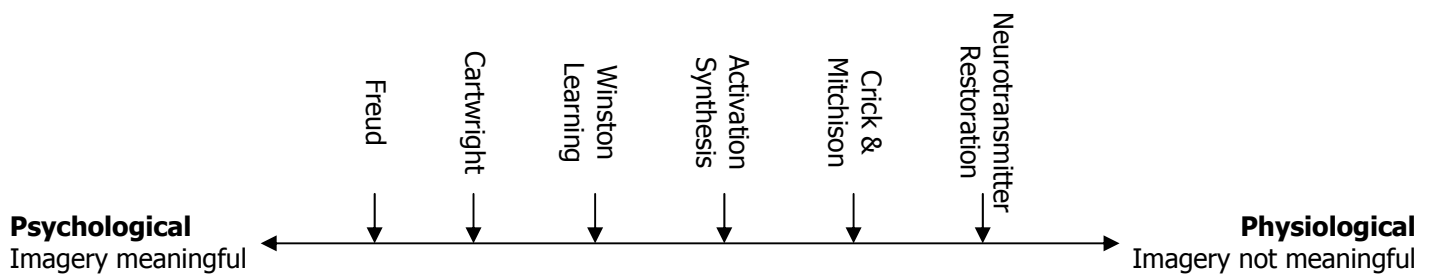


Psychology – Biorhythms, Sleep and Dreaming – Theories of Dreaming



Freud

- "Dreams are the royal road to the unconscious" – condensation, displacement, representativeness.
- Latent meaning, manifest meaning
- Anxieties / fears, wish fulfillment / desires

Cartwright – Problem Solving

Cartwright links her problem solving theory of dream imagery to the physiological pattern of REM sleep. She suggests that the first episode of REM sleep is when dream imagery is at its most fearful. She then suggests that as successive episodes of REM sleep occur throughout the night, the dream imagery becomes less fearful as the subconscious begins to attempt to solve the anxieties which are represented by the dream imagery. Cartwright says that this is why when we awaken, any problems that we have had appear less important.

Winston – Learning

REM sleep helps us to recharge cognitive abilities so enables us to learn better. Winston bases his theory upon animal studies in which he found that during REM sleep animals such as rats, cats and dogs display high levels of activity in the hippocampus. The hippocampus is widely known to be crucial in the memory system (damage leads to collapse of memory systems). Winston concluded that memories were accessed during REM. There is a link between an evolutionary explanation for REM sleep, a learning explanation (REM improves cognitive abilities) and reverse learning theories (degrading). The link is the structure of the brains of the spiny anteater and the dolphin.

If REM sleep does not occur, spiny anteaters and dolphins need to be able to improve memories. Both evolutionary and reverse learning theories would predict that if REM sleep does not occur then the brain needs to develop extra capacity in order to:

- House species-specific behaviours crucial for survival;
- Memories which have not been dealt with.

In both the spiny anteater and the dolphin, the frontal cortex is significantly over-developed. The pre-frontal cortex controls cognitive abilities.

Activation Synthesis

Hobson and McCarley. Their activation synthesis hypothesis of dreaming is based on many years of intricate electrophysiological research into the brain mechanisms of REM sleep. The hypothesis states that dreaming is an automatic part of the brain's sleep mechanisms and can be seen as an endogenous process with a large genetic component. However, the theory also allows for the brain to integrate sensory and motor information, with individual memories and expectations happening in novel and creative ways. For example, when neurons fire in the part of the brain handling balance the cortex may generate a dream about falling. In this way, the model can also account for any narrative aspect of dreams.

Crick and Mitchison's Reverse Learning

- The brain is offline during dreaming;
- Sifts through information gathered during day's waking activities;
- Throws out all unwanted material;
- We dream in order to forget involving a process of "reverse learning";
- Cortex cannot cope with vast amount of information received during the day without developing "parasitic" thoughts, which would disrupt efficient organisation of memory;
- During REM sleep, unwanted connections are wiped out by bombarding cortex from sub-cortical areas.