’ have been too restricted, ignoring not only the demographic and anecdotal evidence about actual behaviour, but even expressions of attitude outside a narrow band of moralistic discourse” (6).

human beings are molded into dutiful heterosexuals because they have internalized the ubiquitous discourses enforcing heterosexuality in their external environment. As Victor Johnston argues, sexual practices are shaped by “an environmental constancy of biological origin. Since these environmental factors remain constant from generation to generation, it is not necessary, or adaptive, for organisms to possess a high degree of behavioral plasticity to effectively interact with them” (36).

The writings of Freud provide a great example of what I am trying to describe. Freud managed to propound an unbelievable number of ideas that have passed into our prevailing cultural discourses about sexuality, but no matter how comprehensively they have been adopted into the “official” view of sexuality, they have actually had minimal influence on the actual practice and experience of sexuality in Western cultures. No matter how much Freud stressed the child’s sexual desire for his or her parents as a universal and transhistorical phenomenon, it still has not become an actual feature of sexual development despite its reproduction at every level of culture in the form of discourse about the Oedipus complex. Indeed, as I have argued before, humans instead exhibit genetically-based mate-selection mechanisms that lead to avoidance of close kin—and even individuals they have been in close contact with while they are growing up, as the Israeli Kibbutz movement proved—so such incestuous desires remain almost entirely in the realm of discourse.<sup>196</sup> Nor has Freud’s writing about female orgasm affected the actual experience of orgasm by many women, despite what Judith Laws and

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<sup>196</sup> Mother/son incest is extremely rare, which would be an unlikely outcome if Freud’s theory were correct. It is also difficult to calculate father/daughter incest since so much of the time the act involved is actually stepfather/stepdaughter incest, which naturally has more to do with successful reproductive behavior than incest. Still, the indiscriminate nature of male sexuality, combined with the unequal power distribution and thence greater degree of sexual access, makes a far more persuasive explanation of the father/daughter incest that does occur.

Pepper Schwartz describe as the “epic controversy of our time, vaginal versus clitoral orgasm” (15). Freud did have much to say about the matter, describing clitoral orgasms as a sign of immaturity and a lack of adequate development on the part of a female. Naturally, this means that females need a phallus for real sexual satisfaction and that they will find it only in intercourse, a situation that seems to validate not only invariable gender divisions but also heterosexuality as the sole healthy expression of adult human sexuality. “Consequently,” complain Laws and Schwartz, “Freudian psychology has exercised powerful and often destructive control over the personal experiences of generations of women” (14). They continue: “For generations after Freud, women found that both their husbands and their therapists were sure to reinforce the ‘rightness’ of the Freudian social construction and the ‘wrongness’ of their own subjective reality” (15).<sup>197</sup>

No doubt about it, Freud’s theory exhibits a thoroughly wrongheaded adherence to the prevailing ideology of his time, and perhaps it has impacted the lives of the minute percentage of privileged Western females who have had the finances to afford a therapist, but I suspect that most women throughout the twentieth century practiced sexuality and experienced orgasms independent of psychoanalytic discourse, and indeed the National Health and Social Life Survey found exceptionally high percentages of females who rated

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<sup>197</sup> Although I find these assertions extremely unconvincing, especially in the universal scope of the phrase “generations of women,” I do agree that critics must consider the ways that psychoanalysis passes into the general experience of everyday men and women. Part of this is, as Laws and Schwartz assert, the result of psychoanalytic discourse reinforcing normative categories of behavior, though occasionally ideas do get promoted—like the “inner child” in the nineties—that have the potential to cause relatively significant alterations in the subjective experience of individuals who consume a particular discourse (and the term “consume” adequately expresses my belief that the concept occurs within the context of marketing, where an individual creates something to sell that appeals to the innate desires of a broad range of potential customers). Usually, however, as anyone who knows a self-help-book junky soon learns, the behavioral alterations are relatively short lived, though religion is a marketable discourse that seems to respond to a rather deep-seated and genetically determined facet of evolved human psychology and thus is often quite comprehensive in the role it plays in the creation of subjectivities. Psychoanalysis also has the ability to manipulate the human mind into fabrications of past events, as the whole farce of recollected memory has proven. But I don’t think that Freud’s mistaken pronouncements about female orgasms launched the epic derogation of women’s clitoral sensation that is proposed by some contemporary feminist scholars.

vaginal intercourse as “very appealing,” regardless of birth cohort, and there certainly would be some decrease in these numbers for the youngest birth cohorts if women were finding vaginal intercourse very appealing merely because they were told to, especially given the upheaval in sexual mores and values over the past four or five decades.

Instead, I would argue that females and males find vaginal intercourse appealing because human mating practices have been shaped by countless generations of reproductive success; the reproductive context of sexual pleasure becomes evident in studies like the one conducted by Thornhill and Gangestad that discovered significantly higher rates of orgasm in women who had the most symmetrical partners (Etcoff 186). Freud described human sex through the eyes of a heterosexual male of his time, but his writings didn’t “create” or “construct” the innate desires of humans then or now, and as my discussion of homosexual behavior ahead will insist, the percentage of males and females who participate exclusively in homosexual behavior—what we now call the “homosexual”—seems to remain stable regardless of historical period or geographical location.<sup>198</sup>

Furthermore, the clitoris is not, as in feminist discourses, the only site of orgasmic pleasure, for as Rosen and Beck point out in Patterns of Sexual Arousal, “there does appear to be a growing body of evidence that orgasm can be initiated for many women by pressure against either the upper anterior or lower posterior walls [of the vagina]. . . .and that contractions of the outer third of the vagina are not always present during female orgasm” (141). Freud’s contribution to the discourse of sexuality, just like the feminist valorization of clitoral orgasm, deserves to be studied and interrogated, but more as a

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<sup>198</sup> I will discuss cultures that have high percentages of homosexual experience in my discussion of Walter’s experimentation with anal sex below.

reflection of localized ideological belief than as part of a massive regulatory apparatus that actively shapes the desires and experiences of humans.

But pornography presents, as I continue to insist, a singular realm in that it actually does provide an explicit window into the sexual desires of its participants, and before I examine specific issues in My Secret Life—rape, virginity, homosexuality, class, and gender—to discover what evolutionary theory can add to current discussions of the work, I want to finish presenting the general model of discourse production and individual desire that informs my work. Pornography has always possessed a varying degree of social stigma, yet it has also always been able to exploit new technologies as they are developed. Thus, even in the earliest days of the printing press, explicitly erotic works were produced, including the infamous work known to later generations simply as Arentino's Postures, a series of prints of heterosexual copulation in a variety of positions, to which Pietro Aretino added obscene sonnets in 1524 (the drawings were by Giulio Romano and the engravings by Marc'Antonio). In a dedication to Battista Zatti, Aretino demonstrates a full awareness of how pornographic representation works: “on seeing them [the drawings] I was inspired by the same feeling that prompted Giulio Romano to draw them. . . .And I dedicate the lust they commemorate to you to spite the hypocrites since I reject the furtive attitude and filthy custom which forbids the eye what delights them most” (qtd. in Kendrick 59). From that point on, technology controlled the access to pornography, and access shaped the regulatory mechanisms surrounding it, with greater availability to women, children, and the working classes through lower prices culminating in the Obscene Publications Act of 1857 in England. But cheaper print technologies were not the only force spurring on the wider distribution of erotic

representations, for, though crude in the form originally invented in 1839, the daguerreotype and subsequent photographic reproduction processes increased in sophistication throughout the period until quite inexpensive pornographic pictures could be purchased in the form of postcards by late in the century.<sup>199</sup> Furthermore, in our own recent history, home video and the internet were both powered into ubiquity by the demand for pornographic material, suggesting that pornography and its distribution reliably charts out the presence of strong desires on the part of consumers.

And, as distribution technologies gained in sophistication, a remarkable degree of specialization has been enabled, so increasingly fine niches of sexual tastes are being explored, from harmless turn-ons like defecating on one's partner to more disturbing fantasies of rape and murder.<sup>200</sup> If I seem to have belabored the point earlier about the direction of energy flow in discourse creation and consumption, the reason is that it seems that all too many readings of pornography view it as part of a master discourse bent on creating subjectivities and shaping sexualities that function to enhance the hegemonic power of some unseen group of privileged individuals who tacitly guide the

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<sup>199</sup> There was indeed quite a craze for postcard collecting in late-Victorian England, and for that matter all of Europe. The invention of the half-tone block in 1880 made them very inexpensive to make, and sales were in the hundreds of millions. For a discussion of postcard erotica, see Paul Ryan's introduction to volume one of *The Sins of Our Fathers: A Study in Victorian Pornography*.

<sup>200</sup> The reader of Victorian porn is immediately struck by the endless possibilities presented within individual works, for child-sex and homoeroticism often exists shoulder-to-shoulder with missionary-style heterosexuality. Some critics point to this as a sign that late Victorian sexual ideology brought about more hardened categories—like the homo/hetero binary—that made such mixed genres unthinkable (see, for example, Donald E. Hall's "Graphic Sexuality, 110-11). I suspect that at least part of this had to do with cost and distribution. In other words, pornographers at that time knew that they had to include a wide array of activities in order to include something appealing to the widest possible audience, something not necessary in later works that were cheaper, more plentiful, and aimed at a more specialized audience. There is something of this same impulse in the advice of porn film maker Ziplow in 1977 to aspiring directors: "Not every man is turned on by anal sex, but enough are to make its inclusion a pleasant experience for a large portion of viewers" (qtd. in Shorter 175). Films were then expensive and distribution limited, but once cheap technology and mass distribution arrived, the market became cluttered with product devoted exclusively to anal sex, and even to subcategories of anal action, such as with particular ethnicities, or in coercive sexual scenarios, or involving almost any other sexual interest possible.

entire ill-intentioned process. Pornography, however, at least in Western cultures, has flourished within economic systems notable for both sophisticated technological capabilities and free market economies, so that the process of economic reward provides an immediate feedback mechanism ensuring that the pornographic content, instead of being manipulative propaganda imposed from outside, instead constitutes an increasingly accurate and effective exploration of the possible design space of erotic desire as it functions within specific human beings. I realize that I have “naturalized” desire, just as we are cautioned never to do in graduate classes in critical theory, but evolutionary psychology and behavioral genetics have traced enough generic characteristics of human desire to convince me that desire involves to a great extent evolutionarily-shaped neurochemical responses to the human environment that provide motivation and hedonic tone for a wide array of behaviors that have proven to enhance reproductive success in previous environments of evolutionary adaptedness.<sup>201</sup> To the extent that master discourses are internalized as component parts of individual desire—and they certainly are, though not as significantly as sometimes argued—then they are articulated through the language of evolved sexual desires, not the other way around, and the critic who insists otherwise will wind up with a very distorted view of how “sexuality” is deployed at the level of individual sexual experience. Furthermore, I am aware that I appear to be

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<sup>201</sup> For an “essentialist” discussion of human sexual desire that is both convincing and intellectually rewarding, see Edward Shorter’s *Written in the Flesh: A History of Desire*. Although often lacking a recognition of the reproductive logic of sexual desire, Shorter’s book provides an excellent exploration of the invariable hedonic tone accompanying desire and its fulfillment. He argues: “Desire is a brain-driven longing for sensuality, one that ultimately prevails over all previous social limitations, pushing us ever more relentlessly towards the maximization of the positive sensations that come from the external nerve endings on our bodies. The history of desire is the history of the brain’s efforts to drive the mind to create a world in which the peripheral receptors from head to foot send back pleasurable sensations to the brain” (5). There are problems here—the dualism of brain and mind, the slight neo-Freudianism of repressive social limitations—but nonetheless Shorter nails perfectly the centrality of chemically-based hedonic motivational systems in the human experience of the external environment.

valorizing “consumerist ideology” in my insistence that producers of erotica attempt to fulfill the desires of discrete, individual consumers and that consumption choices are made at the level of the individual; however, I am not alone in recognizing the concept of “the active audience,” even more applicable to the consumption of pornography than to the consumption of television programs or symbols of subcultural affiliation like tennis shoes or rock bands.<sup>202</sup> Actually, the modern boom in pornography, starting in the Victorian period, is as simple to explain as the prevalence of French fries and fast food restaurants, for both employ technologies of production and distribution to exploit individual brain chemistry and supply a product that triggers a positive hedonic response in the hard-wired rewards system of the human brain.

My Secret Life, then, exists as both a private and public document, revealing the sorts of erotic possibilities imagined as being pleasurable in the mind of its author, but also, through its publication, presenting those erotic fantasies for the use of others in their own pursuit of erotic pleasure. We don’t, alas, know many specific details about the original audience that the work found in its initial limited publication, though we must assume that it took for granted the same class hierarchies that Walter exploited and were not offended by the wide array of sexual practices in which he engaged or the fact that occasionally force was used to achieve copulation.<sup>203</sup> On the other hand, because the

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<sup>202</sup> Other scholars who have pursued the concept of “the active audience” include Henry Jenkins, Ien Ang, Maria Gillespie, and David Morley. It is unfortunate that discussions of individual desire and consumption choices always have to struggle to avoid incorporating value judgments, for the entire process has become so politicized by Marxist critics, among others, that the default position seems to be negative. And, indeed, marketers do have a knack for exploiting very unhealthy desires in consumers, though I reiterate that almost all consumption choices are made at the level of the individual and that it is usually at the level of the individual that products succeed or fail (the role of the consumer, in fact, is demonstrated by how many products do fail despite enormous promotion).

<sup>203</sup> The audience for such an exclusive publication would not be a representative sampling of pornography consumers, for even by the standards of the day My Secret Life was outrageously expensive. Therefore, as



author was writing fantasy material for his own stimulation, making himself a consumer of his own text in a direct way that is almost unique to pornographic productions, we get a *very* clear picture of his own sexual interests. As would be expected with a text written over so many decades, the author's tastes change in the course of composing the massive work, so that, for example, oral sex ("gamahuching" in the text) becomes a staple only late in the text, though it does occur in certain contexts throughout: "I had gamahuched but little all my life with the exception of virgins—or very pretty young cunts.—Virgin cunts always attracted me that way, there was scarcely a virginity which I had not licked deliciously before I shattered it" (1820). Likewise, the homosexual experimentation, culminating in an unsuccessful attempt to be the passive partner in anal sex, occurs late in the text. Other interests remain constant, including an obsessive interest in both youth and virginity, a preference for lower-class females and prostitutes, a mania for variety in mates, a very visual sexual aesthetic that incorporated the viewing of female genitals into the sexual experience, frequent masturbation, spying on others through keyholes or peepholes, feeling female genitals, watching females urinate, and using urine sexually.<sup>204</sup>

A remarkable aspect of My Secret Life is that Walter is not, as is often the case in the fantasy world of male pornography, free from doubts and anxieties, for he frequently worries that his penis is too small and experiences impotency (though neither condition, ultimately, causes him to lose more than a handful of copulatory opportunities).<sup>205</sup> Lynn

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special connoisseurs of the genre, the purchasers would probably welcome the extreme variety of sexual practices, savoring the transgressive aspects of the work.

<sup>204</sup> I have already posited a biological component to the prevalence of water sports in human sexual activities, and the practice was not only explicitly described in print in texts like My Secret Life, but also in Victorian photographic pornography; for example, one photo in the first volume of The Sins of Our Fathers features a female model urinating in the mouth of a male model whose pants are pulled down and whose erect penis is visible.

<sup>205</sup> The passages *are* striking. Early in the text—if page 401 can be early in any text—Walter muses: “‘Shall I be able to fuck?’ I used to think, I who had already fucked two hundred women. But so it was, a

Hunt argues in The Invention of Pornography that “male sexuality, paradoxically, is one of the obscure areas in much pornography. Although early modern pornography was written by men for a presumably male audience, it focused almost single-mindedly on the depiction of female sexuality, as if male sexuality were too threatening to contemplate” (41). Hunt’s perspective is skewed; after all, as a male production, pornography gives us a detailed depiction of male sexuality and nothing else, for the women in most pornography, just as in My Secret Life, act as accompaniments to male sexual fantasy and not at all as women do in real life. Nevertheless, if she means that male sexuality is not depicted in realistic, physical terms in pornography, then My Secret Life is the exception, prompting Ellen Bayuk Rosenman to argue: “As much a record of male anxiety as of male potency, My Secret Life overturns the taboo against representing the penis *as penis*—that is, as an unpredictable, vulnerable organ” (169).

Otherwise, however, we are pretty much in the standard world of pornography, where the women are voraciously sexual and enjoy every different act attempted upon them. Rosenman, in her ingenious (and engaging) reading points to the complex depiction of Walter’s sexuality and describes the work as “a manual for deconstructing masculinity” (170). While I admire Rosenman’s contrarian spirit, I really can’t agree that My Secret Life is in any way unique in the way that “it also grants women an active sexual desire” (171). Evolutionary psychology has discovered a universal male tendency to overestimate the sexual interest of females they interact with, and in the male “pornutopic” vision—I borrow the neologism from Steven Marcus—females are always

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fear of inability brought on the inability.” And years later: “All was useless, a nervous feeling that I could not fuck her came over me and out my prick came as big only as a walnut” (1190). Walter also leads prostitutes into making positive statements about the size of his penis throughout, and late in the work we learn that early in his life a maid had said to him, “Oh—you’re not *man* enough” (2123), presumably causing all of his difficulties and insecurities about his penis.

not only warm and willing, but positively ecstatic about the opportunity to perform whatever act is proposed, and even in the genre of “pornographic” rape the females involved are in the throes of sexual arousal by the completion of the act.<sup>206</sup> Therefore, I don’t see anything special in My Secret Life to argue, as Rosenman does, that it “offers a relatively sunny, egalitarian depiction of male-female relations” (171).<sup>207</sup> Indeed, far from being autonomous, the females in the text reliably fall prey to Walter’s simple model of female arousal, where women are inflamed with passion as soon as they see a man’s penis or his fingers rub her clitoris. For example, in “Volume V” Walter waxes philosophic: “Ah! The effect that the male’s fingers produce on the woman, when they twiddle that sensitive little red protuberance at the upper end of her cunt, a part so easily reached by the finger, so impossible to get it of out its reach, and so placed that a man can always incite the woman to his will” (182-83). But often, rubbing the clitoris is not even necessary: “Nothing persuades a woman like a stiff-stander. Many a woman will say, ‘no, no,’ till she sees the red-tipped cunt-stopper ready, and then she can say it no longer” (819-20).<sup>208</sup> In his efforts to prove the fictional nature of My Secret Life, Ian Gibson insists that Walter’s preposterous beliefs about female arousal, including his frequent description of females who gush warm, salty fluids when they “spend,” underscores the

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<sup>206</sup> Robert Jensen and Gail Dines, though, seem to have missed this essential and universal aspect of male sexuality in Pornography: The Production and Consumption of Inequality, for they seem surprised that pornography “consistently and persistently portrays women as sexually willing and available” (they quote from Brosius, Weaver, and Staab’s “Exploring the Social and Sexual ‘Realities’ of Contemporary Pornography,” 169).

<sup>207</sup> I do admit that Walter himself sees a sunny egalitarian world. At one point he insists, “Yet this divine function, this coupling of the man and the woman is the supremest ecstasy of mind and body. This sexual conjunction, this fucking, which is the foundation and the stay of love between the sexes. . . . Man and woman are joint participants in the sexual pleasure” (1622). Unfortunately, the cause of Walter’s splendid musings was the successful rape of the young virgin girl Liz, which clearly undercuts any positive impulse in his feelings.

<sup>208</sup> In The Erotomaniac, Ian Gibson provides a lengthy list of citations from the text demonstrating Walter’s faith in his theories of female sexual arousal. See pages 182-84.

complete sexual inexperience of the author.<sup>209</sup> I do believe the inaccuracies point out the fictional nature of the work, but I also believe that both Rosenman and Gibson have been misled by an incomplete understanding of the universal aspects of male sexuality into missing precisely how they emerge in pornographic works. From the perspective of evolutionary psychology, the women in My Secret Life behave in the relatively predictable fashion of male fantasy, just as males wish they would. In the real world, however, women control sexual access and sex is a much more limited commodity, for women are anything but the “passive” participant in the mating process that some

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<sup>209</sup> In her discussion of female ejaculation, Rosenman cites Laqueur’s discussion of the transition of the single-sex model into the more modern binary model, and I do agree that Walter’s belief in female ejaculation could in part signal the persistence of the single-sex model through much of the nineteenth century. In addition, Rosenman cites Zaviacic and Whipple’s assertion that “the phenomenon of female ejaculation exists” (171). Nevertheless, as Rosen and Beck point out in Patterns of Sexual Arousal, studies of the “ejaculate” collected from women who report ejaculations have lacked elevated levels of the prostatic acid phosphatase and instead “closely resembled urine in its chemical contents” (84), thus signaling the urinary nature of the phenomenon. The author of My Secret Life was not alone in having his female characters spend copiously, for other works, including The Romance of Lust, foreground the phenomenon. The literary presence of female ejaculation is easy to understand and doesn’t necessarily mean that the authors of Victorian pornography were all ignorant of female physiology. Certainly, some women do eject fluid when they orgasm, so the practice had some physiological basis. Given that orgasm has real reproductive repercussions, males are naturally quite interested in whether females orgasm or not during intercourse because female orgasm can both aid in conception if timed with or slightly after male ejaculation, or significantly decrease conception if timed more than a few minutes before male ejaculation in any given copulatory event (also, orgasm was widely seen as essential for conception in the nineteenth century). Therefore, the prominent depiction of female ejaculation could be a physical sign of a successful copulation, just as the external come shot is in contemporary film and video porn, for there is no doubt that female sexual arousal and response is a major component of most porn. Also, in this particular work, given the author’s predilections for water sports, the warm fluid gushing from women probably encodes additional erotic interests. The following is a representative sample:

Of course I had a micturating bout with these two girls. One night I took a large mackintosh and spread it on the floor before the fire, then we took off the sheets from the bed to dry ourselves with, I laid on my back,, Nelly mounted me, and putting my prick up her began slowly fucking; Sophy start naked and straddling her legs over Nelly’s arse, when we began to get lively in our movements, she squatted and pissed on to Nelly’s bum furrow which I pulled open with both hands. The hot stream came rattling down the furrow and thence on to my balls, making a pond under my arse.—In the midst of the splashing Nelly and I spent. (1691)

Nor did that end the play; “some time later,” after drinking more, Sophy “let fly her stream” towards Walter’s “arsehole,” and Walter concludes the event with “how we laughed as we rubbed each other dry” (1691). Given the loving sort of detail with which he describes scenes of this nature, it is impossible not to see the female ejaculation throughout as carrying extra erotic weight for the author. Also, as I have argued earlier, the presence of sexually significant hormones in human urine, as well as the widespread use of urine among other mammals in mating behavior, makes this aspect of the author’s sexual interests quite understandable in biological terms, though the practice is usually seen as a slightly “fringe” pursuit.

Victorians believed them to be; in fact, female mate choice mechanisms are probably the single most important force directing the development of human mating strategies and even larger cultural regulatory systems like “patriarchy.”<sup>210</sup>

Indeed, the most striking thing about pornography when viewed through the lens of biology, and this is especially true of My Secret Life, is how it is fundamentally *not* “egalitarian,” for the male pornographic vision always circumvents female mate choice by making the females involved excited by and responsive to whatever generic male appears on the scene. In My Secret Life, as in much Victorian pornography, a variety of structural mechanisms allow the male protagonist to attain short-term control over female sexuality—as opposed to the long-term control achieved through marriage—and gain sexual access to a large number of partners.<sup>211</sup> As David Buss points out in “Sexual Conflict: Evolutionary Insights into Feminism and the ‘Battle of the Sexes,’” males typically desire a greater number of partners than females, demonstrated by his finding that “men state that they would ideally like to have more than 18 sex partners in their

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<sup>210</sup> Victorian scientists did sometimes stress the passive nature of females. For example, in his 1879 The Evolution of Sex, Patrick Geddes argued, “It is generally true that the males are more active, energetic, eager, passionate, and variable; the females more passive, conservative, sluggish and stable” (qtd. in Harrison 95). In her reading—or most certainly “non-reading” in this case—of Darwin, feminist scholar Rose Weitz attributes the same sort of belief to Darwin: “Females, on the other hand, need not compete for males, and therefore are not subject to the same process of natural selection. Consequently, in any species, males are more evolved than females” (6). Weitz must not have read Darwin’s writings on sexual selection, in which he makes quite clear the primary role that female choice plays in male mate competition, and he saw them as anything but passive participants or “less evolved.” In fact, as Kenrick, Trost, and Sheets point out in “Power, Harassment, and Trophy Mates,” an analysis of female mate choice in the trophy wife phenomenon, Darwin noted the significant sexual dimorphism in humans and also “noted that female choice is generally more important than male choice in driving this sort of radical dimorphism” (42). Also, some assertions used to support the idea that Victorians believed women passive are probably taken out of context. For example, Michael Mason demonstrates that William Acton’s famous statement that “the majority of women . . . are not very much troubled with sexual feelings of any kind” was actually, in context, simply encouragement to impotent men that they should still consider marriage, which alters the meaning somewhat, and elsewhere Acton expressed a much different opinion (see Mason 195).

<sup>211</sup> I should stress here that marriage is about *exclusive* sexual access, as is much of patriarchy, for it is in large part a regulatory mechanism to keep other males away from one’s own reproductive partner(s).

lifetimes, whereas women state that they would desire only 4 or 5” (304).<sup>212</sup> To redress this disproportion, males use the power accorded to them through race, class, and age to increase their number of available partners, and part of the encouragement to do so involves the fact that male affiliative bonds are not threatened when males look outside of their normal social context for partners. Paul Ryan, in The Sins of Our Fathers, insists that “the vast class differences in Victorian Britain gave rise to a flood of imagery which explored the servant-master relationship, in all its libidinous permutations” (18).<sup>213</sup> This is undoubtedly at least partly explained by the ability of upper-class males to use their status to gain sexual access and to pursue such opportunities with less social ramifications than if they were attempting short-term copulatory pairings with females of their own class. Also, however, eroticizing the crossing of class boundaries probably involves a more general interest in transgressive sexuality, as does the frequent inclusion of many of the less common sexual pursuits in pornography. As Rosen and Beck point out, a study by Heiman in 1977, replicated later the same year by Osborn and Pollack, found that “nontraditional sex-role content” was more arousing than more traditional erotic imagery for both sexes. “Perhaps,” they conclude, “erotica must be socially unacceptable or norm breaking, in order to be maximally arousing” (195).

In My Secret Life, Walter takes advantage of class inequalities in almost all of his sexual exploits, not only in his usual practice of hiring prostitutes, but also in his frequent attempts to dangle money in front of needy young girls, knowing that they would become

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<sup>212</sup> Buss’s point is also evident in studies where subjects were approached and invited to have anonymous sex. Buss relates: “In another study that has been replicated twice, 75% of men but 0% of women approached by an attractive stranger of the opposite sex consented to a request for sex” (“Sexual Conflict” 304).

<sup>213</sup> As Ryan continues to point out, in visual pornography the presence of non-white models was also encouraged by the fact that “ethnographic studies” were allowed as non-obscene (19).

so tempted that they would eventually trade sex for money. In the pursuit of sexual thrills, Walter shows great cunning and a fine sense of the market value of such pursuits, offering more money to non-prostitutes for sexual favors. Often, this involved simply feeling women, as when he approaches two “workmen’s wives” and says, “Piddle and let me feel it, and I’ll give you half a crown apiece,” knowing that he was “bidding high for they were not strumpets” (2255). Often, however, Walter is planning access to “pretty cunted” young girls, for he believes that “the rift in a female body is never so beautiful as it is between the age of sixteen and seventeen” (1802). Given the biological basis of beauty as an indicator of fertility and reproductive value, and the universal male valuation of both youth and signs of nulliparousness, Walter is treading standard territory for males here, nor is Walter unusual in his “insatiable desire for variety” (2324, index entry under “Cunts”).<sup>214</sup> What is unusual to modern readers, however, is his cavalier attitude towards his young victims, and here we see a discourse so powerful in the shaping of Walter’s worldview that it almost fits the remarkably reductive model of “sexual scripts” forwarded by Laws and Schwartz, and certainly illustrates the routine derogation of lower-class females in the upper-class society that the author of My Secret Life inhabited.

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<sup>214</sup> In Alan Soble’s endearingly wacky Marxist reading of male sexuality—which indeed, I have heard regurgitated several times in discussions about my research around our campus—capitalism leads to the male “dismemberment” of women because “male sexuality in capitalism elevates the visual and downgrades the tactile” (55). He explains: “Men’s tendency to approach women in a dismembering way is seen most clearly in fixation; to achieve arousal and satisfaction, a man must be able to concentrate sexual attention upon certain parts of a woman’s body. . . .in such a way that the part is raised to ontological status (reified), just as the partner is reduced to the sum of her parts or to one of her parts” (59). Such notions have been effectively dispelled as newer research has explored male sexuality in other cultures of all sorts, so that now it is clear that males focus attention on body parts with reproductively significant ramifications. Some, indeed, like breasts, clearly arose through sexual selection; that is, human males liked them so they grew larger than those of other primates. But even the human male preference for larger breasts could be based on the desire by males for reliable fitness indicators since breasts are great indicators of both age and previous pregnancies in human females. Soble also believes that capitalism causes “the interest men have in sex for its own sake” (58), which flat contradicts every cross-cultural study of male sexuality I have ever seen and is therefore a super example of the perils of pursuing research armed with potent ideologies and little research.

Walter always justifies his coercive copulations with young lower-class virgins by insisting that someone will have sex with them soon anyway, so there is no moral problem with his making sure he is the first. The index entry for “Girls,” for example, holds the following descriptions: “poor, are sure to be fucked early”; “poor, will be fucked by someone”: “poor, who first fucks them”; “poor, generally first fucked by poor lads”; and “poor, mostly fucked before sixteen” (2335). Indeed, when admiring the young girls working in the fields and announcing, “there are half-a-dozen girls in the field I would not mind sleeping with,” his cousin Fred replies, “you can always have a field-girl, nobody cares,—I have had a dozen or two” (284). The “nobody” here is the most revealing indicator of the ideology of class imaginability; all of the people who would care—parents, family, boyfriends, the girls themselves—are erased from existence.

In this particular instance, however, Walter’s plans do not go well. Under a ruse, he gets his chosen field girl alone and kisses, tickles, and pinches her, but when he pulls out his penis she exclaims, “oh!” and, frightened, rises to go. Walter pulls her back:

“Let’s do it to you.” “I won’t.” “You’ve been fucked.” “I ain’t,—I am only fifteen years old. . .leave me alone.” I threw her down, and got my hand up her clothes. She loudly screamed, and that is all I recollect clearly: I know that I struggled with her, offered her money, told her I knew her sister had been fucked, and a lot more. I was so much stronger that she had no chance, I rolled her over, she screamed, and screamed again (there was no one nearer than the Hall), I exposed her bum, her thighs, her cunt, and all she had. I was furious with lust, determined to have her; at last she was under me, panting, breathless, crying, saying, “Now don’t,—oh! Pray



don't," but I lunged fast, furiously, brutally, and all I heard was, "Oh! Pray,--pray now,--oh!—oh!—oh! Pray," as I was spending in her holding her tight, kissing her after I had forced her. Her tears ran down. If I had not committed a rape it looked uncommonly like one, and began to think so as I lay with my prick up her. (285)

The whole passage here is remarkable, but the final line is especially striking since it opens up the possibility that the rape of a lower class girl, at least by a "gentleman," was simply impossible in the sexual ideology of the day, for there is clearly no doubt that a rape occurred. Walter *does* become disturbed when, getting off of her, he "saw for an instant her legs wide open, cunt and thighs wet and bloody, she crying, sobbing, rubbing her eyes" (286). She says that she will tell, which prompts Walter to offer money and to insist that he would get her out of the fields; she refuses, but "eyes wishfully" the gold in his hand. When Smith the foreman arrives, he insists, "he aren't done you any harm. . .it's all fair yer know twixt a young man, and a maid,--daresay yer wanted him to be dirty with you,--a gent like him, you ought to be proud of sich a one making love to you" (286). This is, of course, the recognizable response of patriarchal culture to the violation of one who is not a full member, and a view that has only in the past few decades been displaced as a common response to rape.

Up to this point, this scene seems like the less common depiction of rape in pornography, the rape where the victim shows signs of resistance to the very end and no signs of enjoyment, but it quickly turns into a routine depiction of "pornographic" rape, where the victim ends up enjoying the act, for she does wind up taking the gold and lets him "pull her into a convenient grassy corner, and fuck her again" (287), and even the

next day he has his way with her again in the barn. This could perhaps be seen as an aberration in Walter's behavior were it not behavior present throughout the work. Much later, a prostitute friend named Betsy procured for him a very young virgin, another former field girl named Molly, who had a "little cunt, which was of a delicate pink, with the slightest signs of dark hair just on the mons" (1159). The girl resists repeatedly, bursting into tears and crying, but when Betsy threatens to throw her out in the street she agrees to the designated act. The scene is brutal, Molly yelling, "You hurt—get off—I won't let you," Betsy stifling her screams by "pushing a pillow right over the girl's head," and Walter entering her "with a violent effort" and feeling "the tightening of her hymen round. . .[his] prick, as it went through it with a cunt-splitting thrust" (1161-62). Walter analyzes the aftermath: "A bloodier mass of spunk I never saw on a cunt.—Her blood had run down on to the counterpane, and lay in a red rim all round my prick near to its root. I was delighted beyond measure" (1162). As in the previous account, however, her response changes. Walter describes the second time he enters her: "She laid so quiet and closed her eyes in such a manner, that I am sure it did give her pleasure, tho she might not have spent" (1163). Predictably, by the next copulation that night, when Walter asks, "Isn't it nice, Moll—isn't it?" the girl gasps, "Yhes—yhes," and later that night Walter has her again: "Again I fucked her and she liked it, and told me so in broken words, as I stretched her cunt" (1164).

I recount these two scenes, which are but two among many, not only to dispel any notions of sunny, egalitarian sexuality but also because they represent such complex vortices of cultural and biological meaning. At the most basic level of analysis, the action is simple: Walter, demonstrating a relatively common and biologically-influenced

male desire for youth and virginity, as well as a concomitant desire for variety of similar origin, finds himself a privileged player in an economic system that allows him the potential to coerce unwilling victims—he does pay Betsy and Molly, after all—and a patriarchal ideology that so derogates the position of unpropertied females that he can rape them with little fear of reprisal. Indeed, this is a common pattern of rape, for, as David Buss argues, “the hundreds of thousands of rapes that occur in war contexts, especially among those who are successfully conquering an enemy, suggest that rape occurs when the costs incurred by the rapist are generally minimal or absent” (Evolution 166). The picture is complicated, however, by the fact that the events are almost certainly not real, but are a pornographic fantasy meant to excite arousal in not only the author, at least in the case of My Secret Life, but also an audience, even if a limited one.

I am not going to rehash here the entire debate about rape kicked up by Thornhill and Palmer’s A Natural History of Rape, for I spent quite a bit of time on it in chapter three, though I do hope the reader recognizes the sexual and reproductive nature of the acts that Walter committed, especially given the choice of victims who were young and fertile and with whom he would be certain of paternity.<sup>215</sup> Also, it is important to consider the social context of depictions of rape in pornography, for there is no doubt that rape represents the most direct and forceful means that males possess to circumvent

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<sup>215</sup> Although the latter girl was actually too young to be of maximum fertility, still the male desire for young partners is explainable by the concept of “reproductive value” explained in chapter two, which calculates the possible number of offspring that a female could have in the remainder of her life. Obviously, male sexual desire is flexible and developmentally sensitive to cues of youth, and sometimes the object of desire is of pre-reproductive age, as in boy-love and girl-love. The fact that females rarely develop the same cross-generational attraction patterns suggests that boy- and girl-love are based upon cues of reproductive significance, though slightly misplaced, probably through the complex interaction of environmental and innate forces at some stage of the developmental process. Also, the heterosexual orientation of most boy-lovers suggests that pre-masculine, feminine features involving the misapplication of fertility cues inspire the attraction of the older males; one would think, given the frequency of the occurrence, that some aspect of the developmental psychology of human males involves plasticity that is easily deflected to younger subjects than makes optimal reproductive sense.

female mate choice, and therefore the act carries particularly painful and disturbing consequences for females.<sup>216</sup> Given the latter effect upon females, what I have been calling “pornographic” rape, where the female is aroused and enjoying herself at the end, is relatively unlikely. Rape researcher Neil Malamuth has compiled substantial statistics concerning the percentages of males who might, under the right conditions, commit rape, and in a study of male students at UCLA he found that, after they were presented with a sexual narrative containing an explicit rape, 53% responded that there was some likelihood that they would act the same way if there were no chance of getting caught (Russell 115).<sup>217</sup> Furthermore, Rosen and Beck describe a study that found sexual arousal in both male and female subjects when they viewed depictions of coerced sexual behavior, though the “portrayal of the victim in the script as experiencing involuntary sexual arousal (orgasm) and no pain was associated with maximal arousal in female

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<sup>216</sup> Current studies of rape occur within a particularly complicated sociopolitical context, as the relatively irrational response to Thornhill and Palmer’s study revealed. No one can dispute that rape pornography is made and consumed by large numbers of males who find it very arousing, even more so in other cultures like Japan, where, as Abramson and Hayashi detail in “Pornography in Japan,” pornography commonly exhibits a recurring theme of bondage and rape, especially of high school girls (178-179). That males find such imagery arousing is troubling, but, since the females involved are not members of the viewers’ personal sociopolitical network, understandable (few men, I think, would get off on seeing their sisters, wives, or mothers raped, for the horror of observing such acts is well-known and often exploited by conquerors in times of war). The additional social question, however, is whether representations of rape cause men to commit rape through the process of “modeling” behavior. Russell thinks so, and insists that viewing rape imagery “can induce a desire to rape women in males who previously had no such desire” (122), a view of desire that is thoroughly informed by social constructionism. The case of Japanese pornography, given the relative rarity of the act there, argues against Russell’s assertion, though the neurochemical nature of male sexual response, which occurs at a subcortical level, indicates that sexual representations could easily be involved in creating awareness of previously unnoticed erotic possibilities. If, as Rosen and Beck assert, “the perception of physiological arousal may function as a primary cue for subjective experience in most situations” (29), the consumption of erotic imagery represents an exploration of sorts, and presumably one could stumble upon an interest in rape this way. Still, given the common male arousal by rape depictions like that in *My Secret Life*, yet the rarity of actual rapists, I suspect that actual rape more involves, as Buss points out, a combination of hostility toward women and “a personality profile marked by impulsiveness, hostility, and hypermasculinity” (*Evolution* 166). This fits my general model; rape in pornography reflects a wide array of sociocultural and political as well as biological and reproductive factors, but is far less involved in creating discourses that determine the deployment of sexuality.

<sup>217</sup> This figure is at the high end of statistical responses in this type of study. A more accurate figure may be that around 35% of men would commit acts of violent coercive rape if they could be sure of getting away with it. See, for a discussion, Buss, *Evolution* 163-64.

subjects, whereas males responded most to depictions involving both pain and sexual gratification for the victim” (206). David Buss sums up the research by saying that “men apparently are sexually aroused when exposed to sexual scenes, whether or not consent is involved,” although he does recognize that “the presence of violence and a disgust reaction from the woman” does appear to inhibit sexual arousal (Evolution 163). Malamuth, though, found that about 10% of the male students in his studies were sexually aroused when presented with “very extreme violence” and “a great deal of blood and gore” with “very little of the sexual element,” and even 20% to 30% who were aroused by depictions of coercive sexuality where the female showed only abhorrence and no sign of arousal (qtd. in Russell 117).<sup>218</sup>

The author of My Secret Life clearly was aroused by depictions of rape, and he must have expected some of his audience to be aroused by coercive sexual situations as well, but in light of the statistics above there is nothing particularly unusual about the author’s interests. Indeed, rape—both “pornographic” and realistic—is a staple subgenre of pornographic representation even today, suggesting a relatively stable interest in the subject. The actual deployment of coercive strategies, however, is often intensely political, and this is where the biological critic must recognize the functioning of ideology arising from both inter- *and* intra-sexual competition. Feminist evolutionary psychologist Barbara Smuts summarizes the approach that I find most compelling:

I have argued that men use aggression to try to control women, and particularly to control female sexuality, not because men are inherently

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<sup>218</sup> These figures come from the unpublished transcript of Malamuth’s testimony to the Attorney General’s Commission on Pornography Hearings in 1985. Given the political nature of the hearings, one could perhaps doubt the veracity of Malamuth’s figures, though, given Malamuth’s extensive publication record and integrity, I tend to believe their accuracy.

aggressive and women inherently submissive, but because men find aggression to be a useful political tool in their struggle to dominate and control women and thereby enhance their reproductive opportunities. I have also argued that male use of aggression as a tool is not inevitable, but conditional; that is, under some circumstances, coercive control of women pays off, whereas under other circumstances it does not. (256)

Smuts makes her argument even more clear when she insists that “the form and frequency of male aggression toward women is related to the nature of men’s relationships with one another” (257). The ultimate causation of rape, therefore, involves, in Smuts’s words, “individual reproductive success” (256), which seems to be all about *inter*-sexual competition because the control of sexual access is taken from the female victim. But intra-sexual competition arising from “the nature of men’s relationships with one another” is equally important in shaping both the creation and consumption of depictions of rape in pornography, and this is where discourse theory has much to contribute. Granted, human males do exhibit universally proprietary feelings towards females, both those related by kin and those with whom they are in reproductive partnerships, so the very “relationships with one another” that men participate in are shaped by evolution and biology.<sup>219</sup> But the specific “constructions” of rape and coercive sexuality are still ideological, so much so that Walter can commit obvious rape, yet of a female far below him in social class, and still ponder “if I had not committed a rape it looked uncommonly like one” (285). The sexual content would have been the same had

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<sup>219</sup> In addition, of course, status and status-seeking behaviors are universal and innate in human males, probably because human females, through sexual selection, favored males who manipulated the political apparatus of male status-enhancement more skillfully in their attempts to triumph over their fellow males in gaining sexual access to the highest quality mates.

Walter raped the daughter of the estate-owner for whom the field girls worked, but the particular matrix of power and desire within which the act took place would be completely altered, and even the erotic response of the presumed audience would be changed as well by the greatly increased transgressive nature of the act. Therefore, evolutionary and biologically-influenced critics must be aware, as Foucault and his followers caution, that sexuality is always deployed within sociopolitical contexts, though obviously not, as they insist, to the exclusion of biological and reproductive factors.

As I have already indicated, the “invention” of homosexuality—and even heterosexuality, as Jonathan Ned Katz argues in The Invention of Heterosexuality—is a major preoccupation of discourse theorists working in Victorian studies, and thus My Secret Life has been of special interest because of the occasional homosexual content within it. Walter’s exploration of same-sex practices is a “letch” that interests him later in life, at a time when, as he describes it, his “tastes seem for some time past to have been much changed, to be gradually inclining to abnormal pleasures” (1661). Given the fictional nature of the work, Walter’s statement could merely be a narrative frame with which the author intends to explore a greater diversity of practices in the text; perhaps he recognized the general sameness of the sex throughout the first 1660 pages and thought that more variety would please a wider audience. Still, given the relatively private nature of the work’s creation and distribution, the author undoubtedly did find the acts included arousing, so they do provide us with a revealing depiction of one Victorian gentleman’s sexual fantasies. Walter’s male partners are always procured by female prostitute friends, and he seems fully aware that he is a tourist in a land that many inhabit fulltime, for when meeting his first male partner, whom he later masturbates (“frigs,” in the language of the

text) he observes: “I don’t know the manners of sodomites, but expect they have more confidence than this man had” (1884). This of course suggests that the author was well aware of a behavioral category inhabited by men who preferred sex with other men, a category, moreover, based on stable set of behavioral preferences and not discursive fiat.

Much recent criticism of My Secret Life, however, concentrates on the way in which sexual preference is fashioned within the realm of discourse, a preoccupation I have already discussed in some detail above. Donald Hall describes the process in “Graphic Sexuality”: “Activities once encompassed within an overall notion of an ecstatic, perverse, libertine sexuality were dichotomized into notions of oppositional sexualities, ones that determine, infect, render suspect the very language I am using here” (emphasis in original, 102). Although Hall’s wonderful article includes examples from earlier works to support his claim, I do think that what he describes as “the orientational narrowness of almost all twentieth-century erotic works” (107) involves a specialization arising from marketing and technology more than an apparatus of repressive discourses limiting some inherent polymorphous perversity previously the birthright of all humans.<sup>220</sup> In his discussion of My Secret Life, he describes the work as a “concerted attempt to reclaim a previous state of libertinism, to recover what we might call the ‘prediscursive’” (111), and though I’m naturally suspicious of the nostalgia involved here, I still admire the political intent of his article. As far as methodologies go, however, I am not in agreement with Hall, who interprets all sexuality from the nineteenth century on as 100% constituted in discourse, and by this benchmark, Walter’s experiments are a failure.

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<sup>220</sup> I use the term “wonderful” because this is my favorite essay ever written on pornography. The argument may not be especially valid, but as far as my personal politics go, I say, “right on!”



Walter did participate in sex many times with Jack, a young man out of work procured by his prostitute friend H., but Walter, while an enthusiastic participant, did not find the practices to hold continuing interest for him, and at times they engendered actual disgust. For example, one night Walter offers Jack a large amount of money if Jack would let him put his “prick” up his “bum” (1562). Even while gripped with a “fierce, bloody minded boudiness,” Walter nonetheless “felt a disgust” at himself, and afterwards, as he relates, the feelings grew stronger: “I had an ineffable disgust at him and myself—a terrible fear—a loathing—I could scarcely be in the room with him” (1564). Walter realizes that his feelings run exactly counter to his philosophy—“tho it is against my philosophy even to think I had done wrong,” he asserts in his later contemplation of the scene (1564). Again later he is to feel the same disgust when he has a young man attempt to enter him from behind: “at one thrust he went half way up. A revulsion came instantly, ‘Pull it out,’ I cried. . . .I did not feel pleased with myself at all.—What is the good of my philosophy” (2099). In Hall’s analysis of these scenes, Walter’s “libertine philosophy simply cannot be reconciled with powerful social regulations on the use of the body. . . .Inside of a late-Victorian discursive context, the narrator cannot successfully create another” (113). I tend to read the most basic action in these scenes differently: Walter’s discourse of libertinism was not sufficient to overcome his heterosexual orientation, an orientation that, in its universality as a major motivational mechanism for males in cultures around the world, is rooted in biology and not in discourse. I have come to this reading with a certain sense of loss—when I first read Hall’s essay a decade ago, I believed in a recoverable bisexual identity for everyone—but, whatever combination of environmental and genetic factors influence sexual preference, I believe

they act at a level relatively beyond the reach of discourse, even as the term is used by the most totalizing theorists who employ it.<sup>221</sup> I do believe, however, that the intensity of Walter's reaction is culturally modulated and informed by what Hall describes as "a late-Victorian discursive context," for his behavior did take place in a culture where same-sex activity was the object of social taboo. Nevertheless, to read all sexuality in the text as constituted in discourse misses the myriad universal aspects of sexuality exhibited throughout; cultural discourse can exhibit significant influence on the specific context and deployment of sexual desires and practices, but most of these discourses are informed by innate biological characteristics of the individuals involved rather than the other way around.

I will provide an even clearer example of how evolutionary and biological analysis supplants existing readings of My Secret Life. In her discussion, Rosenman makes much of the early homosexual activity engaged in by the protagonist, and she locates it within an oedipal framework, as a stage between the early attachment to the feminine world of the mother and the later entrance into heterosexuality, where "young men trade one attachment for another, substituting young women for schoolmates, while their initial affection for the mother is allowed to reemerge in the form of heterosexual

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<sup>221</sup> In my research, I have been struck by how often the "homosexuality" described as common and acceptable in a variety of cultures actually involves older males taking advantage of copulatory opportunities with adolescent males who have not begun to show many of the sex-differentiated signs of adult masculinity. In Melanesia and ancient Greece, for example—two cultures supposedly displaying high levels of homosexuality—the younger partner was replaced by the time he began showing significant signs of adult maleness, which makes me wonder if we are dealing with what is commonly described as "homosexuality" at all. Young males do exhibit many of the same fertility markers as older females, and that, combined with the rarity of exclusive homosexuality and the uncommon nature of adult male-male sexual contact in these cultures, suggests that such cross-generational "homosexuality" is actually more of a minor modification of the generally heterosexual desires of the male inhabitants than a homosexual desire fixed upon the eroticization of fully masculinized adult male characteristics as one would expect—and finds—in actual homosexuality.

love” (179).<sup>222</sup> As Rosenman points out, this follows Sedgwick’s famous formulation, where heterosexuality mediates the homoerotic identification of men by placing women between them, thus transferring and submerging the homoerotic aspects of the relationship. In her analysis, however, I think Rosenman is actually mistaken in her characterization of the romantic nature of the sexual activity of the boys, which she reads from the perspective of adult romantic behavior, and also too optimistic in her reading of the behavior as somehow transgressive and challenging the conventions of adult male sexual behavior.<sup>223</sup> Indeed, her reading of Freud has misled her, for the boys are more likely to be “substituting schoolmates for young women” than the other way around. She even hints at the ultimate heterosexual basis for the behavior when she observes that “his desire for women grows from his arousal by other boys and by the sight of other erect penises,” and that “we can assume that he applies his growing knowledge of women to the limited range of sexual pleasures that are actually available to him” (184).

Far from involving romantic desire and identification, as Rosenman argues, the experiences of Walter and his peers more fit the more realistic scenario presented by John Addington Symonds as he describes his own school experience: “Here and there one could not avoid seeing acts of onanism, mutual masturbation, the sports of naked boys in bed together. There was no refinement, no sentiment, no passion; nothing but animal lust in these occurrences” (I:94). What are we, then, to make of this early homoerotic experience? How exactly is it integrated into the participants’ later sexual desires and

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<sup>222</sup> This makes it sound as if Rosenmann is primarily a psychoanalytic critic, which she is not, for she is heavily influenced by discourse theory and constructionism in her discussion of how male sexuality is fashioned throughout the male passage into adulthood.

<sup>223</sup> I do realize that there is an entire genre of gay fiction devoted to idealized representations of childhood male-male romantic experiences, and I think Rosenman misreads Walter’s sexual experiences as belonging to that genre. Indeed, as wistful and beautiful as movies like You Are Not Alone and Beautiful Thing are, the types of affairs pictured in them are uncommon.

activities? This is where evolutionary psychology has a cogent and lucid answer. For starters, it has been long known that homosexual behavior is common throughout almost all species of mammals and birds, and it was actually common and accepted in 60% of the societies surveyed in Ford and Beach's 1952 work Patterns of Sexual Behavior.

Nevertheless, the majority of this activity occurs, in other mammals as well as in humans, among the young and sexually inexperienced.<sup>224</sup> Therefore, in Kinsey's famous study, 37% of men reported having a homosexual orgasm at some point in their lives, with 74% of those who were ever going to have such an orgasm having done so by age 15 and only 4% leading a life of exclusive homosexuality.<sup>225</sup>

Unfortunately Kinsey didn't ask the precise question that we need the answer to here, but given the small number of exclusively homosexual males in the general population, one can infer from the data a strong correlation between pre-reproductive age and the experience of homosexual orgasms, with a large percentage of the respondents who had had a homosexual orgasm by the age of fifteen going on to generally heterosexual adult reproductive behavior.<sup>226</sup> Furthermore, the results of the large survey

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<sup>224</sup> See note 43 above for a discussion of the "homosexuality" occurring in a large number of cultures where it is reported in the HRAF files. In short, I believe the category to be very imprecisely employed if it is used to cover all same-sex male sexual interactions. When older males have predominantly active sex with much younger partners, and lament when they begin showing signs of adulthood, like leg-hair and beards, I think the practice is closer to boylove than adult homosexuality, and therefore, like boylove, more biologically connected to heterosexuality than homosexuality. As British Uranian poet "A. Newman" complained, "The razor marks upon his face / *Do* rather spoil his youthful grace" (qtd. in Timothy d'Arch Smith's absolutely essential study Love in Earnest, 164).

<sup>225</sup> These numbers are generally accepted to be high by most scholars, but reflect proportions that seem consistent with other findings. Indeed, *exclusive* homosexuality, despite its probable genetically-based dimorphic presence in human populations, occurs in only about 1% of the population in the U.S., England, and France (Baker and Bellis 102-103). In the English and French studies, 80-90% of the respondents who reported homosexual activity also reported having had heterosexual intercourse. See Johnson *et al* and the ACSF study "AIDS and Sexual Behavior in France."

<sup>226</sup> This is consistent with my own experience. I grew up in a neighborhood mixing low income to lower middle class families, and among my male peers there was no shortage of homosexual contact, sometimes involving masturbating together, but also often involving oral sex or mutual masturbation (and there was talk of anal intercourse, though I never witnessed it). I know that these individuals all went on to strongly

administered by Laumann et al suggest the same thing, for they relate that men “who report same-gender sex only before they turned eighteen, not afterward, constitute 42 percent of the total number of men who report ever having same-gender experience” (296). This data suggests two competing models. In the Freudian one forwarded by Rosenman, young males are romantically identifying with their peers, an identification that must then be transferred to females in a process allowing the reemergence of their oedipal desire for their mother—an oedipal desire, furthermore, which has little or no scientific basis and is indeed countermanded by the data concerning close genetic relatives and mate choice. In the second one, forwarded by Baker and Bellis, the developmental psychology of young males often includes a genetically-based propensity for pre-reproductive homosexual activity that allows them to more readily achieve successful intromission at their first chance for copulation with a female.<sup>227</sup> In theory, then, males with early homosexual practice would have their first offspring earlier, and though there’s no data yet to prove this, there is data showing that they become heterosexually active earlier, and in a study of 4,000 British females, females with bisexual experience were four times more likely to have children by the age of twenty than women with only heterosexual experience, suggesting that the same could be true

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heterosexual identification and behavior in their adult lives, leading me to be careful when considering the meaning of early homosexual experiences among males.

<sup>227</sup> The image of the young male becoming sexually excited and ejaculating before achieving intromission is a common joke, one, I think, based on true events, though I know of no specific scientific study to gauge the statistical occurrence of this situation. Of the value of early homosexual behavior, Baker and Bellis write: “The proposed advantage of homosexual contact to males, therefore, is that such males gain more and earlier experience at stimulation of, and copulation with, a partner. As a result, they are better able to court, stimulate and inseminate females when their first lifetime opportunities arise. Such males may thus be less likely to miss the first opportunities for reproduction through inexperience” (118). Baker and Bellis further theorize that a particular combination of genes involved in this process sometimes arrange in a way that codes for a tendency for exclusive homosexual orientation under specific environmental conditions, thus explaining the famous research of D.H. Hamer (and others) suggesting a genetic basis for exclusive homosexuality. Twin studies have also found unmistakable evidence of a hereditary basis for homosexual orientation, lending additional support to the Baker/ Bellis hypothesis.

for males (Baker and Bellis 117). Also, there is data to show that the extent of an individual's previous sexual experiences, including masturbation and other sexual acts, enhances his or her sexual arousal in response to sexual stimuli, which also indicates a role of early sexual activity in the maximizing of later possible reproductive opportunities (Rosen and Beck 194).

To my mind, the Baker and Bellis hypothesis better explains the action in the text, especially given the account of Walter's first successful intercourse, after Walter and his cousin Fred pick up two prostitutes one night. Walter is having difficulty performing, but at the sight of his cousin Fred's erect penis as he hovered over his girl, Walter is inspired to sexual action: "An electric thrill seemed to go through me at this sight, I pulled the other into the same position at the side of Fred's" (117). Rosenman believes this event proves her theory and is a "particularly graphic example of the positioning of women between men, in Eve Kosofsky Sedgwick's phrase, in which the presence of the prostitutes allows Fred and Walter share a homosexual experience under the guise of heterosexual sex" (185). If indeed there is tutelage involved in the world of adolescent homosexual experimentation, and in this Rosenman and I are in agreement, I see less homosexuality and more heterosexuality in this event, especially since human males are universally wired to get sexually aroused at the sight of another couple copulating, a well-known characteristic leading to the appeal of hard-core pornography and which, for Baker and Bellis, is important because it allows human males to enter into situations of sperm competition by copulating immediately after the predecessor, just has been observed in other primates including the pig-tailed macaques (Baker and Bellis 145).<sup>228</sup>

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<sup>228</sup> For studies of arousal patterns in pig-tailed macaques, see Busse and Estep; for speed of human male arousal see Symons, *Evolution* 98-99 and Buss, *Evolution* 61-63.

I am not denying the intervention of “heterosexuality” as a cultural code enforced in the most reprehensible and brutal ways upon those who are inclined to practice sexuality outside of its boundaries, for as a teenager I myself was acutely aware of the force of compulsory heterosexuality and the penalties involved in stepping outside of it. Indeed, the widespread existence—and reproductive benefits—of early same-sex experimentation provides a powerful explanatory paradigm for persistent homophobia in some cultures, for this could readily be a case of gene/behavior/culture coevolution guiding reproductively significant behavior on the part of human males.<sup>229</sup> Nevertheless, I think that Rosenman’s lack of consideration of the biological basis of Walter’s experiences leads her to a rather convoluted and false psychological explanation, for Walter’s homosexual experiences might best, in this context, be termed “pre-heterosexual,” and his graceful move to heterosexual competence underscores the evolutionary basis for the earlier experimentation.<sup>230</sup>

In some ways, Victorian pornography is still a wide open field for literary scholars, for in the course of my project I have stumbled upon mountains of the stuff that has passed generally unnoticed by researchers within our field. The cynic in me knows

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<sup>229</sup> Though the relatively minor occurrence of “adult male” homosexuality suggests a biologically based process in the psychological development of males that encourages exclusivity in sexual orientation, female sexual development involves an entirely different set of ecological and reproductive considerations and shows different patterns of participation that are outside of the scope of this study. For a discussion, however, see Baker and Bellis, 116-124.

<sup>230</sup> Rosenman, in her discussion of Walter’s assertion, “I’ve fucked you,—I’m a man you see,” argues that “this formulation of heterosexual manhood nods toward a crude bottom line, a heterosexist Nature that has configured male and female anatomy so that they are a perfect, unquestionable fit” (175). I realize that my formulation of heterosexuality tends towards just this “crude bottom line,” but given the preponderance of evidence for content-dependent psychological mechanisms, including those specifically detailing aspects of mate selection that are reproductively significant like waist-hip ratio and facial cues of reproductive fitness, it is impossible to conclude anything other than that human sexual tastes were largely shaped within the context of ultimate reproductive success and, thus, heterosexuality. Male same-sex behaviors are not all that uncommon and indeed probably serve to make the individuals involved more competent in reproductive situations; indeed, a failure to reproduce due to exclusive homosexual orientation is actually rare in all cultures studied, including the Melanesian ones where almost 100% of the individuals claim to have experienced at least one homosexual orgasm in their lifetime.

that this situation will not last; with the pressing need for new topics to write about in order to maximize chances for hiring, promotion, and tenure, few literary works, however peripheral, stand much of a chance of avoiding the critic's gaze. Nevertheless, I suspect that most studies of Victorian erotica in the near term will exhibit the current disavowal—and indeed outright ignorance—of the biological and genetic basis for human sexual behavior, and therefore it will be significantly flawed. Ultimately, however, I am certain that a critical practice will be fashioned that incorporates both science *and* constructionist insights, and only then will Victorian sexuality be completely understood by modern critics within our field of literary studies.



## CHAPTER SIX: A FEW FINAL WORDS ABOUT EVOLUTION AND THE VICTORIAN “MARRIAGE” NOVEL

Although I may be in the extreme minority when it comes to scholars within the field of literary studies, I hope that my excitement over ongoing research in the fields of evolutionary psychology and behavioral genetics has been at least a little contagious to my readers. Given the potent combination of extremely sophisticated technologies and advanced scientific methodologies available to current researchers, studies of the genetic side of gene-environment interaction are finally possible that will illuminate the invariable biological foundations of all human culture, allowing political critics a clearer conception of how and why regulatory and hegemonic cultural apparatuses appear so impervious to our attempts to dismantle them. I must admit that during my preliminary explorations of evolutionary psychology I sensed a capitulation on my part that signaled an abandonment of many of the anarcho-utopian principles that had always informed both my artistic and scholarly pursuits. Nevertheless, I have come to believe that an ignorance of science and biology only hampers our efforts to comprehend and alter patterns of culture that quite often exert phenomenal force over our most basic perceptions of the world around us. Moreover, in light of the substantial body of evidence that flat-out contradicts many of the concepts central to contemporary literary studies, the decision to be made seems clear: either completely deny the validity of all scientific explorations, as the “hard” relativists have done, or proceed with an intellectual project to examine the basic assumptions of our field and adjust and reassemble them as

necessary. The advantage of the latter approach is that those pursuing scientific studies would be more likely to view us as allies, for, as I hope I have shown in the preceding pages, scientists do often need guidance when it comes to deciphering the invariable functioning of ideology within all human social networks.

I realize that my chosen text in the preceding discussion might seem rather limited since it delineates only the submerged and specialized world of male sexuality as presented for the arousal of other males, a place of predictable and repetitive events where all females are warm and willing and all penises are “in all the panoply and pride of prickdom, and ready to burst with excitement” (Romance of Lust 228). I do think that the study of human sexuality and mating behavior is a great place to start when it comes to exploring the most basic reasons why humans experience the world around them the way they do, and though female sexuality is perhaps an even more powerful force than male sexuality in the shaping of culture in its myriad forms, pornography nevertheless presents a remarkably transparent window into male sexuality and the way the pressures of both natural and sexual selection have shaped male efforts to circumvent female mate choice in the competition with other males for the greatest possible reproductive success. Finally, as I argued in chapter four, I see all art and literature as inextricably bound up in the evolutionary processes that have shaped almost every facet of human existence, so I don't in any way see the promise of evolutionary literary studies limited only to the consideration of erotic literature.

In concluding here, I would like to look briefly at literary works outside of the insular world of pornography to show how an awareness of evolution and the concept of individual reproductive fitness alters many readings of more mainstream works of

Victorian literature. My approach is especially applicable to the Victorian novel, for marriage was a favorite topic of contemplation for the Victorian novelists, just as the ideologies of class, race, and empire are favorites of the Victorian scholars examining these works.<sup>231</sup> I have always been a avid fan of Hardy's novels, though even in my most ardent days of cultural constructionism I admired his writing for the way it explored the emotional concerns of his characters with a skill and sensitivity that made the reading a powerful emotional experience of my own—tapping into the universal aspects of human existence to produce genuine aesthetic emotion, albeit in a process that was culturally bounded to an extensive degree through the form of the “novel” and my continued participation in the obsolete practice of reading them. I do think, however, that evolutionary studies have much to offer critics approaching these works from a more academic angle, and there is so shortage of scholarship published yearly devoted to Hardy's fiction. Certainly marriage constitutes one of the most omnipresent ideological forces governing human reproduction, and Hardy had plenty of encouragement from his own life to contemplate its vicissitudes, from class differences and frequent unhappiness in his original marriage and, in his old age, an infatuation with a woman almost forty years his junior (Florence Dugdale, whom, upon his wife's death, he married). Nor did

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<sup>231</sup> Jane Eyre is especially illuminating because it has been the subject of intense scrutiny and gone through so many “outings,” each prompted by an emergent ideological paradigm. First it was, for Kate Millett, a chronicle of the effects of patriarchal hegemony in her 1970 *Sexual Politics*. In 1979, Adrienne Rich forwarded a similar theme in *On Lies, Secrets, and Silence*, arguing that it details female powerlessness, though Sandra Gilbert and Susan Gubar in the same year projected the work to special preeminence with *The Madwoman in the Attic*, which argues that Bertha Mason was a sort of “double” for Jane and embodies a recurrent and emblematic figure representing female anger in the face of patriarchal control seen in a host of other Victorian texts. All of these critics thus viewed Jane as a sympathetic character, but then Susan Meyers sensibly pointed out that Jane was implicated in the entire distasteful project of imperialism since her fortune—rather ridiculously bestowed upon her in the narrative of the novel—came from the West Indies. In her 1985 article “Three Women's Texts and a Critique of Imperialism,” Gayatri Spivak also weighed in on what was by then obviously a very impressive industry founded upon the text, pointing out that the real political activity in the text concerned Bertha Mason's status as a Creole, and thus a work about colonialism and the oppressed “other” had been misappropriated by a horde of privileged, white, middle-class women.

the rosy chemical glow of love persist for long in his first marriage, for within the first year of his marriage to Emma he described his situation in the poem “We Sat at the Window”: “Wasted were two souls in their prime, / And great was the waste, that July time/ When the rain came down.”<sup>232</sup> Indeed, when the Preface to Jude the Obscure describes marriage as “the forced adaptation of human instincts to rusty and irksome moulds that do not fit them,” the evolutionary critic immediately discerns a kindred soul. As evolutionary psychologist Geoffrey Miller insists, “humans did not begin to put up with lifelong marriage until they could no longer live off the land, property inheritance became the key to children’s survival, and couples had economic incentives to continue cooperating long after they were no longer on speaking terms” (189).

It is from this point of agreement between evolutionary psychologists and politically oriented literary critics that I want to begin my discussion here. Property *did* change things radically. I do know that there existed before agriculture and property ownership a universal drive to acquire possessions—it is an adaptive human universal trait that lamentably leaves almost every citizen in the world completely at the mercy of advertisers and marketers—but the advent of inheritable wealth in the form of land created a host of new cultural pressures surrounding reproduction. Whereas the penalty of being cuckolded before meant the mere loss of a few years of material support, property inheritance magnified exponentially the dangers involved, and so superadded to earlier adaptive mechanisms like mate-guarding and jealousy were more modern cultural

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<sup>232</sup> As you remember from my first chapters, love probably involves a combination of chemicals, including dopamine, norepinephrine, and serotonin. It also involves brain activity in specific parts of the brain that are easily detected with functional magnetic resonance imaging techniques (fMRIs). This activity recedes with time, and anthropologist Helen Fisher has shown, both through fMRIs and cross-cultural surveys, that love—at least of the “butterflies-in-the-stomach” sort—lasts only a few years in most subjects, which she hypothesizes to be an evolved response to the value of paired couples in the attempt to bring new offspring to a stage of maturity where they no longer require such extensive care. As one would expect given her theory, divorce rates in *all* cultures spike in the fourth year. See Fisher’s Why We Love 72-73.

inventions like marriage and the brutal and abhorrent forms of clausturation still present in many modern cultures. The motivation for the policing of women's reproductive potential by men was explicit, and in 1857 Lord Chancellor Cranworth explained in the House of Lords why adultery on the part of the wife was considered a much more serious offence than adultery on the part of the husband: "the adultery of the wife might be the means of palming spurious offspring upon the husband, while the adultery of the husband could have no such effect with regard to the wife" (qtd. in Perkin 24).

Also, we can assume that property ownership strengthened status markers in the form of social class distinctions. Ascribed and achieved statuses based on factors other than sex, age, or kinship are another human universal on Donald E. Brown's list, and in contemporary cross-cultural studies status is universally involved in mate choice, presumably not only because it is a marker of genetic fitness but also because it is a relatively accurate marker of available resources. Always, then, status foretold greater success for one's offspring in terms of health and greater sexual access to higher quality mates, but the inclusion of property in the process brought about an obsession with social class everywhere, and it is very evident in Victorian literature and, specifically, in Hardy's novels. This is another situation in which evolutionary psychology greatly enriches the received view of the world found in contemporary literary criticism. From the social constructionist perspective, class is an artificial structure engendering the social organization of human lives, and actually creating in humans a preoccupation with status and the desire to manipulate one's own class affiliation. When viewed from an adaptationist perspective, however, class represents the articulation of an innate, content-dependent psychological mechanism—one more marker of mate value in the process of

mate selection, and thus an innate biological preoccupation. A recognition of the reactionary nature of cultural beliefs and proscriptions concerning class enables a truer, more accurate analysis.

There is no shortage of critics delving into the ideology of gender and marriage in Victorian culture, but I would like to single out a few who seem especially important in any study of the ideological context within which innate human characteristics are articulated.<sup>233</sup> Nancy Armstrong's Desire and Domestic Fiction, in which she examines the manner in which Victorian novels reinforced gender differences, gender inequalities, and dominant ideologies, inspired me greatly when I read it first as a social constructionist and still seems important, though she demonstrates in her work absolutely no awareness that patriarchy is a human universal or that such attitudes and beliefs have biological and evolutionary origins. In the same year, she edited with Leonard Tennenhouse another work, The Ideology of Conduct, a series of essays on conduct books that is very much applicable to my own interest in Victorian marriage manuals as a place to encounter the "official" view of Victorian gender politics. Naturally, Armstrong's argument is completely one-sided, as when, for example, she insists in the

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<sup>233</sup> My own conception of the "ideology" side of evolutionary criticism also owes much to Mary Poovey's Uneven Developments: The Work of Gender in Mid-Victorian England, for her examinations of the competing interests submerged in the ideological forces of the period obviously underwrite my own theoretical perspective, despite our relatively different starting and ending points. Likewise, Nina Auerbach's early, pioneering Woman and the Demon provided me long ago with a model for patriarchal forces and female subversion that at least hints at the male anxieties I am postulating in my own "biological" readings. And of course critics like Foucault and Sedgwick are a constant presence in all studies of Victorian sexuality, though I suspect that all of these critics' preoccupation with economic conditions will look to future critics like a temporary fad of sorts, given far greater explanatory power than it ever could have since the fundamental concepts involved—ownership, property transference, etc.—are far older than the context in which they place them as new operative forces. I realize that the exclusion of postcolonial critics like Edward Said, Gayatri Spivak, Patrick Brantlinger, Mary Louise Pratt, and Ann McClintock makes my study look a little old fashioned since that has been the focus of a newer wave of political criticism focusing on Victorian texts. It's not that evolutionary thinking is inimical to their approaches, but I do believe that marriage, mating, and sexual access were more central cultural obsessions of the Victorians and thus represent the logical first place to apply my methodology.

introduction to the latter work co-authored with Tennenhouse that “cultures systematically designate a certain kind of woman as the object of desire” and, therefore, that “expressions of desire in fact constitute ideology in its most basic and powerful form” (1,2). And few critics have accomplished such a breathtaking act of making the subject disappear entirely as she has in her essay “The Rise of the Domestic Woman,” where she complains that “the illusion persists that there is a self independent of the material conditions that have produced it” (135). (This latter assertion, of course, should immediately remind the reader of my own goal, stated at the outset of my study, to “recorporealize.”)

But her thinking is sound up to a point, and her insights help show how desires for certain things—like virgins or high value mates, for example—do involve a complex blend of cultural forces, though she remains totally ignorant of concurrent psychological and biological factors and her model incorrectly posits a one dimensional and one-directional flow of cultural forces. For example, I trust I have sufficiently demonstrated the wide array of evolved sex differences and sex-based mating strategies that render it unlikely that conduct books *created* the representation of the family “in terms of an opposition of complementary genders” (9), though certain aspects of the division, and especially the Christian virtue of submission built into it that is omnipresent in Victorian marriage manuals, are clearly amplified in a particular way by the patriarchal forces of culture. Furthermore, although it is true that the Victorian period saw a unique valuation of the “domestic” woman, the “power of domestic surveillance” cited by Armstrong and Tennenhouse needs to be located within the universal male practices of clausturation and proprietary feelings for women to be completely understood (9). When J.W. Kirton

insists in his nineteenth-century advice manual, Happy Homes and How to Make Them, that a woman “should be like a snail, to keep within her own house,” it is impossible not to see clausturation and a male desire to reduce the opportunities for a female to pursue strategic extra-pair copulations as the underlying motivation (110).<sup>234</sup>

Armed with the traditional tools of cultural and gender criticism, critics have misread many aspects of Hardy’s fiction, and evolutionary theory and biology provide a necessary corrective. As I’ve already shown, marriage always involves the negotiation of myriad cultural and biological forces, for the very institution of marriage itself represents an ideological attempt to extend short-term pair bonding—the biochemical norm for humans—into a lifelong commitment, probably in response to property ownership, the effective transmission of which, in my neofunctionalist reading, is extremely important since it vastly improves the reproductive potential of one’s offspring. The Victorians, including those in Hardy’s novels, display the normal, selfish adult interest in the reproductive success of their offspring.<sup>235</sup> In The Woodlanders and Under the Greenwood Tree, two works of special interest to me here, the fathers attempt to arrange marriages very cognizant of the ability of their daughters, Fancy and Grace, through their acquired education, to marry above their peers and thus alter the class-based constraints

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<sup>234</sup> Kirton repeats the point many times lest the female reader miss it, including the direct admonition: “While it is a man’s place to be out, it is a woman’s place to be at HOME” (capitals in original, 121). In another representative marriage manual, Courtship and Matrimony, Henry Heavisides observes, among a huge list of wifely duties all involving staying at home, that “A good wife attends to the kitchens, and the pantries, and the closets, and sees that the hobs are dusted, the grates brightened, and the fenders and fire irons polished” (80). Here I think the proper epistemological view of the ideologies involved in the proliferation of duties must consider evolutionarily-shaped clausturation as a primary originary force.

<sup>235</sup> I always say that reproductive success can only be measured at the kinship level of grandchildren. In my biological reading, the accumulation of capital throughout an individual’s life is inextricably bound up in the process through which it confers reproductive benefits on the offspring, and, furthermore, is part of the status system that has no doubt been a constant part of human reproductive behavior from the very beginning. In this, we find an excellent depiction of ultimate and proximate goals, since the conscious and proximate goal of most individuals, the acquisition of status, is only sometimes connected in their minds with the ultimate motivations concerning differential reproductive success.



on future offspring. In the words of Penny Boumelha, “the daughter is at once the object of and vehicle for the social ambition of the father” (134). In failing to ground the social obsession with class in Hardy’s novels in evolved psychological mechanisms concerning reproduction, however, Boumelha doesn’t seem to understand entirely what is really going on, and her work provides a great opportunity to discuss the merits of biologically aware criticism.

Capitalism rears its head in Boumelha’s discussion by supposedly creating the participants’ obsession with status, but, as we have seen, status is a universal force shaping human behaviors that is merely articulated through new social structures based on property ownership, not capitalism itself. Therefore, she sees the characters’ obsessions with making the right matches, with the navigation of shifting class affiliation afforded one through mate selection, as an eroticization of “otherness.” Instead, I would argue, it is Hardy’s unsentimentalized depiction of how mate choice inevitably works. Boumelha’s rather general invocation of otherness—which could apply just as well to farm animals and foreign travelers—misses the point that very specific negotiations are going on in Hardy’s novels, for resources are essential in the economy of reproductive success.<sup>236</sup> Hardy was aware, too, that material resources aren’t the only important factor in mate choice, for kindness and a willingness to share, as well as physical markers of status like physical beauty, are always rated highly in crosscultural examinations of mate preferences (See Buss, Evolution 44-48). All critics seem certain that Grace, who

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<sup>236</sup> In theory, the eroticization of “otherness” cited by Boumelha here *could* exist as a cultural mechanism coevolving with the biological principle that greater reproductive fitness results from marrying into greater availability of resources. However, at least when I read these works, I don’t see this happening, and the eroticization of otherness seen in Victorian pornography, where genuine eroticism was involved in the selection of lower-status and native females for short-term copulations, provides a stark contrast to the shrewd attempts to manipulate status hierarchies by the female characters’ fathers. Therefore, recognizing the universal mate choice mechanisms functioning in Hardy’s novels as the primary inspiring force in the characters’ motivations provides a much clearer idea of what is actually occurring.

marries the doctor Fitzpiers in The Woodlanders, makes an awful choice, for Giles Winterborne, the hero of the novel, would have made a steadfast and devoted mate. Indeed, when Fancy Day marries Dick Dewey instead of the Reverend Mr Maybold in Under the Greenwood Tree, Hardy presents the reader with a presumably happy pairing involving a man slightly beneath the woman in terms of social class yet deserving just because of these other sorts of resources like kindness and steadfastness. Both mate choices, though, follow a decipherable evolutionary logic, and the former, while demonstrating Hardy's sardonic view of the lure of "stuff," as I like to call it, and the privileges that having lots of "stuff" bestows on the owner, is a perfectly explicable, common, and perhaps even desirable when seen through an evolutionary lens.<sup>237</sup>

But Hardy always presents marriage as involving an economy of decidedly important evolutionary forces. One of these, of course, is love, which brings about its own generally assortative pairings of individuals according to class, status, resources, intellectual ability, and looks. Another is class, which in Victorian England became an obsession, perhaps because, as Joan Perkin argues in Women and Marriage in Nineteenth-Century England, the industrial revolution created new economies through which to gain wealth apart from the traditional patterns of landed inheritance.<sup>238</sup> Always there is, as Nancy Armstrong argues, a system of patriarchy that not only constrained

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<sup>237</sup> I don't mean desirable as in "let's all go out and do it." Instead I mean it as desirable in terms of differential reproductive success, even if it leads to unhappiness on the part of the individual participant, as it probably will in the case of Grace (though, given the adequate resources of Giles, Grace's decision may have represented the maladaptive response of a psychological mechanism valuable in earlier ecological contexts yet less important in Grace's Victorian community). And lest this observation sound too deterministic, I point out to the reader that Grace had a panoply of choices, and chose one displaying an obvious sort of evolutionary logic.

<sup>238</sup> Perkin asserts: "The middle classes guarded their hierarchical boundaries very carefully. There were infinite gradations of status, expressed not only in religious affiliation, education, forms of leisure, dress, style and location of house, number of servants employed, but also in who spoke to or called on or dined with whom" (234).

mating opportunity but also attempted to impress upon eligible individuals, especially females of marriage age, approved desires coherent with the ideological system in which they were imbedded. In addition, there is female mate choice, as Mr. Day learned in Under the Greenwood Tree, the importance of which Hardy understood since the female control of sexual access serves as the fulcrum of many of his novels, including the two under discussion here, a situation complicated by the fact that, as observed by Perkin, “the marriage market had the unintentional consequence of providing a breeding ground for rebellion against the traditional role prescribed for wives” (250). The list could go on, but these should be sufficient to emphasize my point that each of these forces is both powered by and illustrative of evolved, genetic components of human behavior, and in my readings of these two novels, ideology and cultural norms do not exist in the disembodied realm of “culture,” but rather in constant and inseparable dialogue with evolved psychological mechanisms.

The fact remains that there has been very little “practical” scholarship devoted to the intersection of evolution and literature, and I realize that the concluding third of my project here constitutes a minor addition to the amount that does exist. Still, future critics will undoubtedly fill up the gap as ideological resistance to such projects weakens within the academy. In truth, the growth of most trends of criticism can be neatly traced in the establishment of publication opportunities receptive to them, for above all, literary studies, at least in America, is primarily about maintaining one’s credentials in the eyes of hiring and promotion and tenure committees. So far, the most prestigious journals in American literary studies have largely ignored the possibility that biology could constitute a realm of analysis necessary for the comprehension of all literary works,

which I think is at least partly due to specialization within graduate study as well as the astoundingly limited scientific education most literary scholars have received throughout the course of their entire education. Nevertheless, I envision a future where literary scholars will be educated in the sciences enough to make significant connections across the fields of literary studies and evolutionary biology, and I suspect that current modes of critical exploration will appear extremely limited once that occurs.

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