A Regiment of Monstrous Women:

Female Horror Archetypes and Life History Theory

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Abstract

Recently, psychologists have started to extend evolutionary behavioral analysis to art and literature. A standpoint that humans are non-accidentally narrative beings, that seek for meaning in their social interactions, has become more widely accepted among scholars. However, the question of whether story telling has an adaptive function, or is a pleasurable by-product is still debated. For story-telling to be adaptive, narrative would need to instruct. For example stories might be shown to help solve local issues of bulk information processing—what is known in AI as the frame problem. On the other hand, merely pleasurable story-telling would show no adaptive variation depending on local threats and opportunities.

Across human cultures through time and space, the pattern of story-telling has been that both sexes share and consume stories. Given that much of the patterns of human mating show antagonistic and competitive elements it is thus unlikely that an adaptive function for story-telling is the answer—or else key tactics, stratagems, and patterns would be being handed to the opposition. However—human social adaptions evolved in an adaptively relevant environment of small groups of close kin. In this ancestral environment, story-telling could have had adaptive functionality and the pleasure that we have in them now could be as a by-product of our being keyed to this system.

Humans enjoy and share stories and it is not accidental that we acquire social information in this way. However, it does not follow that the telling of stories per se is a necessary condition of learning, any more than the consuming or artificially sweet foods is necessary simply because it too is pleasurable. Story telling could persist because it presents super-normal, rather than

realistic, stimuli of pleasurably recognized patterns of interaction. This is especially notable in the case of horror stories.

The contention of this study is, therefore, that story telling persists and is enjoyable because it taps into universally recognized patterns of human interaction across time and space. Contrary to some accounts of human social life, patterns of human expression are not random or arbitrary, and a biological understanding can illuminate eternal themes and concerns. The expression and repetition of these themes in numerous combinations—e.g. stories--has served to allow humans to process virtual interactions of both past and possible futures in meaningful ways. Viewed in this way, stories are ways to make sense of past experience, integrating them into the biography of an organism that lives in a world of social meaning.

In pursuit of furthering study in this area, I present a preliminary thematic analysis of specifically female characters in horror stories. I hope to show it as plausible that female horror characters--their goals, concerns, threats they pose and opportunities they find--track the four major reproductive life history stages in humans. Female horror characters at puberty, mate selection, motherhood and menopause show themes and concerns consistent with the critical life history decisions to be made at these stages. These patterns show signs of being both long-lived and cross-cultural. It is hoped that further studies will explore these themes in more detail and start to abandon the sterile concerns with psycho-analytic or arbitrary constructionist approaches to psychological aesthetics.

Introduction

What makes women scary? Those unfamiliar with the genre of horror might be forgiven the naïve assumption that female characters only appear as the screaming victims of male psychopaths. Not so. Female protagonists are so often the action heroes of the horror genre that there is a specific genre term, Final Girl, applying to this character (Clover, 1992). More surprising to non-aficionados, females frequently feature as the active horror antagonists in films and books. Female horror villains are often the focus of the fear and disgust emotions that so characterize the genre. Furthermore—this is not a new phenomenon. Attention to the mythological and ethnographic record reveals a host of similar female characters across time and space.

The naïve view of women in horror parallels the naïve view of females in reproductive biology, that is only recently undergoing transformation (Judson, 2002). The coy female—passive recipient of ardent male mating attention is an outdated model (Connallon, & Clark, 2013). Females partake in both inter-sexual manipulation and intra-sexual competition (Campbell 2013; Wasser & Barash, 1983). Females of all species have a rich suite of strategic options to maximize fitness rather than (say) just patiently waiting for their primate prince to come. In humans, examples include enhancing apparent fitness (Symons, 1995), manipulating strategically important information (Haselton, Buss, Oubaid, & Angleitner, 2005) denigrating rivals (Drea, 2005) and producing differential responses to sexual partners on the basis of reproductively salient features (King & Belsky, 2012).

Art offers a unique window into human nature. We are designed to gain intense enjoyment from the presentation of what was once critically important social information through stories (Gottschall, 2012). The premise of the current study is that by paying attention to a popular, persistent and remarkably congruent style of art—horror stories—we can gain insight

into human reproductive biology. Furthermore, that this is prima facie evidence that humans have been using this mechanism to gain such insights for millennia—although in the present era our reproductive fitness no longer requires this ability.

Story-Telling

"Telling stories is as basic to human beings as eating" (Kearney, 2002, p.1). Gottschall (2012) avers that humans' narrative ability is central to our nature. According to him we are "The Story People" (p. 18), who live in stories as essentially as fish live in water. Narrative is a prototypical human trait—a universal found in every one of the six thousand cultures examined by anthropologists to date (Brown, 1991). Story telling around the campfires of modern hunter-gatherers probably matches that of our ancestors (Blurton Jones & Konner, 1976). It has been found that, in contrast to the daytime talk of practicalities and gossip, fireside stories evoke the imagination and aid in social understanding (Wiessner, 2014). Glowing screens may have replaced glowing embers but we still gather round to share stories—and the themes of these tales show remarkable congruence across time and space.

Plots invoke causality. Forster (1927) expressed it succinctly. In a mere *story* the king died and then the queen died. For this to be a *plot* the king died, and then the queen died of grief. History is not just one damned thing after another (King, 2013; Toynbee, 1976). Humans can no more help imparting motives and goals to human actions than they can see a billiard ball striking another and fail to see causality (Hume, 1739). Even the actions of abstract entities like circles and triangles moving around a screen are endowed with characters, goals and moral value (Heider & Simmel, 1944).

One thing behavioural scientists might confidently predict is that any species that produces art is likely to be obsessed with certain themes that have been reliably reproductively salient over periods of deep time. Indeed, even in species that do not themselves produce art—such as Rhesus Macaques—the visual representation of reproductively important events demands their attention (Watson, Ghodasra, Furlong, & Platt, 2012). However, surprisingly little recent attention has been paid to looking at human art through a reproductive lens despite calls to do so (e.g. Carroll, 1995). However, there is evidence that this inertia is starting to be overcome—for example through applying sophisticated biological understanding to certain erotic forms (e.g. Salmon, & Symons, 2004), classic literature (Carroll, Gottschall, Johnson, & Kruger, 2012) and horror itself (Clasen, 2010; 2012).

As yet though, evolutionary theory has yet to fully prize art analysis from the dead fingers of the Freudian and Historicist approaches that dominate media studies (e.g. Creed, 1993; 2005). Freud's theories (e.g. Freud, 1919) do represent an early attempt to apply biological lenses to culture (LeCROY, 2000) and deserve the credit due to pioneers. But, we have moved on in our biological knowledge in the last hundred years. If Freud were working today he would surely have kept up to date with current biology and we would urge current Freudians to do likewise (Ritvo, 1965). By contrast, purely historicist accounts rely on a wildly implausible dualism that divorces human minds entirely from their ecologies. It is no surprise that such post-modernist accounts appeal to no-one beyond the academy (Pinker, 2002).

One way to bridge the gap between culture and biology might be to recognize that many of the central themes of human story-telling are biologically salient characters, themes, and interactions. Biesele (1993) compares stories to other key human cultural advances like nets—allowing us to increase our cognitive carrying capacity. "[F]olklore, far from being a kind of

cultural froth may actually represent an important phase in the systematics of the knowledge of hunter-gatherers" (Biesele, 1993, p. 43).

Stories give us many things—but especially they give us handy tropes, characters, and interactions. It has been variously claimed that there are only seven (Booker, 2004), twenty (Tobias, 2012) or maybe as many as thirty-six basic plots (Polti, 1916). This is not a question I need to pursue here—and any answer would depend on the level of abstraction chosen. However many plots there are, the various possible combinations of character and plot expand potential stories just as rapidly and exponentially as the number of potential sentences (Pinker, 1994). Without constraints, the resulting combinatorial explosion would soon become computationally intractable. Therefore, one could see stories as partial social solutions to the basic problem of artificial intelligence—the frame problem (Dennett, 2006; McCarthy, & Hayes, 1968).

The Frame Problem

It is almost a cliché of AI research to say that intelligence is the ability to pursue goals in a variety of settings. In practice, delineating the parameters of an information-processing module, for example what counts as success and failure at a task, when processing should cease, and so on, are computationally very difficult to model.

The implication of this is that it's hard to conceptualise how a complex information-processing creature like a human could even begin to act in the real world. A key insight is Papert's Principle, which has been described as follows: "Some of the most crucial steps in mental growth are based not simply on acquiring new skills, but on acquiring new administrative ways to use what one already knows" (Minsky, 1988, p. 102). Stories are a way to reassemble chunks of very computationally dense data—characters and plots.

Some prominent AI theorists have put the frame problem in terms of the human ability to draw analogies (Chalmers, French, & Hofstadter, 1992; Hofstadter, 2001; 2008). Artificial intelligence researchers are not alone in recognising the key role of metaphor in human thinking. As the anthropologist Megan Biesele (1993) puts it "Metaphor has a multiplier effect on experience" (p. 20). Stories are bundles of complex analogies and metaphors. The sheer amount of information contained in a character like *A Hero* (strong, brave, capable, put-upon, unfairly treated, possessed of hidden virtues, etc.) allows the processing of complex interactions that even now, even with Moore's law still accelerating, we cannot yet replicate artificially.

It is tempting at this point, for those championing a blank-slate view of human cognition, to appeal to the role of salience in organising human minds. But this is to beg the question with a vengeance. Even right at the beginning of the associationist program in psychology, prominent researchers confessed that without some way to conceptualise prior instinctual organisation, they were at sea. Organisms kept misbehaving by refusing to do what they were reinforced to do (Breland & Breland, 1961). Radical behaviourism foundered precisely on the rocks of salience. What exactly makes a stimulus salient? The answer had to include—millions of similar interactions which generated embedded connections and expectations. All sentient organisms, to use Marcus' (2004) phrasing, have to be "organised in advance of experience". Stories organise human cognition, making social interaction cognitively tractable. As this theory would predict, the lack of such a narrative ability shows itself in characteristic inability to simulate normal human interactions (Harris, 1992).

Adaptations and By-Products

The how and why of story-telling are distinct questions. However—a consideration of the why questions allows us to consider various reverse-engineering questions that allow us to gain better understanding of the how questions while not replacing them (Tinbergen, 1963). Did story-telling come about because it was an ability that contributed to fitness (i.e. an adaptation) or does our love of stories reflect other adaptations that story-telling piggy-backs upon? There are a variety of possibilities.

The by-product possibilities for story-telling are that it provides vicarious pleasure of experience or the simulation (maybe super-stimulation, Tinbergen & Perdeck, 1950) of social information, i.e. gossip (Dutton, 2009; Pinker, 2007). On the other hand, for story-telling to be adaptive it would have to be shown that stories provide detailed local information on social norms or thought-experiments allowing a sort of practice in advance of actual experience (Dutton, 2009; Gottschall, 2012; Valli & Revonsuo, 2009). There is a final set of possibilities—that stories themselves represent capsules of information (sometimes called "memes") that replicate and compete in the manner of genes, but with a totally different informational substrate (Dennett, 1993; Heinrich, Boyd & Richerson, 2008, Sperber 1985).

"All art is quite useless", quipped Oscar Wilde. Pinker (2002) goes further—not only is art useless but it is conspicuously useless. Miller (2011) goes further still. He argues that the very uselessness of art may be a hard to fake display of other underlying qualities attractive in prospective mates (Zahavi, 1975). However, attempts to find a current adaptive function for artistic endeavor have not been forthcoming. Similarly, the idea that stories draw upon our delight of beauty or gossip cannot be the whole picture. This is especially obvious with horror stories. Clover (1992) points out that horror aficionados are masochists, not sadists, Kermode (2009) calls horror films "controlled ordeals" and Palahniuk, in the preface to the collection,

Haunted (2006) relates how he is disappointed if at least one person does not faint (and have to be carried out) during a public reading of his short story, Guts. Horror stories that do not provoke negative emotions have failed.

Paul Shephard hints at a functional explanation for story-telling when he says that "Among the biological characteristics of the human species is the specialization of some parts of the central nervous system for storing and transmitting information symbolically" (Shephard, 2007). Stories pack an informational punch. In addition—they are intrinsically interesting to engage with, such that we seek them out in absence of obvious direct relevance to our lives. This integrated ability of story-telling and receiving has at least some of the hallmarks of an adaptation. It is a complex integrated pattern of behavior, reliably and rapidly acquired across cultures, with minimal environmental input, high resistance to extinction (Atran, 2002) and by-products in terms of inappropriate intentional attributions (Boyer, 2001).

Some have suggested that this seeming functionality needs to be framed in terms of group-selection (Gottschall, 2012) and we would agree that groups that facilitated social understanding—via simulated interactions-- would out-perform groups that did not. However—ancestral groups were originally (largely) kin groups. There is no need to invoke group selection per se, which in its classic formulation could only trump normal kin selection if the groups themselves bud and reproduce faster that the elements that make them up (Price, 1972). This is a technically possible but unlikely scenario for humans (West, Griffin & Gardner, 2007). More importantly—it is not necessary to envisage group selection to explain the appeal of story-telling. This is because story-telling evolved in conditions very unlike our present day conditions. If story-telling facilitated social cognition then it is important to note that, for millennia, this occurred in conditions of close kinship—or mutual reciprocity.

But, we no longer tell stories just to our kin around the fire. We now live in conditions where we have professional story-tellers who can play on the sensibilities evolved to enjoy this process. In a similar way, we can pay confectioners to stimulate those areas of our pleasure centers that previously required hard work, local ecological expertise, and the braving of ferocious bees to achieve. This would mean that stories served an adaptive function once—and to some extent still do—but now are largely a window into our evolved nature.

Life History Theory

A powerful interlocking set of explanatory tools in behavioural biology is life history theory (Stearns, 1976). Life history theory describes a set of economic predictions about the allocation of resources across the lifespan of organisms. Resources are finite, and fitness can only be maximised by appropriate facultative responses to the sets of threats and opportunities that have occurred repeatedly over evolved time.

The phenotypic effects of such facultative adaptations can be profound. For example, it had been thought that that we now know as Coho Salmon were two separate species. However, it transpires that Jack Salmon (small, sneaky and cryptically colored) are genetically identical to Hooknose Salmon (large, aggressive and brightly colored). Morphologically and behaviorally, the larger, coloured, and armoured Hooknose Salmon have put more resources into their growth and have a totally different look and attitude to the smaller, cryptic Jack Salmon (Gross, 1985).

The most fundamental trade-off described by life history theory concerns the allocation of resources to bodily repair or to reproduction. Organisms that opt for an early reproductive strategy will live fast and die young (Wilson & Daly, 1997). They will reproduce at earlier ages, but will have fewer resources to invest in offspring (Gillespie, Russell, & Lummaa, 2008). For

example, a Finnish population that suffered early childhood stressors—reliable cues to later risky environments--started menstruating earlier than one that did not (Pesonen, Räikkönen, Heinonen, Andersson, Hovi, Järvenpää, ... & Kajantie, 2008). On the other hand, organisms with cues to higher reproductive investment opportunities will maximize their fitness by hedging their bets for longer, and investing more heavily in offspring. For example, in a rural Gambian population, Sear, Shanley, McGregor, & Mace, (2001) found that only the higher phenotypic quality mothers (e.g. those taller or more muscular) could offset the health costs of having twins.

Life is not a smooth transition from conception until death. There are crucial points at which allocation of resources along life history lines must be made to maximise fitness. These choke-points represent decision switches at which particular strategic responses are cued by the environment. Humans have especially interesting life history transitions because of the slowness of infant growth and the need for allo-parenting--large amounts of parental investment from multiple adults (Hrdy, 2009).

The four key human female life history transitions.

In human females the first reproductive decision is to switch from growth to reproduction. This is the onset of puberty. Delayed pubertal onset is associated with cues that would have favoured a slow life history over evolved time—such as the presence of resource-giving fathers, and environments that cue for safety and security. For example, markers of low local male investment in reproduction—such as father absence in childhood—cues human females to enter puberty younger (Belsky, Steinberg, & Draper, 1991; Belsky, Steinberg, Houts, Friedman, DeHart, Cauffman,... & Susman, 2007). Pubertal onset in females brings with it sexual desires and sexual signals—such as the bodily changes to an hourglass shape indicating

fertility (Biro, Lucky, Simbartl, Barton, Daniels, Striegel-Moore, ... & Morrison, 2003). One risk associated with this is the drawing of the attention of sexually predatory males. At this stage, fathers of daughters tend to become jealously aware of such potential dangers (Lieberman, Tooby & Cosmides, 2003).

The second major transition concerns the allocation of resources to either mate acquisition or parenting. Here again, taking one's time, and considering safe options, is favoured by a predictably safe environment (Schmitt & Buss, 2001). Risky environments favour risky strategies such as mate poaching—which runs the risk of jealous reprisals. A key decision to make at this stage is whether to favour short or long-term mating (Buss & Schmitt, 1993). Once again—responses to predatory males form part of the risk terrain for female decisions.

Mate selection leads to the third stage, motherhood (Hrdy, 2009). The allocation of resources to offspring themselves now form a major set of decisions. Threats here now focus on children and the competition for resources that children may represent (Daly & Wilson 1988; 1998; Hrdy, 1979). Children themselves are vulnerable and require extensive protection to be viable. This may be at the expense of others' offspring if resources are tight (Hrdy, 1979). Children, however, may not be viable, and the continued fitness of the mother may require defection from motherhood under circumstances where the child's viability is suspect (Hagen, 1999). Offspring can cue mothers for non-viability for a number of reasons such as ecological markers of famine, cues to low familial investment, or visible congenital deformities. These all predict post-partum depression in mothers (Hagen, 1999). On the other hand, if the offspring is viable then resources need to be freed up to support and protect them. However, even here there is potential conflict as children and parents will be of necessity in some degree of biological

dispute as the allocation of resources to the child can only occur at the sacrifice of resources to other potential offspring (Trivers, 1974).

Finally, human females pass through fertility to a stage, menopause, where their fitness is maximised by investing in the offspring of their offspring—grandchildren (Lancaster & King, 1992; Williams, 2001). Once again—the timing of menopause is crucial. In stressed populations all of these stages happen faster in humans, lending credence to the theory that the whole of life history is accelerated under stress conditions (Hardy, & Kuh, 2002). There is no parent-offspring conflict at menopause stage—because grandparents are not hedging their bets in favour of possible future other offspring. However, there are others (e.g. others' grand-children) that might compete for the resources that grand--offspring might have, and these form the basis for potentially competitive interactions.

What is Horror?

Horror combines the primal emotions of fear and disgust, with some element of the uncanny (Lovecraft, 1945). The perpetrators of horror in stories are antagonists who are intended to shock and appall us in some fashion. This is true even if some parts of their character can fascinate and attract us. The reasons for this occasional ambivalence can be found in the fact that evil—a closely allied concept to horror--can be analyzed in terms of the way the concept tracks fitness costs imposed on others (Duntley & Buss, 2004). Given that reproduction has inherently competitive features, we are all capable of imposing fitness costs on others, and thus all may feel a sneaking sympathy with some horror protagonists from time to time. I seek to extend the Duntley and Buss (2004) analysis of evil into specifically female forms of cost imposition as represented by specifically female horror protagonists.

This ambiguity is more rarely found with other horror monsters, many of whom do seem to be abstractions of apex ambush predators (Clasen, 2010, 2012; Jones, 2002; Ketelaar, 2004; Scalise-Sugiyama, 2006) or potential disease vectors (Clasen, 2010).

My analysis will not attempt a water-tight definition of what constitutes the horror story proper—but will explore all manner of stories--filmed, written, or spoken--with horrible themes and action. Fairy stories, which evoke all the same emotions in children (Bettlehiem, 1978; Bloch, 1978), and adults (Carter, 1993) seem to be on a continuum with adult horror, as do mythical tales with similar themes and some stories in the thriller genre. I will not be seeking to put sharp distinctions between these types.

The sort of horror I am referring to requires conscious agency of some kind. Many things in life are horrible. Starvation would make a good example. The daily news in which real humans are really dying of starvation is a horrible state of affairs. However, starvation would only become a subject for horror fiction with the addition of a malignant agency. Forced starvation for the purposes of skinning, or actual cannibalism, as in Silence of the Lambs (Demme, 1991), is the stuff of horror stories as used here. The boundaries of what counts as a natural (rather than an agentic) evil can fluctuate—as when people attribute natural events to witchcraft, for example. If this was done in a story then this would count as a true horror story as I am using the term.

Why are such horror stories so persistent across both time and space? An obvious answer is that the horror preoccupations, tropes, and resolutions, continue to be found psychologically satisfying by audiences. Fear has been a crucial element in human survival. The comparative absence of genuine threats in a modern environment (Pinker, 2011) has not kept pace with a suite

of responses to potential threats to which we are biologically prepared to be alert (Öhman, & Mineka, 2001; Seligman, 1971). Fear is a tool that effective-story-tellers can use by evoking ancient patterns and responses.

A central claim that I make in this paper is that horror stories frequently revolve around those most natural events in the world—reproductive decisions. However, a sense of horror did not evolve to accurately track genuine metaphysical evil. It evolved to frighten us into avoiding or anticipating threats that we did not fully understand. For example, we do not today need a sense of brooding corruption and contamination to keep us safe from infection. Instead, we understand germs (Douglas, 1966). But many of our past adaptations have been turned to games, past-times and (nearly) idle thrills. Our natural desire to attend to such ancient menaces has become modern entertainment. Or, as the great horror-writer Lovecraft himself (1925) might have put it, "Things have learned to walk, that ought to crawl".

Method

As a proof of concept, I have attempted a theoretically-driven thematic analysis (Braun & Clark, 2006) of horror stories, fairy stories, and thrillers with horror themes. Thematic analysis is a foundational qualitative method with the potential to add value to data in terms of richness and complexity. Thematic analysis is independent of theory and epistemology and therefore is suitable for a highly flexible first pass at explanation. For each female horror archetype I have tried to draw out the key semantic elements (such as dominant colors, behaviors, attitudes, moods, themes and oppositional forces). I have then drawn attention to iconic characters that typify these elements. These surface or semantic themes are then shown to be linked to the proposed latent themes of life history theory.

I have emphasized modern western female horror characters simply because of my familiarity with the genre. In addition, it must be stressed that this analysis is qualitative, rather than quantitative in nature. However, some very rudimentary controls have been introduced. As well as western examples—mainly from the English speaking world—examples have also been found for each archetype from myths and fairy tales, non-English-speaking European film, and Asian film cultures. These last two film-making cultures have writers and directors that self-consciously emphasize their independence from Hollywood cinema.

In addition to these, a very non-systematic offering of similarly themed female archetypal characters from myth and legend has been sketched out. Where possible this has included similar characters drawn from the anthropological record and I would like to invite criticism and comment from anthropological specialists in particular. If this analysis is to have any credibility then clear precursors to the archetypes I have sketched out should be present across cultures (Lévi-Strauss, 1955; Jung, 1964).

Results

For each archetype, the corresponding life-history stage, and the potentially dark decisions affecting the reproductive fitness of those around that can characterize it, was identified. The question then became, "How well do these life-history stages map on to the female archetypes represented in this qualitative first pass?" The answer is--remarkably well. *Table 1* summarizes and organizes the themes found in female horror characters. *Table 2* shows comparisons of iconic female characters across different cultural backgrounds. Below, I explore these surface and latent themes in more detail, with examples.

A Typology of Female Horror Perpetrators

1) Scary young girls.

The first developmental boundary stage—puberty--is represented by *scary young girls*. They are unsettling precisely because they stand on the cusp of puberty. They are nearly sexual beings but this archetype is distinguished in the story by never having sex. Little Red Riding Hood is the fairy story version, with a remarkably long history (Tehrani, 2013). The Biblical Eve, before the fall, of course, is another spiritual ancestor of this type as is (probably) Pandora (Hesiod, 570). This archetype is not confined to the western canon, but is present among the Bushmen of the Kalahari too.

"[The anthropologist], Sigrid Schmidt likened the Ju/'hoan / G!kno//'amdima cycle to 'Snow White, 'Red Riding Hood', and 'Cinderella' all rolled into one" (Biesele, 1993, p. 36). G!kno//'amdima's myth cycle embodies many of the themes explored here. But, for the present archetype, as Biesele (1993) puts it "The equation of a sexual object with a hunted object, as we have said, is one which emerges over and over again in Bushman folklore, as it does in the metaphysical systems of numerous peoples throughout the world" (p. 152). The very title of her book "Women like Meat" (which has the same ambiguities of meaning in the original language) deliberately captures this predatory aspect to male and female sexuality (Biesele, 1993, p.2).

More modern iconic examples of pubertal young girls include Regan in the Exorcist (Friedkin, & Blatty, 1973), Ester in Orphan (Collet-Serra, & Silver, 2009), Aurora in Sleeping Beauty and Maleficent (Geronimi, 1959; Stromberg, 2014), Carrie in the eponymous films (De Palma, & Monash, 1976; Peirce, 2013), Sadako in the Ring (Nakata, 1998; Verbinski, & Parkes, 2002) and Eli from Let the Right One In (Alfredson, 2008).

Each of these characters symbolizes emerging female sexuality, and the effect this can have on some potentially predatory males—who are typically framed in hunting mode or as hunting creatures such as wolves. Sometimes the symbolism of emergent puberty and the relationship to blood (Knight, 2013) can be pretty heavy handed—such as the rain of blood or tampon-throwing scenes in Carrie (De Palma & Monash, 1976). Sometimes the symbolism is a little more subtle—such as Aurora pricking her finger and bleeding, hence falling under Maleficient's curse, just before her sixteenth birthday (Geronimi, 1959; Stromberg, 2014).

In a related piece of symbolism, often these characters are said to be possessed or to have uncanny powers. Regan in the Exorcist (Friedkin, & Blatty, 1973) is a prime example of this. It seems plausible that the dramatic changes in emotions and desires attendant on pubertal hormonal change can seem like demonic possession. Part of the way that these characters work is that they play on the mixed feelings of sexual attraction and protectiveness in some members of the audience and this allows directors to explore and unsettle with these emotions.

The recognition of that duality can be especially unsettling to males. Some films explicitly play on this tension. For example, the character of fourteen-year old (but appearing younger) Hayley Stark in Hard Candy (Slade, Korenberg, & Allen, 2005), certainly evokes feeling of horror in many male audience members. Reportedly, many of these walked out in early screenings when the sexual intentions of the male protagonist became apparent (Kermode, 2006). Eli, from Let the Right One In (Alfredson, 2008) is also a sympathetic, although unsettling character with nascent sexuality. The archetype represented here may tempt males with thoughts of sex—illicit sex--but this female archetype does not actually have sex. This feature is one of the things that distinguishes them from the second type.

2) Sexual predators.

Sexual maturity opens up a range of opportunities and threats. Mates may be poached from others or one's own reproductive decisions could be subject to hijack by predatory males. Each of these possible paths generates its own typical female horror archetype.

Predatory, dangerous, man-eaters.

This type of female character is sexually active—or at least sexually awakened—and may steal mates away. The figure of the Siren has a set of properties that keep recurring over time and place. They have a variety of ways of removing the male mate from the reproductive pool. The character is defined in antagonistic terms in that an already mated male is stolen or somehow ruined. Iconic examples include Catherine Trammell in Basic Instinct (Verhoeven, 1992), Evelyn Draper in Play Misty for Me (Eastwood & Daley, 1971), Jennifer, in Jennifer's Body (Kusama & Dubiecki, 2009), and May Dove Candy in May (McKee, Balchunas, & Sturgeon, 2002). The character of Core (played by Beatrice Dalle) in Trouble Every Day (Denis, 2001) somewhat launched the phenomenon of French Cinema Extreme. She is a femme fatale who steals mates and renders them unfit for purpose by devouring them. An Asian version who explores the same antagonistic elements is Asami in Audition (Miike & Fukushima, 1999).

G!kno//'amdima's sister who is embodied by a jackal (a monster) in the Bushman mythology tries to drown her sister and steal her husband (Biesele, 1993, p.28). In some versions G!kno//'amdima takes refuge from this sexual predator with her grandmother—which calls to mind the Red Riding Hood myth.

Some versions of the Judeo-Christian creation myth—the Babylonian Talmud--have the first woman as Lilith, not Eve. Lilith is a sexually awakened character who demands equal rights

with Adam. She is pursued to the four corners of the earth and torn apart by demons for this hubris (Sayce, 1887). The predatory female horror character is a sexually powerful woman who can manipulate and steal males from existing relationships. At the very least, an existing prior relationship is shown to be threatened by predatory female sexuality.

Occasionally this theme has somewhat racist overtones—as in the film Abby (Girdler, 1974). However, the core of the message is the same—predatory female sexuality is a dangerous force. Euripides' Bacchae are groups of monstrous females who embody these fears as well as having elements of other female horror characters such as castration and cannibalism (Euripides, 2004). Sometimes the female predator just steals bits of males (e.g. May Dove Candy, McKee, et al., 2002). Sometimes, she is a scorned women taking revenge. Herodias—mother of Salome who asked for John the Baptist's head is arguably of this type (Mark 6: 21-28). More modern versions such as the unnamed ghost from The Woman in Black (Hill, 1983; Watkins, 2012) Alex Forrest in Fatal Attraction (Lyne, Jaffe, & Lansing, 1987), Lola Stone from the Loved Ones (Byrne, Lazarus, & Boughen, 2009), and Peyton Flanders from The Hand that Rocks the Cradle (Hanson, & Madden, 1992) all belong to this latter sub-type as well.

Predatory, dangerous, woman-eaters.

Sometimes the mate that can be stolen is female, not male. There are a number of good biological reasons why female reproductive decisions may not involve men at anything more than an inseminatory level (Kuhle & Radtke, 2013). Therefore, it is not surprising that a further potent sub-type of the predatory female is the one who steals not males—but females—or, at the very least takes females out of the standard heterosexual reproductive pool. On occasion depictions are of females forming specifically anti-male alliances, and the reactions of society at

large to such alliances are rarely depicted positively. Examples of the latter type include Anne and Lore in *Mais ne Nous Délivrez Pas du Mal [Don't Deliver us from Evil]* (Seria, 1971) and Isabelle and Isle from *Le Frisson des Vampires [The Shiver of the Vampires]* (Rollin, 1971). Examples of lesbian woman-stealers include Mary Whittaker in Sayers' (1995) Unnatural Death, and Carmilla, the eponymous vampire from Le Fanu's (1872) story. Carmilla is the archetype for countless lesbian vampires in films—such as Ingrid Pitt from Countess Dracula (Sasdy, 1971).

It is not exactly news that vampires have been used as sexual metaphors since their inception. However, people are sometimes surprised to learn that a female vampire pre-dated Dracula in print by twenty-five years (le Fanu, 1872). Catherine Trammell had elements of this archetype in early versions of Basic Instinct, (Verhoeven, 1992) although these scenes were cut from the final version. These characters represent a threat that females—whose sexuality is typically far more labile than males—may defect from males entirely (Diamond, 2009). Similar lesbian reproductive patterns have been found in other taxa such as gulls (Trivers, 1985) and Bonobos (Parish, 1994) who achieve social dominance through female-female parings.

In horror films the unnatural but seductive nature of such pairings is emphasized. Either the instigator is other than human (such as a vampire) or the females in question undergo some sort of unnatural rite. Examples would be the black masses depicted in *Mais ne Nous Délivrez Pas du Mal* and *Le Frisson des Vampires* for the transformation into lesbianism to occur. In other respects this archetype is similar in characteristics to the man-stealer archetype. In particular, the families of the stealers object of desire often come in for a rough time. Marie in *Haute Tension [Switchblade Romance]* (Aja, 2003) would be a particularly good example of the lesbian version of this set of tropes. Tomie (Oikawa, 1999), who has appeared in nine films to date, steals people of both sexes and drives others to jealous rages in response.

Castratrixes.

A further important sub-type of the sexually awakened character, deserving of separate discussion, is the castratrix. It might be argued that these are not horror monsters in their own right because often the audience sympathies are often intended to be with them, not the victims of their wrath. As with the other sexually awakened characters there are prefigurings in Greek myth that masculinity is potentially threatened by female sexuality. Priests of the Bacchae had to undergo castration (Harrison, 2004).

There are two broad types of castratrix in modern horror. The first type is a straightforward horror villain who is stealing and then destroying innocents. The second type is intended to excite audience sympathies—or at the very least play on them. A prime example of the first type would be Ilsa in Ilsa She Wolf of the SS (Edmonds, 1975). She castrates totally innocent victims and turns them into slaves. An Asian version is the similarly schlocky sexual parasite in the film of the same name (Nakano, 2004). Ilsa, and other characters like her are arguably more defined by the fact that they steal men and render them reproductively useless to others, rather than in revenge. Thus, although Asami in Audition may seem superficially like a (symbolic) castratrix her oft repeated motive is to stop her victims from loving anyone else. These characters are standard horror villains. They are stealers (and destroyers) of mates.

The second type of castratrix is both more interesting and more complex: The wronged woman enacting condign revenge. This revenge always centers on castration—just as the wrong centers on rape. No less a legislator than Thomas Jefferson gave voice to the appropriateness of this sentiment. In 1779 he drafted “A Bill for Proportioning Crimes and Punishments”. In this the following quote can be found “Whosoever shall be guilty of rape, polygamy or sodomy with a

man or woman, shall be punished, if a man, by castration, if a woman, by cutting through the cartilage of her nose a hole of one half inch in diameter at the least." (Wolfgang, 1988, p.115). In other words, the appropriate penalty for male sexual coercion is castration. For female sexual deviancy—disfigurement was deemed appropriate.

Revenge castratrixes certainly find their way into fiction that is unarguably horror in theme—although often lacking in some of the more supernatural elements common to the genre. Some of the early so-called video nasties such as I Spit on Your Grave (Zarchi, 1978) or Last House on the Left (Craven, 1972) have this as the central theme. Hayley Stark in Hard Candy (Slade, Korenberg, & Allen, 2005) straddles this category as well as the first—pre-pubescent girls--making her depiction especially disturbing. In the film posters advertising Hard Candy, Stark is dressed as Little Red Riding Hood but baiting a bear trap. The message is clear—any male tempted to illicit sex with a minor is in for a bad time.

Examples of older wronged females would be Jennifer Hills in I Spit on Your Grave (Zarchi, 1978), Thana in Ms..45 (Ferrara, 1978), or Dawn in Teeth (Lichtenstein, 2007). Tara, in Shrooms (Breathnach, & McDonald, 2007), begins as a castratrix—of the sexually predatory Bluto—although she does go on to other things later. The grindhouse movie Thriller – en grym film (Vibenius, 1973) was apparently an inspiration for a number of Taratino's vengeful females. This Swedish movie had twenty-five minutes cut from it before it was passed for release. Many of these film cuts were of castration acts that Frigga enacted on rapists. Estelle in Last House on the Left (Craven, 1972) is a castratrix but also with strong elements of the third archetype—the vengeful mother. Although this latter tale is loosely based on an Ingmar Bergman film The Virgin Spring—itself based on a thirteenth century Swedish Ballad, "Töres döttrar i Wänge, these original sources do not feature vengeful females. The revenge castratrix responds to rape,

or its threat, with castration—sometimes of a supernatural kind. While they are not really horror villains per se—often their actions appears entirely justifiable--their behavior inevitably evokes horrified responses in at least some members of the male audience.

Cautionary tales about the possible devastating reactions of women to sexual assault or its threat form part of the myth cycles of several pre-state cultures. The Yanomamo tell tales of "vagina dentata" (Chagon, 1968, p. 45) and the West African region of Kweneng has foragers like the Kua, !Xo, //ana, and G/wi who all tell fireside stories of vengeful female castratrixes (Helga Vierich, October 2013, personal communication). The Kalahari Bushmen have stories in which G!kno//'amdima's sexual pursuers are symbolically castrated by her female powers (Lorna Marshal, 1953 cited in Biesele, 1993, p. 168). Finally, the Mbuti have the tale of the Chimpanzee, Tortoise, Elephant and Bush-babies where a sexually coercive chimpanzee is castrated by a tortoise. Apparently this action is met with shrieks of delight by the attending children (Cathryn Townsend, July 2014, personal communication). This reaction, plus the recurrence and effectiveness of the castratrix trope suggest a long history of fear of sexual attack in women and fear of the possible justified female response in males.

Actual castration would not have been that hard to achieve even in pre-industrial settings. Normal human teeth would be an effective weapon, as would stone tools or even shells—as depicted in Primal (Baker, 2011). The appropriateness of castration as a response to male violence was illustrated in a famous event in India where the multiple rapist, Akku Yadav was castrated before being lynched by a mob of women—many of whom were his victims. Shortly thereafter hundreds of women declared their part in the killing to show solidarity.

Even where violence is not an issue castration can be seen as appropriate. This reaction to potential partner desertion became sufficiently common in Asian countries in recent years the phrase “feeding the ducks” became common parlance for what might happen to the penises of males suspected of philandering (Bechtel & Tiller, 1997; Ferguson & Brandes, 2008). That this is not a culture-bound syndrome is evidenced both by similar news reports from other countries (e.g. the Panafrican 2003 report of co-wives doing this to prevent the husband taking a third wife) and the often positive emotional response to such stories by females in other cultures. A recent example of this was seen in the chat show The Talk where stories of a castrated male who had threatened desertion drew considerable female audience approval.

Castration fantasies form an important sub-genre of S&M and symbolic castration is a frequent request of professional dominatrixes (Lorelei, 2000; Turner, 2001). In this vein it is worth pointing out that male fantasies about castration no more signify a real desire for the actual act than do fantasies about coerced sex signify a real desire for this. The male fantasists in this case are typically invoking the first type of castratrix. This is because symbolism centers on control and enslavement, not revenge.

3) Mothers.

Motherhood offers its own distinct range of threats and opportunities. Unwanted children may be experienced as an invasion, while wanted ones may prompt mothers to extreme forms of protection.

Possessed mothers.

The official story is that children and child bearing are always an unalloyed joy. This propaganda may reflect modern settings with extensive social and medical support but it is

definitively not the reality we evolved to negotiate. The experience of being taken over by something outside one's control—something alien that may well result in your demise is the lived experience of many mothers across time and space. Even in perfectly normal pregnancies the experience of being taken over by an organism that does not entirely share one's own interests is part of the reality of motherhood (Haig, 1993). Milder versions of post-partum psychological distress are by no means uncommon even today (Brockington, 2004). This can be taken as a pale reflection of the more deadly decisions that were the reality of motherhood in previous times (Hagen, 1999).

Prime examples of the possessed mother trope are the (briefly mentioned) mother in The Omen (Donner, 1976), Rosemary of Rosemary's Baby (Polanski, 1968), Susan in Demon Seed (Cammell, 1977), Madeline in Grace (Solet, 2009), Yoshimi, in Dark Water (Nakata, 2002), and the dream sequence experienced by Veronica Quaife in The Fly (Cronenberg, 1986). She, played by Charlotte Gainsborough in Antichrist (von Trier, 2009), is at best ambivalent about her baby. The opening scenes strongly imply that she has allowed it to die. Later scenes imply that she was abusing the baby—leading to deformities. She is a complex character that also has elements of the castratrix. Lars von Triers' vision of human interaction is an uncomfortable one.

In the tales of the Kalahari Bushmen the various wives of the god Kaoxa are always contending with various entities that they have been tricked into carrying inside them (Biesele, 1993, p. 183). While most of these tales are light-hearted, it could be argued that they contain key elements of the potentially competitive elements of human inter-sexual competition.

Euripides' (1976) Medea is the classical ancestor of all these possessed mothers. Medea is probably the first character in western literature to embody the idea that child-bearing is not always a joyous event for women and to attempt to overlay this realization with horror.

If the archetype of the possessed mother embodies post-partum psychosis (Hagen, 1999) then the essential horror is conveyed by the projection that there is something horribly wrong with the baby. This is the proximate mechanism by which potential defection—dissolving the mother-child bond—can be achieved.

In humans the threats and costs of childbirth fall disproportionately on females (Trivers, 1972). In ancestral settings—and modern day traditional cultures--a child who was not viable for a number of reasons may have represented a threat to the mother. As a consequence there is a good case for conceptualizing post-natal depression as a mechanism for enabling defection from the typical attachment mechanisms that normally bind mother and child together (Bowlby, 1969).

Across the globe the most common cause of child death is still mothers. The special nature of infanticide was recognized in statute in the Infanticide Acts of England in 1922 and 1938 (Davidson, 2000). Viewed through an evolutionary lens, post-partum psychosis looks like an adaptive mechanism for breaking maternal bonds in situations where commitment to the baby would more likely result in the death of both. Thus, lack of social support, visible congenital deformity and even cold weather are all predictive of post-partum depression (Hagen, 1999).

Rather like the castratrix, the possessed mother is perhaps more reasonably viewed as the victim of horror rather than the perpetrator of it. Arguably the baby itself is the antagonist—and perhaps the Devil Doll theme in movies captures this antagonism. However, the possessed

mother character appears so often as a horror trope that her exclusion here would have seemed perverse and would have left the other type of mother archetype incomplete and isolated. More importantly, horror occurs through the possessed mother. She is not just a victim but a vessel for horror itself. In any case, the plight of the possessed mother archetype is clearly one that is elucidated by an evolutionary lens.

***Vengeful mothers*.**

Whereas the possessed mother is threatened by what grows inside her, the vengeful mother protects her offspring to horrifying effect. If she fails to protect them, she enacts terrifying vengeance. An early form of this archetype is Grendel's mother in the Anglo-Saxon epic Beowulf (Tolkein, 1937). Even earlier is the vengeful Clytemnestra of Aeschylus (Sommerstein, 2008), although Homer's Clytemnestra is somewhat different in tone. Prime modern examples include Mrs. Voorhees in Friday the 13th (Williamson & Cunningham, 1980), the killer's mother in Scream 2 (Craven, 1997), The Alien Queen in the Aliens series (Cameron, 1986; Fincher, 1992; Scott, 1979) the Borg Queen in Star Trek (Frakes, 1996), Annie Wilkes from Misery (Reiner, 1990), La Femme played by Beatrice Dalle in Inside (Maury & Bustillo, 2007), The Woman in the eponymous film and book (McKee, 2011) and Grace Stewart in The Others (Amenábar, 2001). An Asian cinema vengeful mother spirit is the character of Kayako in Ju-on [The Grudge] (Shimizu, 2002).

Often the vengeful mother characters in film and story have truly archetypal designations such "Mother" "The Woman" or "She". Often, they are the most severely psychotic of the archetypes represented. The implication is that those protecting their children are beyond the reach of reason. For example, La Femme (Maury et al, 2007) attempts to steal another's baby

while it is still inside this other person's body. Annie Wilkes in Misery (Reiner, 1990) is protecting her ersatz baby—in reality merely a character she loves in a series of novels--from a supposedly dangerous symbolic father, actually the author of the novels. Grendel's mother is literally a monster--although there is some scholarly dispute as to the exact meaning of *aglæcwif* (Stanley, 1979)--and is far more fearsome than Grendel himself. The Woman in the eponymous film (McKee, 2011) is far more sympathetic as a character. She is escaping evils inflicted on her by a supposedly more civilized family in order to return to protect her offspring. However, the revenge she enacts is so bloody and horrifying that she deserves to belong in this category.

The Mother from Hitchcock's (1960) Psycho is a special case. She exists only in Norman Bates' mind but still exerts her protective influence through his memory of her. The final scene in the film where her mummified face is briefly overlaid on that of her son signifies that she still exists in him. The key feature of the vengeful mother archetype is that they will protect their children at any, even insane, costs. Like the possessed mother they are defined by their relationship to their offspring—even if either they or that offspring is imaginary. However, their relationship to their own children is protective rather than destructive.

4) Menopausal females.

Post-menopausal Machiavelian manipulators.

No longer able to bear children themselves, their protection of their children and particularly their grandchildren—or symbolic grand-children--comes at an insane cost to others. Iconic versions of this archetype include the White Witch from Narnia (Lewis, 1970), Ursula from the Little Mermaid (Clements, 1989), and Cruella de Vil from 101 Dalmatians (Geronimi, Luske & Reitherman, 1961). La Spack, the menopausal matriarch in La Meute (The Pack) feeds

travelers to her brood but in many ways is just a more X-rated version of the child-hating Baroness Bomburst from Chitty Chitty Bang Bang (Hughes & Broccoli, 1968). Finally, pretty much every witch and wicked step-mother ever committed to page, celluloid or fireside story fits this archetypal pattern.

This archetype is an older female that interferes with younger females' reproduction--especially of females that might come under their control and otherwise divert resources. A number of traditions have aged females who are frightening figures that directly interfere, in uncanny ways, with others' lives—especially the lives of neonates. The Greek Morai, the Norse Norns and the Baltic goddess Laima and her sisters all have similar characteristics but independent cultural histories. To take just one case--the Morai--these aged females have no children of their own but were said to decide on the fate of new-borns and require placating (Hesiod). Such figures (e.g. Norse: Norns, Anglo-Saxon: Weird, Germanic: Matres) are often portrayed as spinning the fates of men and it is perhaps no accident that the word "spinster" has slightly sinister connotations. Older females, especially those that tell stories, appear to be afforded extra respect among the Kalahari Bushmen (Biesele, 1993). However, even here there are vengeance tales of the major heroine G!kno//'amdima which involve her grandmother's mischief, at least.

The character Maleficent (Geronimi, 1959; Stromberg, 2014) directly interferes in Aurora as she attains puberty—putting her to sleep with a curse. This draws on an old fairy tale tradition collected by the brothers Grimm. The unnamed Aunt played by Yōko Minamida in Hausu (House) steals the vitality of unmarried girls (Obayashi, 1977). In the classic Onibaba (Shindo, 1964), a mother and daughter-in-law waylay and murder Samurai, robbing their corpses. As the

mother figure transitions to being someone that the males no longer desire her face fuses with a demonic mask that then cannot be removed.

The key feature of this archetype is that they hate others' children. They may have their own—particularly grand-children--that they protect but an over-riding motive and behavioral consequences of this archetype is that others' children must fail for theirs to succeed. The character usually shows some sort of potent symbol that they themselves are past child bearing. This can be as simple as a haggard appearance or as complex as the symbolism of The White Witch ruling over a sterile forever winter Narnia.

Other Prominent Female Horror Archetypes

Two major types of female horror characters were deliberately left out of my analysis. It is worth saying something about them, to highlight the distinction to be made between female horror characters and female horror perpetrators. Firstly--the classic victim is not discussed here. A victim who just exists to highlight the power and rapacious nature of the horror monster is not herself a perpetrator of horror. Horror happens to her, not through her. A naïve gender-feminist analysis of horror--in terms of patriarchal oppression of females (e.g. Freeland, 1996)--has already been ably dismantled by Clover (1992). She had already noted that critics who think that females are always (or even typically) the victims in horror needed to actually experience the genre rather than rely on hearsay. This brings us to the second exclusion—the Final Girl (Clover 1992).

Final Girls exist as heroes in a large number of horror films. The Final Girl is characterized by knowing the danger from the start (and being ignored) showing great courage and resourcefulness, and naturally, being the last one left alive at the story's end—although this

changes in extended cycles of stories. The Final Girl has a clear precursor in the "Wise Girl" who, by her courage and resourcefulness, saves the adults from ogres and other monsters, and is "[K]nown throughout Bantu Africa" (Biesele, 1993, p. 36). Her stories share many of the characteristics and tropes of the modern version in films and stories.

Classic examples of the Final Girl in modern films with horror themes abound. Some of the more famous include Ripley in the Alien series (Cameron, 1996; Fincher, 1992; Scott, 1979), Laurie Strode in Halloween (Carpenter, 1978), and Sidney Prescott in the Scream series (Craven, 1996; 1997). Given that the remarkably prevalent idea that horror films inevitably involve helpless and sexualised female victims typically passes unchallenged (e.g. Freeland, 1996) it is worth giving more than a few examples of central female heroes in the genre—lest one be accused of tokenism. Other films that draw on the Wise Girl archetype included the character of Chris in Friday the 13th Part III (Miner, & Mancuso, 1982), Lisa in Nightmare on Elm Street 2 (Sholder, & Shaye, 1985), Alice in Nightmare on Elm Street IV (Sholder, & Shaye, 1988), Maggie in Nightmare on Elm Street VII (Craven, 1999), Jess in Black Christmas (Clark, 1974), and Stretch in The Texas Chainsaw Massacre II, (Hooper, & Carson, 1986). More recent characters that make either explicit or arch references to Final Girls are Dana in The Cabin in the Woods (Goddard, & Whedon, 2011), Erin Harson in You're Next (Wingard, 2011), and Abigail Breslin in the eponymous Final Girl (Shield, in production).

Sometimes the line between a Final Girl and a castratrix (see above) can appear blurred but they are distinct. Final Girls do not (as a rule) have sex--although this can change when the character is presented in an extended myth cycle (such as the Buffy the Vampire Slayer series, Whedon 1997-2003). They are a point of audience contact for both sexes and heroic figures—not

perpetrators of horror. The Final Girl deserves a separate analysis all of her own at some future point.

Discussion

Humans are a symbolic species, one that builds models of its world. If the models provide satisfying descriptions of this world we call them art. If the models have predictive power, then we try to fit them with existing frameworks and the result is science. As models of the world become more sophisticated then they contain themselves--models of models—and, indeed, of the modelers themselves. What makes these models satisfying? There are certainly some types of art whose very obscurity and difficulty makes them a signifier of elite status (Miller, 2011; Pinker, 2002). However, art that stands the test of time must appeal to more than just elite groups marking their status with obscure rituals (Hesse, 1943). Indeed, Pinker himself (2007) drew attention to the need to get "down and dirty" with popular culture if we were to be able to understand art using evolutionary tools. This call has been taken up in, for example, the fields of consumerism (e.g. Saad, 2007; Miller, 2009), popular theatre (e.g. Nettle, 2005), science fiction (e.g. Cooke, 2002), pornography (e.g. Salmon & Symons, 2004), comedy (Hurley, Dennett & Adams, 2011; Kuhle, 2012) and the horror genre (e.g. Clasen, 2012).

A clear consensus has yet to emerge about whether such art merely reflects human nature or has been a net contributor to human fitness. I have suggested that both may be true. Our effortless enjoyment of such art implies that it served a purpose in much the same way that our enjoyment of cute, sweet, funny or sexy things implies that there was an otherwise onerous task that needed to be performed in the past to improve fitness (Hurley, et al., 2011). In this case I

have followed Gottschall (2012) in suggesting that the task required was the efficient conveying of vital social information to kin.

However, the circumstances under which our enjoyments evolved—small groups of close kin disseminating social information—no longer obtain. Or, at least—very rarely obtain in modern settings. We can (and do) employ professionals to cater to these enjoyments and as such these practices allow us to reverse engineer aspects of the human mind. That mind has evolved to navigate a complex social world and our regular patterns of stories (even horror stories) can be an insight into that world.

This study has been a preliminary overview of the horror genre pertaining to females rather than an exhaustive study. Assuming that the thrust of the thesis is correct, much more remains to be said. It could be argued that cross-cultural comparison is spurious because of Galton's problem— the difficulty of distinguishing the historical from the functional (Naroll, 1965). Having admitted this, an attempt was made to give an example of a female horror character that exemplifies the basic choice patterns at each life history stage. From this I tried to draw one such at least from one historical source (e.g. the Bible or other myth cycle), a mainstream English-speaking western one (such as a horror movie), an independent European non-English source, and an Asian movie (to give some cross-cultural balance). There is, of course, danger that such multiplication of instances merely represents copying rather than independent germination.

However, the fact that such cultural transmission could be so effortless would itself tend to argue that human minds are pre-adapted to receive certain messages (Atran, 2002; Sperber 1985). In a competitive market of memes not all are created equal. Those memes that find ready

homes are likely to be ones that map readily onto long histories of human interactions—especially reproductively salient representations. For example, in the case of Asian horror movies we can observe a number of attempts to remake them for western audiences. Successful recent examples would be The Ring (Verbinski & Parkes, 2002), Dark Water (Lee, 2005) and The Grudge (Raimi, 2005)—all of which involved female horror leads. Often the Americanization involved removing ambiguities from the character and explaining their motives and background in a way deemed unnecessary for Asian audiences (Galloway, 2006). However, it is striking that the conflict elements of the horror character noted above still remained in all of these cases. This tends to reinforce the view that human minds are quite ready to absorb the essential tropes of such characters. The ease of cultural transmission is one clue that something of cross-cultural relevance has been uncovered (Atran, 2002). As Levi-Strauss (1955) put it of myths, "[If their] content…is contingent, how are we to explain that throughout the world myths do resemble one another so much?" (p. 429). What follows from this?

First, Clover's (1992) ingenious attempt at a Freudian analysis of horror as being intrinsically hermaphroditic would have to be significantly revised. Evolutionary biology puts sex differences at the heart of analysis. Many archetypal heroic female characters in horror—especially Final Girls--can be identified with by both sexes, because many threats are unisex. However, some elements in horror, especially those connected directly to reproductive decisions, cannot be made unisex.

Second, this analysis tends to indicate why the various attempts over the years to suppress disturbing art forms by well-meaning social engineers did not work and will continue to fail to do so (Schechter, 2005). These stories are expressions of patterns of human nature and such patterns persist in the face of social engineering (Pinker, 2002). A constant of human

history in relation to dramatic and visual art has been that this time the medium has gone too far (Schechter, 2005). However, actual violence has been in steady decline by every reasonable measure since the Stone Age (Pinker, 2011).

If stories supply currently useful information then this can be tested. Although to a first approximation humans are adapted to a Pleistocene forager lifestyle this first approximation has some very rough edges and lots of wiggle room (Miller, 2009). For one thing, the term "Forager" can mean a lot of different things. Phenotypic plasticity is considerable and can be predicted to vary according to a variety of well-documented ecological markers. If art currently solves problems of passing on useful ecological information then this should be reflected in local variations in art. For example—matrilineal societies have lower rates of male-male aggression and higher rates of confused paternity (Cashdan, 1996). Mate stealing tropes should therefore be far less common (or perhaps even absent) in the stories of such cultures as the threat represented is considerably less salient. Higher rates of allo-parenting should also covary with reduced incidence of menopausal manipulators, as costs and risks of childcare are typically amortized across the group in such arrangements (Bentley & Mace, 2012).

Do horror stories provide adaptive solutions to local problems? The current evidence would not support this view. The information contained in such stories would need to vary in accordance with local markers—such as age at pubertal onset—and there is no evidence that it does. Furthermore the status of such figures—some are clearly heroic or at least sympathetic—makes their role as warnings suspect. For the attendance of horror stories itself to provide an honest signal of prowess and fearlessness far more research than has been presented here would need to be performed. While the fact that humans learn through stories gives the framework for other adaptations—about how we process social information—it is unlikely to be an adaptation

itself. Our enjoyment of stories overspills their usefulness just as our enjoyment of play overspills this. This is not to denigrate the role of stories or of play in human life, only to emphasize that something need not be an adaptation to be important.

There have been numerous attempts in the past to analyze myths in terms of their component parts—along structuralist lines (Levi-Strauss, 1955). This paper could be seen as an attempt to resurrect this potentially fertile research program, reinforced as it now could by a modern conception of biology. If I am right about this, then the attempt to hermetically isolate cultural anthropology from biology was always doomed to failure. This failure can be explained quite simply—biology keeps culture on a leash (Lumsden & Wilson, 1981). When we are studying cultural patterns we are studying patterns of desires and fears, preferences and expectations. As Sperber (1985) puts it "Cultural phenomena are ecological patterns of psychological phenomena". (p.76). This realization does not make the study of culture redundant or reducible to biology, however. Just as the study of human participants is vastly eased by the fact that they can also answer questions as well as press levers, the study of the human animal is vastly enriched by the fact that we can show evolved preferences and desires. We do this through our art.

Finally—this has been an attempt to expand the burgeoning field of Darwinian aesthetic studies into a new and hopefully fruitful area. The central hunch has been that fictional antagonistic female archetypes, broadly conceived, contain dense patterns of information centering around a core of key life-history decisions. The attempt has been to make this vivid by using characters who have been somewhat side-lined by previous literary analysis—female horror characters. If my hunch is correct, then much work remains to be done. What are the core, and what are the peripheral elements, of such archetypes? Do they vary in predictable ways in

response to local ecological conditions, as life history theory predicts that they must? More generally—is all human story-telling a shuffling of a finite collection of tropes and characters drawn from millions of years of social interactions?

One implication of this approach to art is that there are limitations to human fiction—in terms of archetypes—conditioned by the long reach of our evolved history. What of avant-garde and experimental works? The test of time will tell. Humans are an experimental species but if the sort of analysis I have offered is correct then all experimentation that finds an audience is going to amount to variations on a theme. This might be comparable to music. There are a finite number of notes and a finite limit to the number of combinations that could be made of these. Could we ever run out of music? As a young man John Stuart Mill is said to have worried, that with only eight notes, we would soon run out of music. This was before the Jazz age had even begun. What about today?

The Gracenote database (Gracenote, 2014) contains 130 million songs. A playlist of these would run for something like 1200 years. This is a large number—but not totally beyond human imagining. Combinatorial calculations based on reasonable assumptions about melody length and tonal combinations have shown that the number of possible combinations of even a single octave runs into astronomical numbers really fast (e.g. everything2, 2014). The more interesting question is therefore actually the reverse. Given the huge number of possible combinations of notes why do so many songs sound so similar? The website *soundsjustlike* (2014) explores how many popular songs have remarkably similar cadences and melodies. For example, on this site one can find to one's surprise that Elvis' *Love Me Tender* is actually the same song as the American Civil War song *Aura Lea*, or that *Twinkle Twinkle Little Star* is the basis for Johan Bach's *Ah vous dirais-je Maman* in G Major. The possible mathematical search space for music

is vastly greater than the space we feel comfortable in searching. Similar remarks pertain to other forms of art. No matter how novel something might appear to be—for it to work it must at some level remind us of home.

Humans enjoy art that occupies a sweet spot in between extremes of complexity. For example, with music, a rising tone is too simple to enjoy, white noise too complex. In between these extremes is a zone definable in terms of information compressibility that contains the available search space for music that humans might enjoy (Hudson, 2011). A similar point could be made about human stories. Given the huge number of possible characters and dramatic situations why do humans seem to enjoy hearing about the same ones over and over again? Evolutionary theory offers an answer. We are a narcissistic species and stories allow us to enjoy looking at ourselves. The word "monster" comes from the Latin word *Monstrare*—to show. Monsters show us something about ourselves.

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Table 1. Comparison of Female Adaptive Problems Faced, Along with Typical Dark Responses at Each Life Stage

Archetype	Reproductive Stage	Challenges	Attitude to Offspring	Response	Semantic themes	Example
Scary Girls	Puberty	Males: Predatory Females: Competitive	None	Aggressive to predators /competitors	Blood, possession (spiritual)	Carrie
Predatory Stealers (Male)	Mate Selection	Mate poaching	Others: Aggressive	Aggressive to competitors	Sexual experience	Alex Forrest
Predatory Stealers (Female)		Mate poaching	Others: Aggressive	Aggressive to competitors	Sexual experience	Carmilla
Castratrixes		Predatory males	None	Castration of aggressors	Rape/castration, revenge	Jennifer Hills
Mothers (Possessed)	Motherhood	Unwanted pregnancy	Aggressive	Infanticide	Possession (physical)	Rosemary
Mothers (Vengeful)		Threatened child	Protective	Aggressive to competitors	Psychosis, vengeance	Mrs Voorhees
Grandmothers	Menopause	Threat to grand-child	Protective	Aggressive to threat	Resentful of others children	Ursula

Table 2: Exemplars of Female Horror Archetypes Across Time and Space

		(Modern)		*(Ancient)*
Archetype	*Western*	*European*	*Asian*	*Mythical*
Scary Girls	Carrie	Eli	Sadako (Ringu)	Red Riding Hood (European)
Mate predators				
Male	Lola Stone	Core	Asami (Audition)	Bacchae (Greek)
Female	Carmila	Maurie	Tomie	Bacchae (Greek)
Castratrix	Jennifer Hills	Frigga	Sexual Parasite	Bacchae (Greek)
Mothers				
Possessed	Rosemary	She	Yoshimi (Dark Water)	Medea (Greek)
Vengeful	Mrs Voorhees	La Femme	Kayako (Ju-on)	Clytemnestra (Greek)
Menopausal Females	White Witch	La Spack	Aunt (Hausu)	Morai—fates (Greek)