

upon the analyst's capacity to reflect and expose his own anxiety and fear in the analytic relationship.

Secret Passages offers the reader a comprehensive survey of the rich and varied perspectives of contemporary psychoanalysis, organized by an expert guiding us through unfamiliar and unexpected passages, much like an analytic journey itself. The reader may find the style and translation of the original Italian more discursive or expansive than an English text, but in this analytic tour, Bolognini dispenses encyclopedic knowledge with personal integrity, curiosity, vigour, and good-natured charm, never dismissive of other voices—an example for us all.

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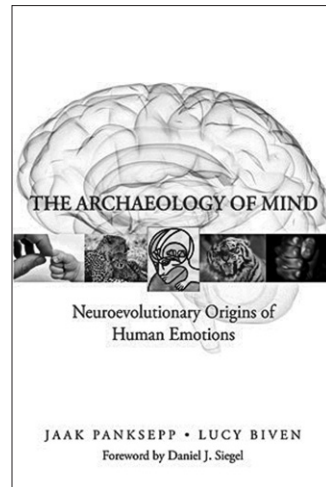
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The Archaeology of Mind: Neuroevolutionary Origins of Human Emotions

by Jaak Panksepp and Lucy Biven

New York: W. W. Norton, 2012, 562pp.

Jaak Panksepp, chair of Animal Well-being Science, and professor, integrative physiology and neuroscience at Washington State University, has been an outlier in neuroscience research for a number of years. He is known for his YouTube videos of rats laughing and playing when he tickles them. This book is a massive compendium of decades of research, co-authored by Lucy Biven, who trained at the Anna Freud Centre and is, incidentally, the daughter of the late psychoanalyst Charles Brenner. It is intended to be accessible to the informed lay reader but may require patience and fortitude to wade through.



Throughout the book, the reader is often reminded of Panksepp's ongoing struggle with the experience of (undeserved) marginalization in the field of neuroscience. This stems, as he describes it, from his challenging of two basic paradigms. One is that emotions originate from the neocortex ("top-down"). The other is that non-human animals do not have feelings. He has been criticized as anthropomorphizing, but he argues that his work is rigorously scientific and that it carries forward from Darwin's studies of emotions in humans and animals.

Panksepp follows a process of "triangulation," integrating research on mind and brain (third-person) with behaviour in lower mammals as a direct, less-disguised expression (what might be called first-"person" or "subjective") of evolutionarily conserved emotions. He challenges dualism, employing the terms *BrainMind* and *MindBrain* to indicate their oneness.

Affects can be categorized as sensory, homeostatic, and emotional. This book focuses on the emotional, which evidence indicates is the most strongly compelling in complex behavioural responses. Emotional systems are the result of accumulated genetic changes based on successful survival and reproduction. There may be definite variations among species, but they have the same basic plan in all mammals. The inference is that emotional affects are felt, not just sensed. They are biological, internal, experienced phenomena, mental but embedded in body, that, in contrast to prior theories, derive from neither neocortex nor the body. In questioning the dominance of the cognitive paradigm, Panksepp counters, "I feel, therefore I am" (p. 390), and "I do, therefore I am" (p. 497).

Panksepp describes three basic levels of brain processing: primary, secondary, and tertiary, not to be confused with Freud's primary and secondary processes. The primary level, in conjunction with brainstem activating centres, keeps the higher levels awake and directed toward need-satisfaction in the work of living and survival and reproduction. The primary level is the most intense, implying quantity as well as quality, and can easily dominate the other levels.

The secondary level has to do with conditioned learning and involves the basal ganglia, especially the amygdala. It proceeds quietly and automatically and is not conscious. It is driven by the evolutionarily acquired values of the primary level. These values underpin the unconditioned responses that have seldom been the object of study themselves.

The tertiary level, arising with accumulated experience in the neocortex, has perhaps been the main focus of day-to-day psychoanalytic work; however, it is dynamically involved with and influenced by the primary

level. This is where categories, concepts, language, syntax, abstraction, etc., occur. The neocortex “is the servant of our emotional systems” (p. 103).

What is the evidence for all of the above? Feelings are inferred by the experimental observer on the basis of the production of coherent and reproducible behavioural patterns (and sometimes vocalizations) in animals resulting from electrical stimulation in specific subcortical circuits. In contrast, stimulation of neocortical areas does not produce such coherent patterns. The inference of emotional salience stems from the observation that the animal will turn the stimulus on or off, or avoid or seek out the place in which the stimulus occurred; lower mammals more directly demonstrate their like or dislike of the experience that arises. Corollary evidence stems from recent findings from deep brain stimulation in various circuits in humans, who can verbalize their experiences.

The authors note the significant impact of behaviourism within academic psychology and neuroscience research. An example is the shift toward terms such as *reward* and *punishment*, instead of the more experientially descriptive terms of *satisfaction* and *discomfort*.

The above emotional-affective processes are seen in animals that have had their neocortex removed. Further, what appear to be emotional affects are seen in infants who are born without a neocortex, as well as in individuals whose neocortex has been destroyed by infection. The authors might also cite Dowling’s (1977) groundbreaking work on infants with esophageal atresia, who demonstrate the detriment to personality development from being fed (via gastric tubes) on arbitrary schedules by multiple care providers.

Panksepp has described at least seven basic systems of emotional affects at the primary level: SEEKING (expectancy), RAGE (anger), FEAR (anxiety), LUST (sexual excitement), CARE (nurturance), PANIC/GRIEF (sadness), and PLAY (social joy). He uses capital letters to distinguish a brain system from the everyday usages of these words. Each is based on converging evidence to indicate that there are specific circuits that employ specific neurotransmitters or neurohormones, and that respond in specific, reproducible ways to stimulation, either electrical or chemical. He distinguishes PANIC/GRIEF (which has two polarities—response to separation vs. positive bonding) from FEAR, which has a different biological role in avoiding danger and threat.

Much of the book is devoted to chapters for each category. These systems, of course, act in concert and may predominate to varying degrees, depending on the situation. Adverse experience can sensitize one or more systems. Panksepp is critical of mainstream, descriptive psychiatric taxonomies,

which omit the subtleties and specificities (endophenotypes) resulting from nature and nurture.

In contrast to the precision in the use of some terms, other terms are used less rigorously, such as *primal feelings*, *consciousness*, *archaic and preverbal*, *affect regulation*, and *feelings*. Each chapter includes a brief section, more descriptive than theoretical, on applications to psychotherapy. We humans are “massively conditioned.” Psychotherapy can “help reframe the memory in more beneficial affective perspectives” and “soften the disruptive impact of traumatic memories” (p. 243).

Panksepp adds two of his own chapters at the end, in which he proposes what he terms affective balancing therapy (ABT), to strengthen (via therapy and/or pharmacology) the “positive” affective systems of PLAY, CARE, SEEKING, and the bonding pole of PANIC/GRIEF. This can, presumably, be accomplished despite the overlaying of the tertiary neocortical structure. His own approach does not appear to be psychoanalytic, although he has worked for many years with analysts in the field of neuropsychanalysis.

Through experience, development, and maturation, the basic emotions become highly elaborated into multiple sub-categories. “Multiple emotional streams may cross in the thinking mind, creating an enormous variety of higher emotions that are often the focus of psychologists—pride, shame, confidence, guilt, jealousy, trust, disgust, dominance, and so forth with hundreds of possible variants” (p. xi). Further, at the secondary level, there is much conditioned learning that continually links, in the form of revisable memory, all of the above. The authors suggest isolation and repression as perhaps resulting from excessive cognitive activities, at the tertiary level. Each individual is described as uniquely complex.

The reader seeking more integration with psychoanalytic data, method, and theory will find more usable ideas from psychoanalytic authors who have responded to Panksepp’s prolific writings. Yorke (1999) has pointed out that one can encounter a patient who obviously feels something but nonetheless is unaware. Shevrin (1999) has called for rigour in the use of the terms *drive* and *motivation*.

Solms (2013) and Solms and Zellner (2012) attempt to integrate Panksepp’s research with psychoanalytic drive theory. The source of the drive might originate from the hypothalamus. The SEEKING system, along with LUST, might constitute drive aim. Object representations would arise via learning at the secondary level. Superego and internalized culture would arise at the tertiary, neocortical level. The regulatory principles of pleasure-unpleasure and reality would represent steps in the develop-

mental progression from the liking and disliking overtly demonstrated in lower mammals, to the experience-determined workings of the neocortex.

Much remains to be worked out before the psychoanalyst is in a position to apply the findings detailed in this book helpfully and with confidence. However, as Solms (2013) argues, integration of Panksepp's research into psychoanalytic theory will happen but will not be straightforward. Higher-level mental processes are not necessarily conscious. Consciousness originates at the evolutionarily determined primary level. The Byzantine workings at the tertiary level, which are just beginning to be understood, will determine the extent to which things become conscious, defended against, noticed, or remembered or reworked.

Solms (2013) goes on to reiterate that "instinctual processes are conscious in themselves" and that the dynamic unconscious is distinct from what is merely not monitored cortically. Further work will be required to determine how the neuroscience findings may apply to, or further elucidate, concepts such as conscious/preconscious/unconscious, learning, motivation, energy, free association, transference, and various categories of defence.

Despite its intended audience of the interested lay reader, this is a challenging book to read and absorb, but it is definitely recommended for the psychoanalytic reader who is wanting to know more about brain research and evolution, as well as to be able to incorporate this additional information into the developing body of psychoanalytic theory. The research described points to a richly complex and dynamic psychology.

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