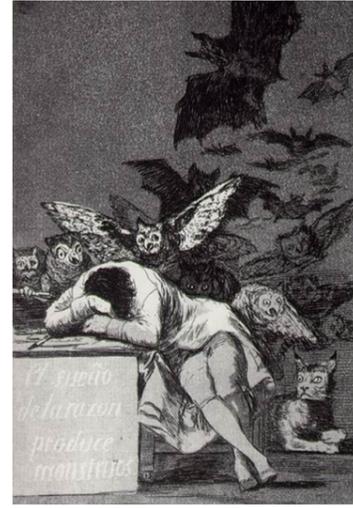
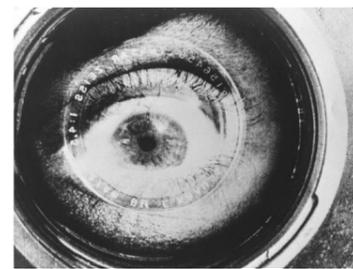


The Monstrous Brain: A Neuropsychanalytic Aesthetics of Horror



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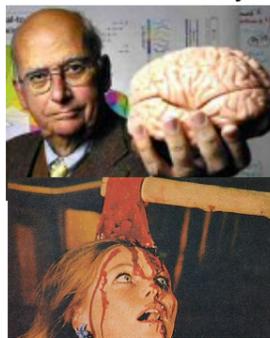


Goya, 1799. *The Sleep of Reason Produces Monsters*. "Fantasy abandoned by reason produces impossible monsters: united with her, she is the mother of the arts and the origin of their marvels".

Psychoanalytic Aesthetics and Neuropsychanalysis: Opposing Perspectives of the Two Cultures?

"Horror films serve as a barometer of those things which trouble the night thoughts of a whole society." (Steven King, 1981)

Psychoanalysis touches many aspects of the 'two cultures' which seem so hard to reconcile. Many psychoanalysts oppose the neuroscientific tendency as a dangerous biologizing of the mind (Blass and Carmeli 2007) worrying it may lead to turning away from fascinating interdisciplinary work in aesthetics (Glover 2008), film/literary criticism (Wright 2000, Sabbadini 2007) and cultural/social theory (Clarke 2003). It may seem that analytic applications to art, film and culture on the one side, and neuroscience on the other are contradictory and pulling in opposite directions, representing the maximum tension between the 'two cultures', a 'split-brain' (Gazzaniga 2008) for psychoanalysis and academia. One strength of neuropsychanalysis is its attempt to reach across disciplinary boundaries. Is it possible to bring psychoanalytic criticism into the neuropsychanalytic project and connect psychoanalytic film theory with modern brain research?



The compelling if initially strange idea of a neuropsychanalytic aesthetics was proposed by Lois Oppenheim (2005) in *A Curious Intimacy: Art and Neuro-Psychoanalysis*, which focusses on the neurobiological underpinnings of affect and self, and the importance for this in the biology of the creative process and aesthetic experience. Norman Holland (2003) has also written interesting papers on topics such as the suspension of disbelief in art and literature from a neuropsychanalytic perspective, so the groundwork for a neuropsychanalytic aesthetics has already begun. By narrowing the focus, the potential benefits of a neuropsychanalytic aesthetics might be more apparent. Horror seems particularly appropriate for this interdisciplinary project, as it is before all others a 'body genre' (Williams 1995) which privileges audience affective bodily participation, and the centrality of powerful basic emotions such as FEAR (Panksepp 2004), and therefore proves to be an interesting candidate in aesthetics to investigate from the point of view of psychoanalytic film theory, neuroscience and other cognitivist approaches. In what follows I am not arguing for or against different psychoanalytic perspectives on horror, but aim to introduce key concepts and suggest that in principle they can be made to yield testable hypotheses.

The horror genre is as an exploration of many of our deepest anxieties, which can be interpreted psychoanalytically, including "uncertainty of bodily boundaries, fragmentation, being under a constant threat" which Urbano (2009) relates to Freud's second anxiety theory; persecutory paranoid-schizoid anxiety (annihilation, fragmentation, destruction, engulfment, dismemberment, retaliation, biting/clawing, poisoning); depressive anxiety (guilt, destroyed inner world, death, Klein 1987); sexual anxieties of different psychosexual stages (castrating father, engulfing mother); issues around repression, repetition and the death drive. Horror also explores fears of madness itself (Fuery 2003). As Winnicott (1974, p104) wrote, the "fear of breakdown is *the fear of a breakdown that has already been experienced...a fear of the original agony which caused the defence organization which the patient displays*".



The Shining (Stanley Kubrik 1980)



Lunacy (Jan Švankmajer 2006). Švankmajer's unique use of objects are a clear example of a film maker utilizing Freud's uncanny to achieve remarkable emotional effects.



Nosferatu (F.W. Murnau 1922)

Gothic Freud and the Uncanny

"the [horror] genre itself invokes psychoanalytic considerations, at times borrowing its imagery from the symbolic apparatus of dream interpretation" (Andrew Tudor, 1997)

There is a large existing psychoanalytic literature on horror going back to the first generation of analysts, from Freud's (1900) *The Uncanny* and Marie Bonapartes' (1971) work on E.A. Poe, Otto Rank's (1989) book *The Double*. and Ernest Jones' (2008) *On The Nightmare*, which as well as nightmares provides an early analysis of witches, vampires, werewolves and the Devil, the last of which Freud himself dealt with in his *A Seventeenth-Century Demonological Neurosis* (1923). Psychoanalysis has always had a particular affinity to horror and the Gothic. "No discussion of the Gothic can avoid discussing Freud; one of the most obvious ways of thinking about the genre is to read it in terms of Freud's system", argues William Day (1985), whose thesis suggests the "striking parallels between Freud's thought and the Gothic fantasy" have "a common, or at least related, origin", both being "responses to the problems of selfhood and identity, sexuality and pleasure, fear and anxiety as they manifest themselves in the 19th and early 20th centuries." Similarly Creed (2009) writes that "Castration, sexual abuse, perversity, excrement, bestiality, animal phobias – Freud's case histories read like horror movies. They are alive with fears – fear of being bitten by a horse, fear of wolves, fear of having one's bowels gnawed by a rat...*Interpretation of Dreams* is permeated with anxieties and phobias of a similarly horrific nature – nightmares of falling, suffocation, ghosts, dead children, burning skin, urine and feces, people with bird's heads, snakes, men with hatchets, decapitations. In Freud's view, nightmares were the result of wish fulfilments from the unconscious, deadly dreamscapes of sexual origin in which he included murder and cannibalism."

Freud's (1919/1990) *The Uncanny*, one of the most influential theories in psychoanalytic approaches to horror, is based on one of his longest pieces of literary analysis, of E.T.A Hoffmann's gothic novel *The Sandman*. The uncanny is 'related to what...arouses dread and horror' and arises when something seems paradoxically both frighteningly alien and strangely familiar, when something or someone reminds us of a repressed, projected or split off aspect of ourselves. Typical themes include the animate/inanimate (doll), doubles, phantasies of bodily disintegration and merger, being buried alive and: "Dismembered limbs, a severed head, a hand cut off at the wrist...all these have something peculiarly uncanny about them, especially when...they prove capable of independent activity... this kind of uncanniness springs from its proximity to the castration complex." (Freud 1919). Another key theme is the grave/womb, described well by E.A. Poe in *The Premature Burial* (1998): "To be buried while alive is, beyond question, the most terrific of these extremes which has ever fallen to the lot of mere mortality...There are moments when, even to the sober eye of Reason, the world of our sad Humanity may assume the semblance of a Hell-but imagination of man is no Carathis, to explore with impunity its every cavern. Alas! the grim legion of sepulchral terrors cannot be regarded as altogether fanciful... they must be suffered to slumber, or we perish." Freud (1919) comments: "To some people the idea of being buried alive by mistake is the most uncanny thing of all. And yet psychoanalysis has taught us that this...is only a transformation of another phantasy which originally had nothing terrifying about it at all, but was qualified by a certain lasciviousness, the phantasy...of intra-uterine existence...It often happens that neurotic men declare that they feel there is something uncanny about the female genital organs. This unheimlich place...is the entrance to the former Heim of all human beings, to the place where each one of us lived once upon a time and in the beginning...the unheimlich is what was once heimisch, familiar; the prefix 'un' is the token of repression." The grave/womb has been further studied by Creed (1993) as part of the monstrous-feminine and by Bakhtin (1984) in his study of carnival.





Student of Prague (Wegener 1913)



The Dead Don't Talk AKA: Oluler Konusmaz Ki. (Yalinkilic, 1970)

Horror in Psychoanalytic Film Theory

"Freud's Death Drive is close to what is called in horror films and Steven King novels, the 'undead'" (Žižek 2004)

Otto Rank's (1914/1989) *The Double* includes possibly the first psychoanalytic commentary on a film, the silent German expressionist horror *The Student of Prague*. Rank connects the double with reflections in mirrors (which can be explored from the various psychoanalytic theories of 'mirror' (eg. Winnicott 1967, Lacan 2007 and Kohut 1991), shadows (see also Jung 1951), guardian spirits, belief in

the soul and with the fear of death. It recurs in dreams symbols representing castration as a doubling/multiplication of a genital symbol. Following Rank, Freud (1919) argues that "the 'double' was originally an insurance against the destruction of the ego, an 'energetic denial of the power of death,' probably the 'immortal' soul was the first 'double' of the body. Such ideas...have sprung from the soil of unbounded self-love, from the primary narcissism which dominates the mind of the child and of primitive man. But when this stage has been surmounted, the 'double' reverses its aspect. From having been an assurance of immortality, it becomes the uncanny harbinger of death." Schneider (2009) has studied the psychodynamics of many types of horror doubles including: *doppelgangers* (physical doubles, double by multiplication) including: replicas (and twins, chameleons), replicants, robots, cyborgs, clones, apparitions; and *alter-egos* (mental doubles, doubling by division) including schizos, shape-shifters, projections and psychos.

The development of psychoanalytic feminist film theory provided fresh perspectives. Barbara Creed's (1993) groundbreaking *The Monstrous Feminine* utilized Kristeva's (1982) theory of 'abjection', Metz's

(1986) approach to film spectatorship and Mulvey's (2009) work on the voyeuristic sadistic male gaze to elucidate the horror of the feminine in the: witch, archaic mother, monstrous womb, vagina dentata, possessed, femme castratrice, castrating mother and vampire. Creed critiqued Freudian claims that woman terrifies because she is a castrated 'mutilated creature', insisting she horrifies men as *castrator* not *castrated*. Around the same time Carol Clover (1993) in *Men Women and Chain Saws: Gender in the Horror Film*, introduced the concept of horror's 'reactive' masochistic feminine gaze in contrast to the Mulveyian assaultive (sadistic) gaze, as seen in the identification of both genders with horror's 'final girl'. More recently, in *Phallic Panic: Film, Horror and the Primal Uncanny* (2005), Creed turns her attention to the male horror monster in relation to the 'primal uncanny' of patriarchal civilization: woman, animal, death. Male monsters simultaneously express and defend against the anxiety of 'phallic panic', a result of threat against "coherent, stable, and civilised masculinity" produced by destabilizing the binaries of man/woman, man/animal, inside/outside, and life/death (Semlik 2007). Creed and Clover's feminist theses could lead to testable hypotheses of gender differences in reaction to particular horror themes.

Other analytic approaches include Robin Wood (2003) who uses Freud's theories of the uncanny and return of the repressed and Marcuse's (1987) 'surplus repression', to explore the potentially subversive nature of the monster expressing unconscious wishes to smash social norms, a theme partly taken up by Schneider (1999) in his study of monster as metaphor. Twitchell (1988) uses Freud's (1998) *Totem and Taboo* and the horror of incest to analyze horror films as adolescent sexual initiation ritual/myth, while the Gabbards (1999) emphasize the compulsion to repeat and the need to master infantile anxiety in horror. Psychoanalytic contributions to horror scholarship are rich and varied if at times contradictory, with all major schools making significant contributions eg. Lacanian (Žižek, 2007), Kleinian (Young 1992, 1997), and Jungian (Iaccino's 1994) *Psychological Reflections on Cinematic Terror: Jungian Archetypes in Horror Films*.

Vagina Dentata. Alien (Ridley Scott 1979, Star Wars VI: Return of the Jedi (1983, Marquand, Lucas). Untitled (NRC Handelsbald 2009). Frightened Woman (Schivazappa 1969)



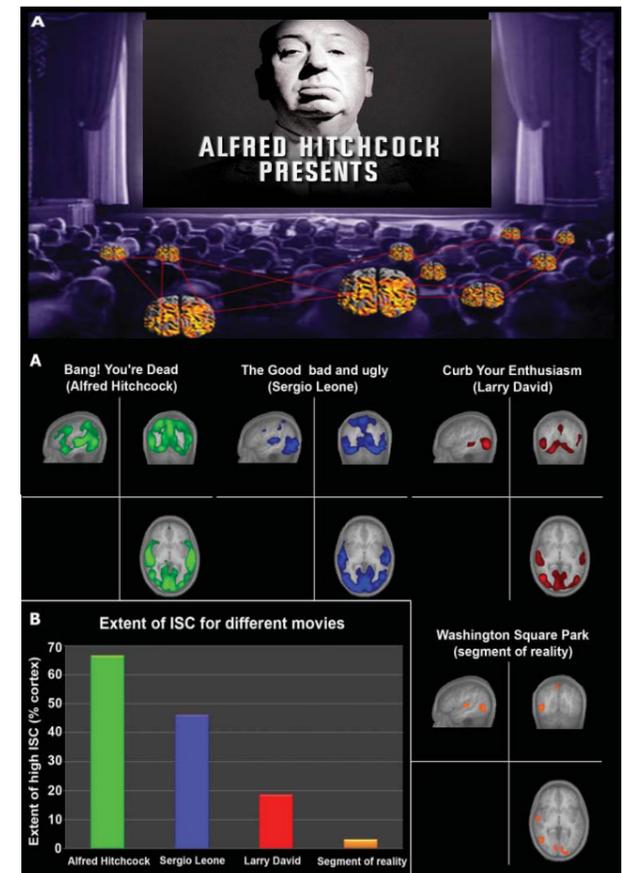
Abjection: corpse/ dead mother (Psycho, Hitchcock 1960) and menstrual blood (Carrie, De Palma, 1976)

Neurocinematics and the Cognitive Science of Horror: A Challenge to Psychoanalysis

"The artist is...a neuroscientist, exploring the potentials and capacities of the brain, though with different tools... [Neuroesthetics] will constitute the next giant step in experimental studies of the visual brain." (Zeki 2009)

Recently psychoanalytic film theory in general and psychoanalytic approaches to horror in particular have been challenged in their hegemony by 'cognitive science' approaches to film. Many of the attacks are well worn attacks on psychoanalysis itself including the claim that psychoanalysis is not scientific and not falsifiable. It is argued that if we need a psychology of film, it is better to use a psychology with more evidence and empirical support than psychoanalysis. New developments such as Uri Hasson's 'neurocinematics' (Hasson *et al.* 2008) seek to replace psychoanalytic approaches by researching the way the human brain and body respond to watching films based on cognitive science theories and methods, in this case viewers watch different types of films while in fMRI which is then subjected to an inter-subject correlation analysis (ISC) to assess similarities in spatiotemporal responses across viewers brains. Research shows substantial variability in how much control over brain activity each film exerts. Interestingly following Hitchcock's well known claims that his work represents a precise science of fear, Hanson *et al.* (2008) found that compared to *The Good, the Bad and the Ugly* (Leone 1966) and *Curb Your Enthusiasm* (David 2000), *Alfred Hitchcock Presents Bang! You're Dead* (1961) exerted the highest amount of brain control across subjects (18%, 45%, 65% respectively). They argue these neural effects are a result of differing level of "aesthetic control", with Hitchcock as he always saw himself, as the master. "The fact that Hitchcock was able to orchestrate the responses of so many different brain regions, turning them on and off at the same time across all viewers, may provide neuroscientific evidence for his notoriously famous ability to master and manipulate viewers' minds." (Hanson *et al.* 2008).

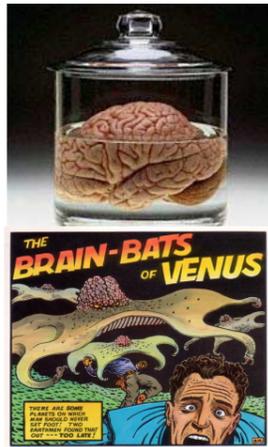
Semir Zeki (2009) and colleagues are attempting a related project in 'neuroesthetics', not specifically about film but to start a neuroscientific study of art in general and argues that "how such creations can arouse aesthetic experiences can only be fully understood in neural terms...an understanding [which] is now well within our reach." Neuroesthetics calls for an analysis of neural variability in the organization of the visual brain and its connection to various emotional states, and includes drawing on what artists and by extension film makers "who have explored the potentials and capacities of the visual brain with their own methods, have to tell us in their works". Zeki proposes to study the neural basis of aesthetic experience and concludes with three 'neuroesthetic' claims: "that all visual art must obey the laws of the visual brain, whether in conception or in execution or in appreciation; that visual art has an overall function which is an extension of the function of the visual brain, to acquire knowledge; and that that artists are, in a sense, neurologists who study the capacities of the visual brain with techniques that are unique to them", including we could add, the techniques of horror. Neuropsychology can make an important contributions here by taking the critique seriously and providing means to validate experimentally key psychoanalytic claims and thus answer the Popperian charge that psychoanalysis is unscientific and its propositions unfalsifiable. An increasing amount of neuroscientific data is now available for this purpose (Solms and Turnbull 2003), upon which psychoanalytic approaches to film need ultimately to be based. A psychoanalytic film theory resting on the more firmer empirically validated ground of neuropsychology can provide a stronger base from which the at times overly creative theorizing of psychoanalytic film criticism can take place.



ISC for four different films: Alfred Hitchcock Presents: Bang! You're Dead (green), Sergio Leone's The Good, the Bad and the Ugly (blue), Larry David's Curb Your Enthusiasm (red), and an unedited, one-shot segment-of-reality video (orange) (Adapted from Hasson *et al.* 2008)



Mental Doubles: An American Werewolf in London (J. Landon, 1981). Fight Club (Fincher 1999)

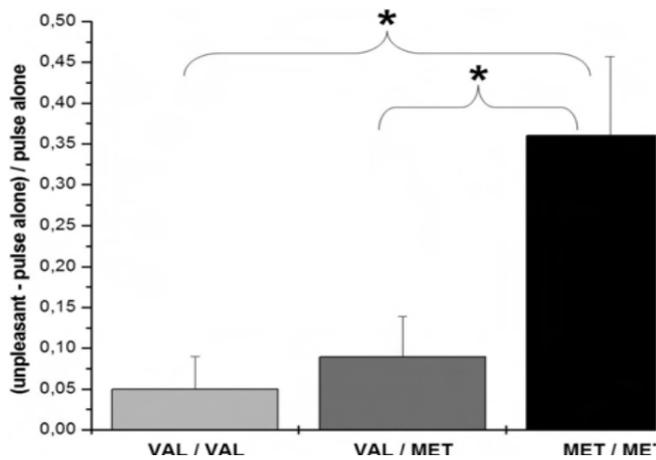


Psychophysiology of Horror: The 'Critique of the Missing Spectator'

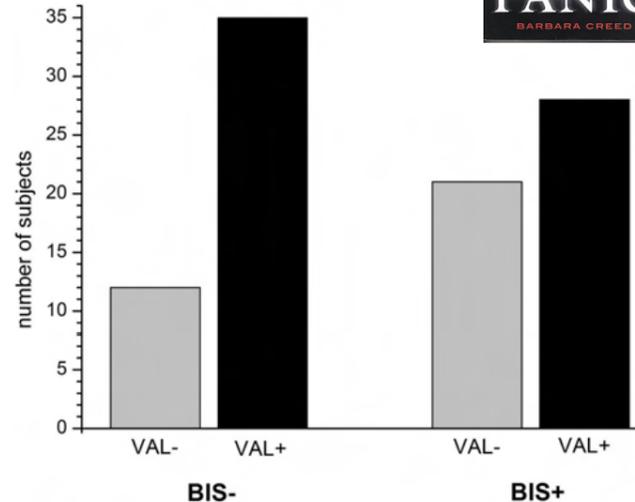
As well as more general critiques of psychoanalysis from cognitive approaches to film, there are more specific challenges which neuropsychology is well placed to meet. Stephen Price (2009) in 'Violence and Psychophysiology in Horror Cinema', applies psychophysiological methods to horror and states his 'critique of the missing spectator'. Despite concepts such as spectatorship, gaze and 'the body', film theorists tend to do no empirical work studying actual responses which real spectators experience with their physical bodies in this 'body genre' (Williams 1995). In its

place Price offers the findings and techniques of cognitive psychology and studies of biologically based perceptual processes, emotion and arousal. In accounting for the rise of slasher films for example, Price draws on Hebb's fear conditioning and sees audience fear as resulting from observing fear depicted in film characters. He then looks at the 'fright inducing' elements and their increase during horror film evolution.

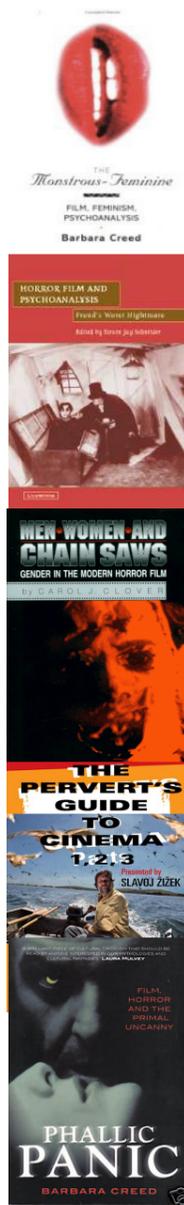
To explore gender issues in horror preference, Price uses cognitive gender socialization theory (Zillmann and Weaver 1996), a position actually not far removed from Twitchell's (1988) psychoanalytic theory of the horror film as adolescent sexual initiation ritual. He attempts to resolve the paradox of horror using psychophysiological data such as arousal and the subject's cognitive interpretations of their physical responses (alertness, sense of body operating at peak, sexual arousal following anxiety threats, rush of energy) in the context of Zuckerman's sensation seeking (SS) personality trait theory. High SS's try to maintain high arousal levels from both positive and negative sources and Price found they prefer pictures/films with more violent/aggressive content. In a similar study on horror film enjoyment, physiology and personality traits, Palmer (2008) found that increases in systolic blood pressure (SBP) while watching a 10:33min horror-related film were predicted by the personality traits of Coldheartedness (positively correlated) and Fearlessness (inversely correlated.) Finally, in a study reported as finding a genetic link with horror film enjoyment, Montag *et al.* (2008) show that variations of COMT gene (linked to anxiety) is significantly correlated with subjects startle response and its modulation. People with two copies of COMT158Met had a significantly increased startle response and decreased ability to control fear than those with both Val158 and Met158 versions or two Val158's. They conclude by linking COMT 158Met to potential affective psychopathology and alterations in neural emotional regulation and arousal systems.



COMT Val158Met and the affective startle reflex modulation in the unpleasant condition. The x-axis is divided up into the three different genotypes of the COMT Val158 Met polymorphism. On the y-axis, the magnitude of the startle reflex. In contrast to the Val/Val or Val/Met groups, the Val group (Met/Met) responds with a significantly potentiated startle to the pulse in the unpleasant picture condition. (From Montag *et al.* 2008)



Distribution of the genotype frequencies of Val (Met/Met, Val/Met and Val/Val) in the dichotomized groups of participants scoring low Behavioural Inhibition (BIS-) and high (BIS+). On the x-axis, different genotypes of COMT Val158Met polymorphism are depicted. Carriers of the homozygous Met/Met genotype (Val) scored on BIS more often high than carriers of the Val allele. (From Montag *et al.* 2008)



The 'Paradox of Horror'

"Give them pleasure - the same pleasure they have when they wake up from a nightmare." (Alfred Hitchcock)

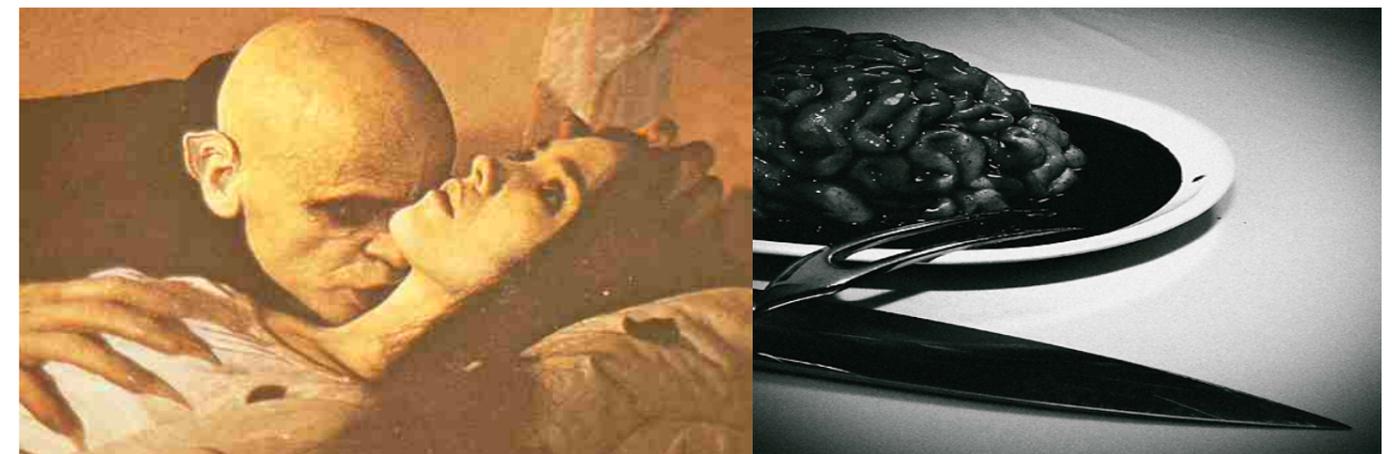
Cosimo Urbano (2009) has critiqued such biological approaches, arguing they they may help explain *how* horror films have their effects (eg. startle response) but not *why* we would choose to put ourselves in the position to be startled, terrified or disgusted. Urbano claims such approaches cannot answer the 'paradox of horror', which a question of meaning and motivation therefore more suited to psychoanalysis.

In an analysis Hitchcock's *The Birds*, Urbano (2009) asks "Why the hell does Melanie go up the stairs at the end of the film? What does she think her searchlight is going to throw light on up there? Is she stupid or what?...No true horror fan would ever ask such a question...S/he would understand that wondering why Melanie climbs the stairs even while knowing what she is going to find up there, is the same as wondering why people pay to go to see a horror film even while knowing that the film will frighten or otherwise disturb them."

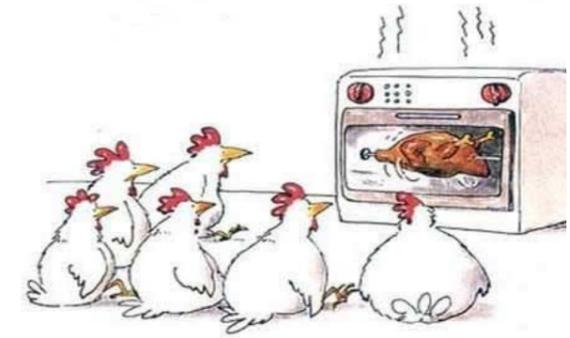


The Birds (Alfred Hitchcock 1963)

There is clearly the danger of serious reductionism in these purely biological approaches, and a loss of the richness and subtlety of the psychoanalytic tradition. However, it is important to take Price's critique seriously and respond by initiating an experimental neuropsychanalytic research programme into (horror) film spectatorship, bringing psychoanalytic film theory to the brain itself, and the brain to psychoanalysis. Increasingly sophisticated attempts in neuropsychanalysis and neuropsychosomatics (eg. Stora 2007) are attempting to tease out the complex, developmental relationship between mind, body, self, conflict, emotion, and trauma. Urbano's theory for example suggests the crucial participation of brain regions involved in the mediation of desire, dread and ambivalence.

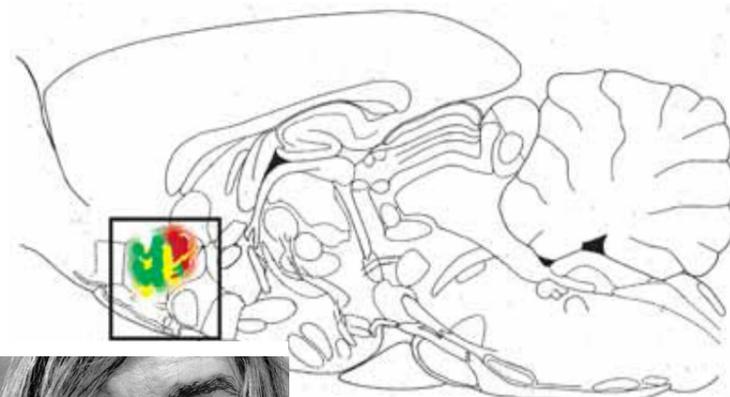


Nosferatu the Vampire (Herzog, 1979)

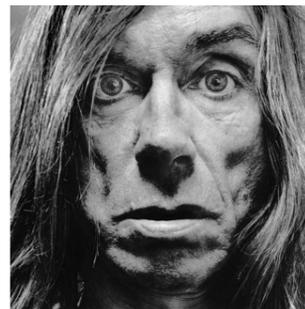


A Horror Film

Dread and Desire in the Limbic Brain



Berridge *et al.* (2008) have been exploring the role of mesolimbic dopamine in connection with localized glutamate disruptions in the nucleus accumbens (NA) in both desire and dread, a region equally activated by desirable and fearful stimuli (more rostral areas for desire and more caudal for fear, continuum between). They showed (in a procedure utilizing Iggy Pop to scare rats) the same brain circuit flips between desire and dread and is sensitive to small environmental variations. The mesolimbic dopamine pathway (the 'libidinal' SEEKING system, Panksepp



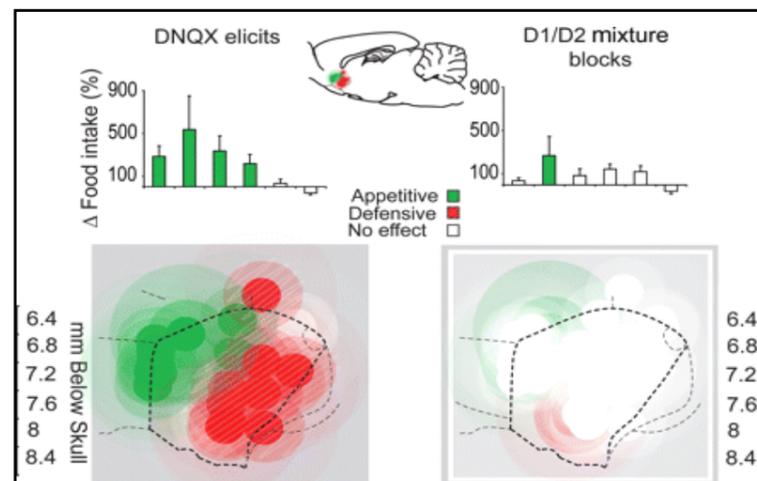
Iggy Pop, dreaded by rats and other mammals

2004) plays a crucial role in generating both. "Dopamine has been suggested previously to contribute in a related way to pathological exaggerations of fearful salience, as a motivational component of paranoia in human schizophrenia...as well as for excessive "wanting" for rewards in conditions such as addiction."

Berridge's work is clearly important to a neuropsychanalysis of horror, with its finding of the deep connections between fear and desire long postulated by psychoanalysts. "We experience desire and fear as psychological opposites" but "from the brain's point of view they seem to share a common kernel that can

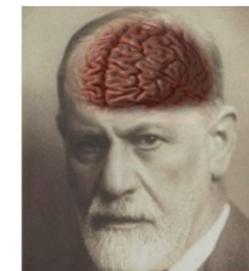
be flexibly used for either one" (Berridge *et al.* 2008). As well as *overlap* between brain circuits of desire/dread, Berridge has shown a *distinction* between 'wanting'/'liking' circuits, and between fear/pain: "negative emotions involving fear and pain also are dissociable into core processes...core processes of fear and anxiety may overlap with those of positive desires...positive and negative emotions may share psychological building blocks (such as incentive salience) even though the final emotions are experienced as opposite." Unconscious emotional processes are key here with core 'liking' and 'wanting' contributing to conscious desire but are in themselves unconscious.

Berridge (2004) argues that understanding the neurophysiological basis for "wanting" "provides insight into cases of truly irrational desire, where one wants what is neither liked nor expected to be liked", which in the 'paradox of horror' involves seeking what on the surface can only cause pain, terror and disgust. Berridge's psychoanalytically intriguing findings "elegantly showcases how seemingly conflicting psychological components drive our motivations. What seems to be one behavior can actually be divided, and...some things that seem completely opposite may share the same brain structure. This research tantalizingly leads to the question of how we can be aware of the emotions and motivations that combine these psychological components, but not have direct access to the underlying components themselves." (Pollick 2008)

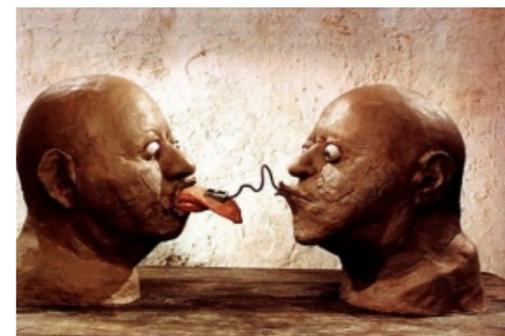


Summary map of "desire versus dread" motivations produced by micro-injections of DNQX versus mixture (D1/D2/DNQX). Appetitive eating behavior (green symbols) was stimulated by DNQX microinjections in the rostral shell, whereas fearful defensive treading was elicited by caudal DNQX microinjections (red symbols; criteria for including a DNQX site was a >9 min increase in eating duration plus a >200% increase in food intake for appetitive effects, and >20 s duration and >400% increase in defensive treading behavior; both compared with vehicle microinjection at same site). Histogram bars express the percentage change in behaviors from vehicle levels [eating duration (in minutes); defensive treading duration (in seconds)]. Addition of D1 and D2 receptor antagonists in the mixture condition blocked the ability of DNQX to generate either eating or defensive behavior at most sites (right). (From Berridge *et al.* 2008).

Empirical Research Programme for a Neuropsychanalytic Aesthetics of Horror Film Spectatorship



Social and affective and social neuroscience and neuropsychanalysis continue to develop a large literature on fear (LeDoux 2002, it is itself interesting that scientists decided first to terrify animals rather than starting with more pleasant emotions) and other key basic emotional systems (Panksepp 2004), crucial for any neuropsychanalytic approach to horror. Mirror neuron research (Gallese 2006), the neuroscience of self-other relations, and the biology of attachment and empathy (Watt 2007; de Vignemont and Singer, 2006) are all likely to prove useful in studying different forms of identification with film characters and monsters, to understanding horror as a 'body genre', and how these contribute to horror film pleasure. Recent theories of "shared neural representations" (Gallese 2006; Uddin *et al.* 2008) and the "activation of shared affective neural networks" enabling us to "feel the emotions of others as if they were our own" (de Vignemont and Singer, 2006) are likely to be important in this regard, along with proposals for a social neuropsychanalysis of groups (Dodds 2008, 2009). Neuropsychanalysis has much to contribute to an understanding of horror film spectatorship as well as to understand emotional/aesthetic reactions to film and art more generally.



Dimensions of Dialogue (Jan Švankmajer, 1982)

One intriguing area for possible research is that Freud's description of the uncanny is 'uncannily' similar to his theory of the comic (Freud, 1990), but he never formally made the connection. Horror can be at times close to the comic (LeDrew 2006, Greenberg 2009), which is perhaps most effectively illustrated in the bizarre films of the Czech surrealist Jan Švankmajer whose work hovers between horror and humour, perversion and pleasure, with momentary feelings of guilt in between when we briefly realise the enjoyment we take in the film makers sadism. The movement back and forth takes place

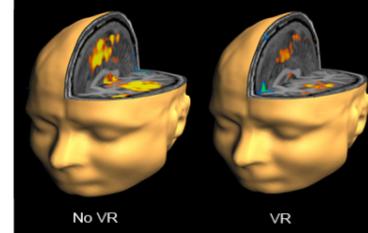
with such rapidity and intensity that we are left dizzy and breathless. Neuroscientific work on laughter, mirth, jokes and tickle (Holland 2007), their complex relations to basic emotions including FEAR (Panksepp 2003), and Ramachandran's (1998) 'false-alarm' laughter theory, could help to open up these suggestive hints to more empirical testing.

Neuropsychanalytic Aesthetics of 'Neuro-chic'

Finally, and more reflexively, an understanding of the psychoanalysis of horror may help us understand current public and scientific fascination with brain imaging and neuroscience. There is something uncanny, repelling and compelling about this particular piece of flesh, a pull which draws us in hypnotically to try and uncover its mysteries. The appeal is partly *aesthetic* and so a neuropsychanalysis of horror may ironically help to shed light on the appeal of neuropsychanalysis itself. To conclude, while acknowledging the connections sketched here have been necessarily highly preliminary, I argue that neuropsychanalysis is well placed to keep much of the richness of psychoanalytic ideas while grounding it empirically with the rigorous tools of neuroscience. Psychoanalytic film theory, filtered through a neuropsychanalytic lens, may provide important new directions for future brain based and theory rich research into neurocinematics (Hasson *et al.*), as well as moving forward the project for a neuropsychanalytic aesthetics (Oppenheim 2005, Holland 2003).



Pain Related Brain Activity is reduced during VR



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