



David Hume



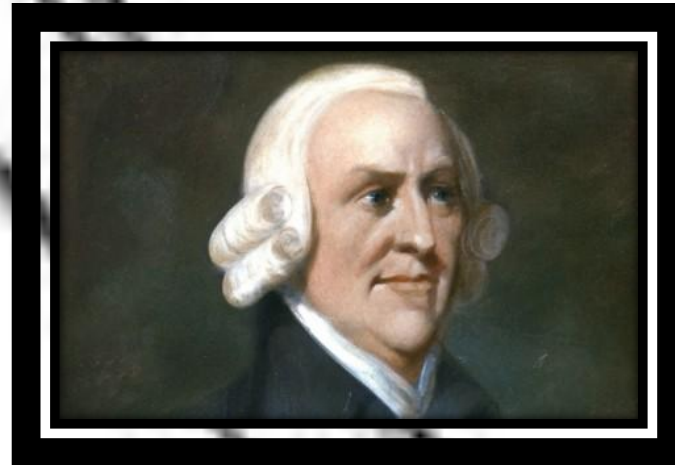
"When the doors of perception are
cleansed, man will see things as they
truly are, infinite."

-- William Blake

Research and Course Development: “This is Your Brain on Literature”

Dr. Scott Harshbarger
English Department

“That willing suspension of
disbelief for the moment,
which constitutes poetic
faith.” –S.T. Coleridge



Adam Smith

Perception/Attention

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Jaak Panksepp

	Perception		Attention	
	Unconscious	Conscious	Involuntary: Preconscious attention. (McGilchrist, , 2009)	Voluntary: Executive (Posner & Petersen 1990)
Evolutionary Function	“Perceptual categorization . . . allows an animal to carve up the world of signals coming from the body and the environment into sequences that result in adaptive behavior” (Edelman 2004).		Navigate environment Manage action and goals. (Oatley 1997)	
Brain Region	Sensory and motor systems. (Edelman 2004)		Frontal and Parietal regions (Baars and Gage, 276)	
Hormones	Person Perception: Superior temporal ventral extrastriate cortex, posterior superior temporal sulcus (M&Q)		Basal Ganglia (Edelman, 2004)	
Neurotransmitters	Reticular formation Amygdala (Emotion) (Phelps, 2005)			
Social-Psychological Relevance	Person perception. Stereotypes. (Lippman, 1922) Subliminal Persuasion. (Packard)		Goal pursuit Binds individuals together (Joint Attention) (Tomasello)	
Relevance to Literature	Perception as theme. (Blake) Defamiliarization (Shlovsky 1917) Person perception (Macraue & Quadflieg, 2010)		Form; Focalization Foregrounding, prominence, figures, devices (Stockwell 2002) Emotions “organize our attention in terms of what is going in a scene and they also prime our anticipation about the kinds of things to expect in future scenes” (Carroll 192).	

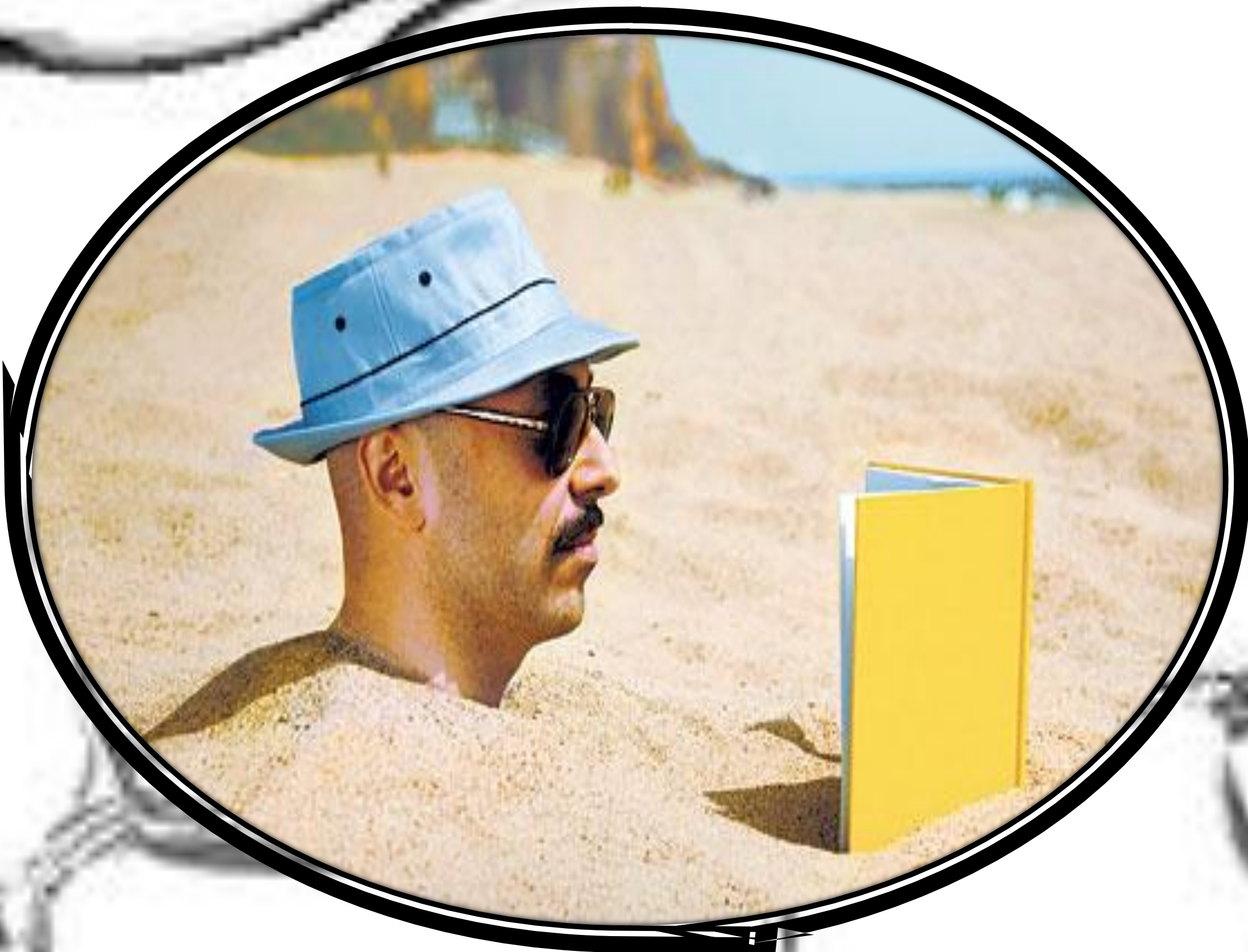


V.S. Ramachandran

Basic Emotion

(Panksepp 1998)

	Seeking Appetitive/ Motivational	Lust Gratification; Consummation	Rage /anger	Fear	Panic Distress; Sadness	Play Joy	Caring
Evolutionary Function	“Leads organisms to eagerly pursue the fruits of their environment” (JP 145) Learning (S&T, 2002)	Reward; Reinforcement Reproduction	“Energizes the body to angrily defend its territory and resources” (JP 51).	Generates “a major form of trepidation that commonly leads to freezing and flight” (JP 51)..	Signals caretaker that offspring needs help. Social Bonding.	Develops “experience- expectant social – emotional skills” (JP 2008)	Promotes survival of relatives. Social bonding.
Brain Regions ; Hormones; Neurotransmitters	Mesolimbic outputs of the VTA to the nucleus accumbens; mesocortical VTA outputs to orbitofrontal cortex; lateral hypothalamus to PAG (BG 425) Dopamine	“a complex group of structures arising from the hypothalamus and lying mostly in the basal forebrain” Solmes and Turnbull (2002). nucleus accumbens ; Endorphins	Medial Amygdala to bed nucleus of the stria terminalis (BNST); medial and perifornical hypothalamic to PAG (BG 425)	Central and lateral amygdale to medial hypothalamus and dorsal PAG (BG 425). Opioids Oxytocin Prolactin (S&T)	Anterior cingulate; BNST; and preoptic area’ dorsomedial thalamus, PAG (BG 425) Opioids Oxytocin Prolactin (S&T)	PF; Sensory Cortex somatosensory information processing within the midbrain, thalamus, and cortex (JP 2008). Dopamine (JP 2008)	Anterior cingulated, BNST; preoptic area, VTA, PAG (BG 425) Oxytocin Prolactin Endorphins (JP)
Social/Psychological Relevance	Romantic pursuit Symbolic quests: Truth, Immortality, God, etc.	Mating Strategies Sexual selection Marriage Addictive behavior	Irritability (tonically activated at a low level) Types of competition Hatred toward out-groups (e.g. nationalism) (Hogan, 2009)	Alarm at spiders, snakes, or “monsters” Foreboding, Anxiety, Terror	Panic Disorder Loneliness Nostalgia Loss Drug addiction (to compensate for lack of social reward) (JP 2008)	Social Integration. (JP 2008)	Prolonged childhood Altruism (JP 19) Pity
Relevance to Literature	Anticipation, Suspense Reader’s response to seeking behavior of characters.	Marriage Plot. Dramatic Climax Satisfying closure Epiphany Emotional release Reader’s response to characters achieving emotional fulfillment	Anger at or with characters. Revenge or scapegoat narratives Anger associated with situation. Angry artist	Startle reflex (Gothic Literature) Fear associated with character Fear associated with situation. Catharsis (Aristotle, 335, BCE) Moral deepening. (Levinson, 1997)	Alienation theme. Sympathy for lost, lonely characters Literature as remedy for loneliness	Art (Homo Ludens, Huizinga 1938) Mimesis Humor Author plays with characters or reader. Empathy or frustration with playful characters /authors	Sympathy for characters. Moral themes. Catharsis (Aristotle, 335, BCE) Moral deepening (Levinson, 1997)



Memory

Explicit

Implicit

	Working Memory : Central Executive; Visualspatial Sketchpad;Phonological Loop	Semantic Memory Facts about the world.	Episodic Memory “specific source in time, space and life circumstances” (BG) Tulving (1983)	Procedural Memory	Classical and Instrumental conditioning	Priming Perceptual representation system (Schacter 1996)
Evolutionary Function	“allows information to be actively maintained and manipulated” (B&G 308). (Baddeley 2002).	Knowledge-based propositional reasoning about the world. Influences perception of world. (Edelman 1989).	Enables mental time travel.	“Allows us to learn skills and know how to do things” (Schacter 1996).	Helps determine the significance of an event. (Schacter 1996).	Category learning (Casale et al)
Brain Regions	Prefrontal Cortex;	Medial temporal lobe.	Hippocampus;	Basal ganglia;	The amygdala (LeDoux, 1996)	Perceptually-based – occipital areas (Schacter 1996)
Hormones	Medial Temporal Lobe	Posterior “association” cortex (S&T 2002); Verbal systems of the left hemisphere	Posterior Lobes (sensory information) MTL necessary for recollection.	cerebellum (Schacter 1996)	Epinephrine (stress-related hormones)	Hippocampus inactive
Neurotransmitters						
Social/Psychological relevance	Psychological continuity. (B&G). Language production and comprehension (Carroll 2008) Conversation; Discourse Cohesion (Anaphoric Reference) (Carroll) Metacognition (self monitoring) (B&G)	Language production and comprehension. Categorization. Schemata; Frames, Scripts Conceptual priming (Schacter 1996).	“Autonoetic consciousness” (Tulving 1985).	Early, basic learning Skills; Habits	Attitude formation, particularly fear. (Banaji & Heiphetz)	Social cues Unconscious prejudice, stereotypes (Banaji & Bhaskar 2000).
Relevance to Literature	Complex literature places greater demands on working memory. Length of poetic line may reflect limit of working memory. (Hogan 2003)	Knowledge about author, genre, period; Schema, scripts enable construction of story (Schank 1990).	Autobiography; autobiographical episodes; simulation	Reading , writing skills.	Influences how we feel when we experience literature . (Holland)	Foreshadowing. Schemata formation. Character types

Memory

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Strike your flint, burn, memory,
Against the hour and its undertow.”
- Octavio Paz

Emotion

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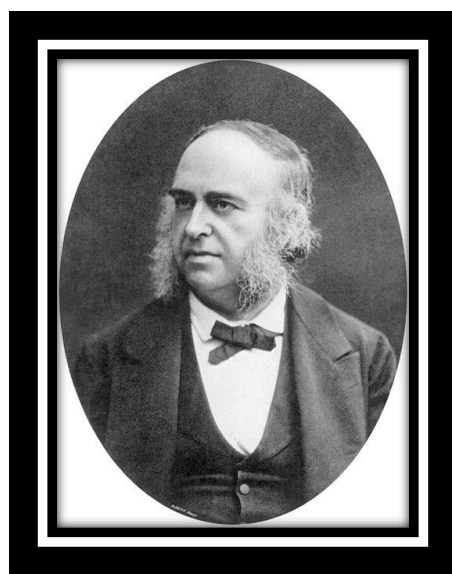
“Poetry is the spontaneous
overflow of powerful
feelings.”
–William Wordsworth



“If I feel physically as if the top of my
head were taken off, I know that is poetry.” –
Emily Dickinson



Endel Tulving



Paul Broca



Antonio Damasio



Eric Kandel



“The most ordinary movement in the
world, such as sitting down at a table
and pulling the instand towards one,
may agitate a thousand odd,
disconnected fragments, now bright, now
dim, hanging and bobbing and dipping
and flaunting, like the underlinden of a
family of fourteen on a line in a gale of
wind.” –Virginia Woolf