

The Psychology of Sleep and Dreaming



Sleep and Dreams



- Circadian Rhythm
 - the biological clock
 - regular bodily rhythms, such as of wakefulness and body temperature, that occur on a 24-hour-ish cycle

Toward a Science of Dreaming

- Cognitive Revolution
 - 1950s and 60s
- University of Chicago
1951
- Nathaniel Kleitman
(1895-1999)
- Eugene Aserinsky
(1921-1998), a grad.
assistant



Toward a Science of Dreaming

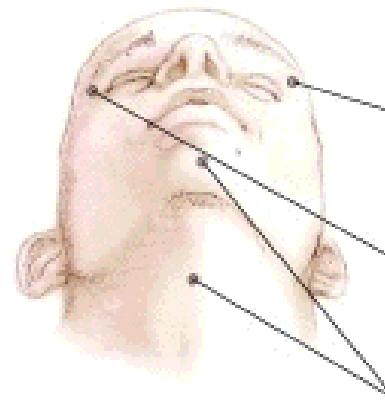
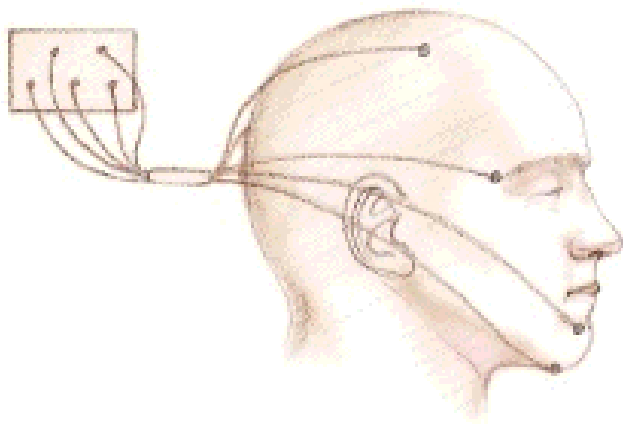


- Aserinsky found that the brain was active in sleep.
- Aserinsky and Kleitman published findings in *Science* in 1953

Sleep and Dreams



- Measuring sleep activity

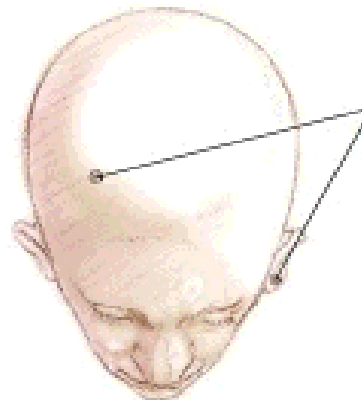


Left eye movements

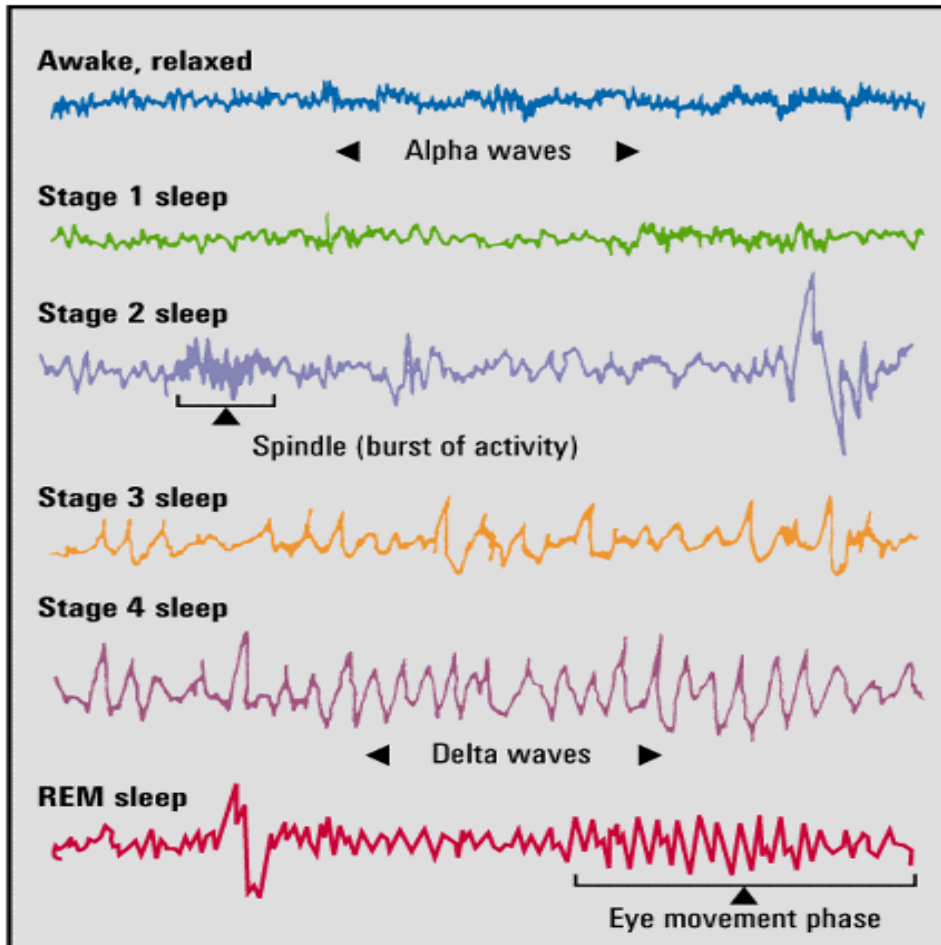
Right eye movements

EMG (muscle tension)

EEG (brain waves)



Brain Waves and Sleep Stages



- **Alpha Waves**
 - slow waves of a relaxed, awake brain
- **Theta Waves**
 - slower waves of a deeply meditating or early sleep states
- **Delta Waves**
 - large, slow waves of deep sleep

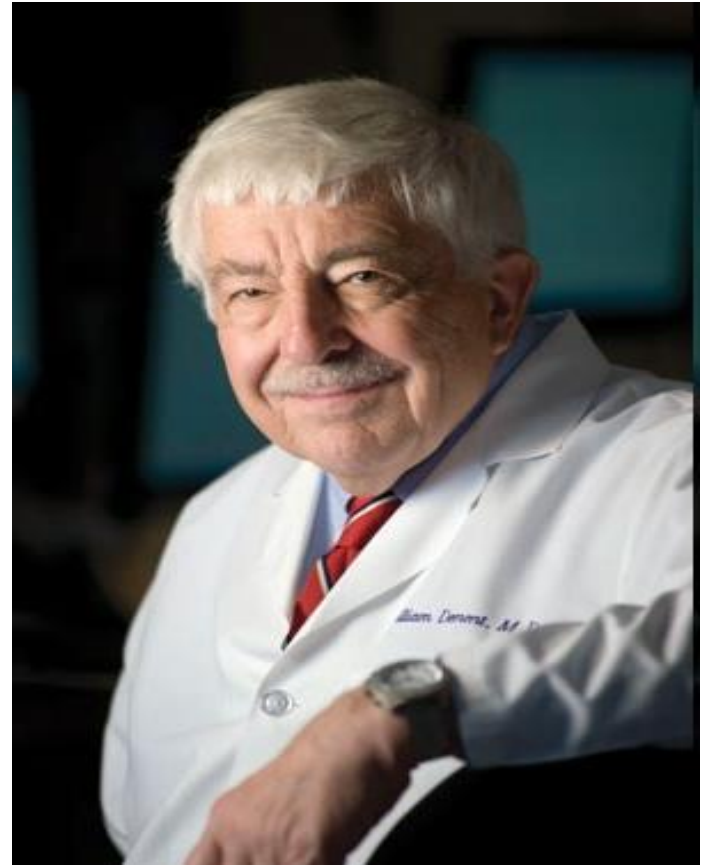
Sleep and Dreams

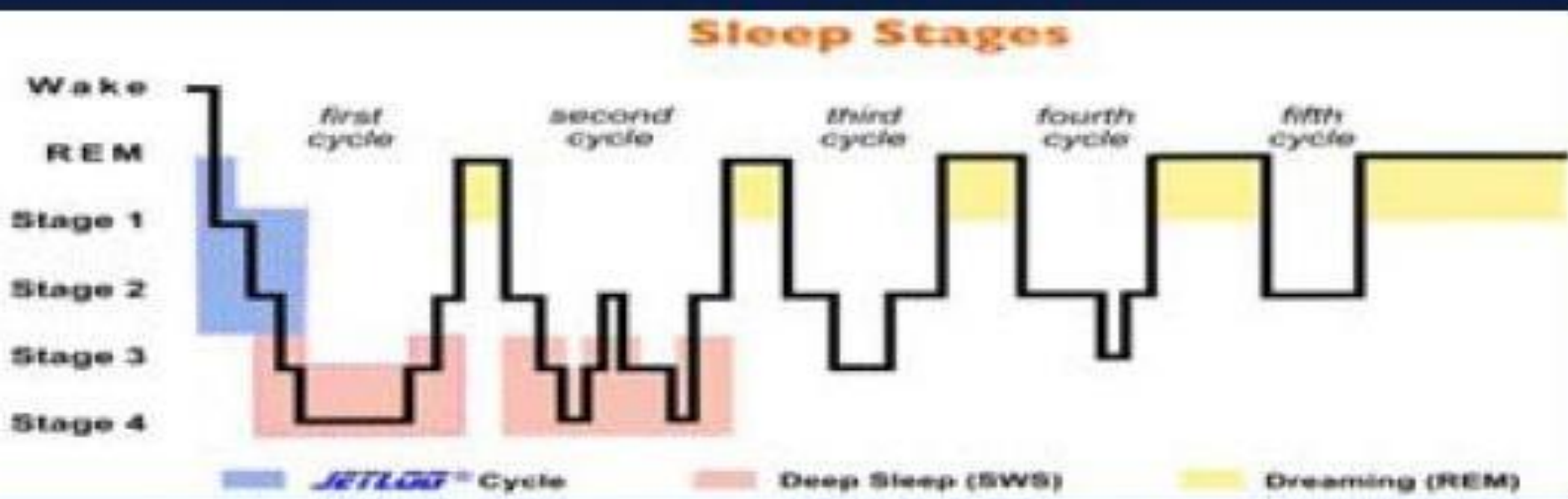
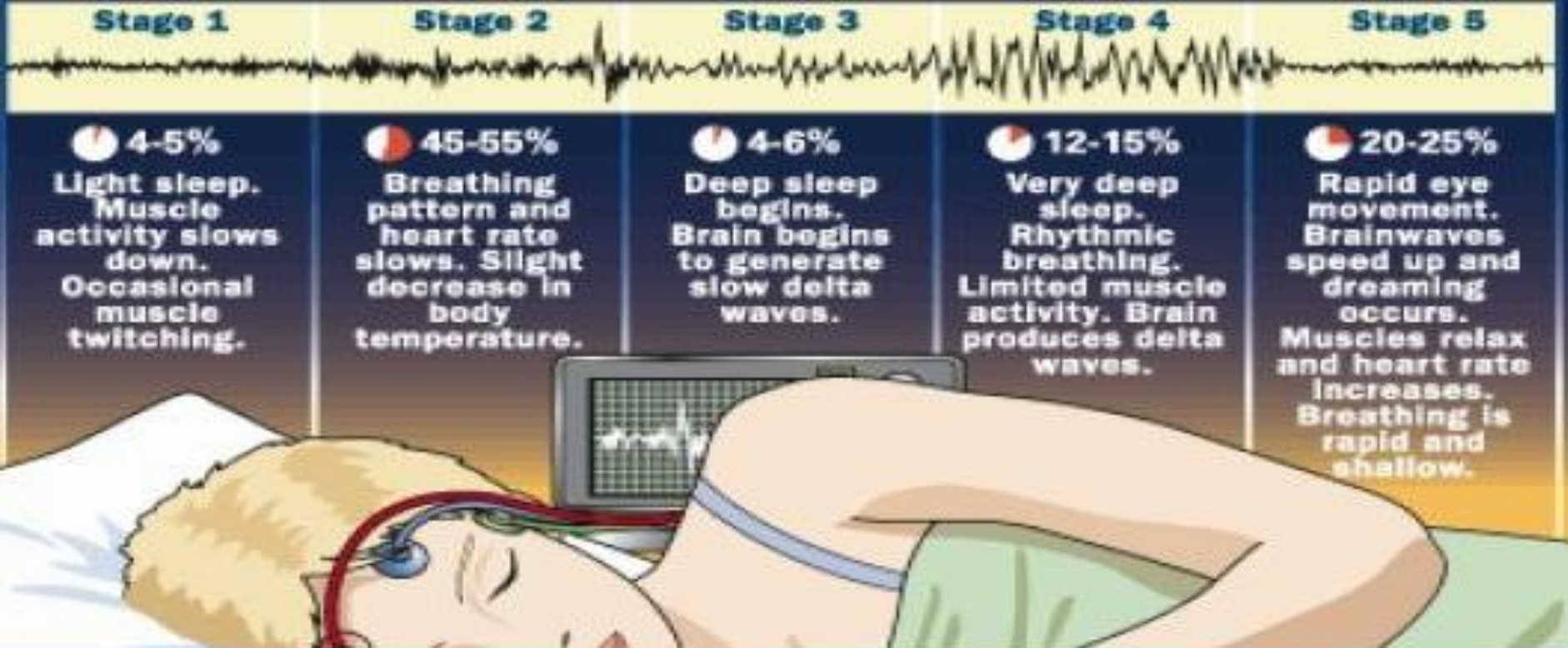


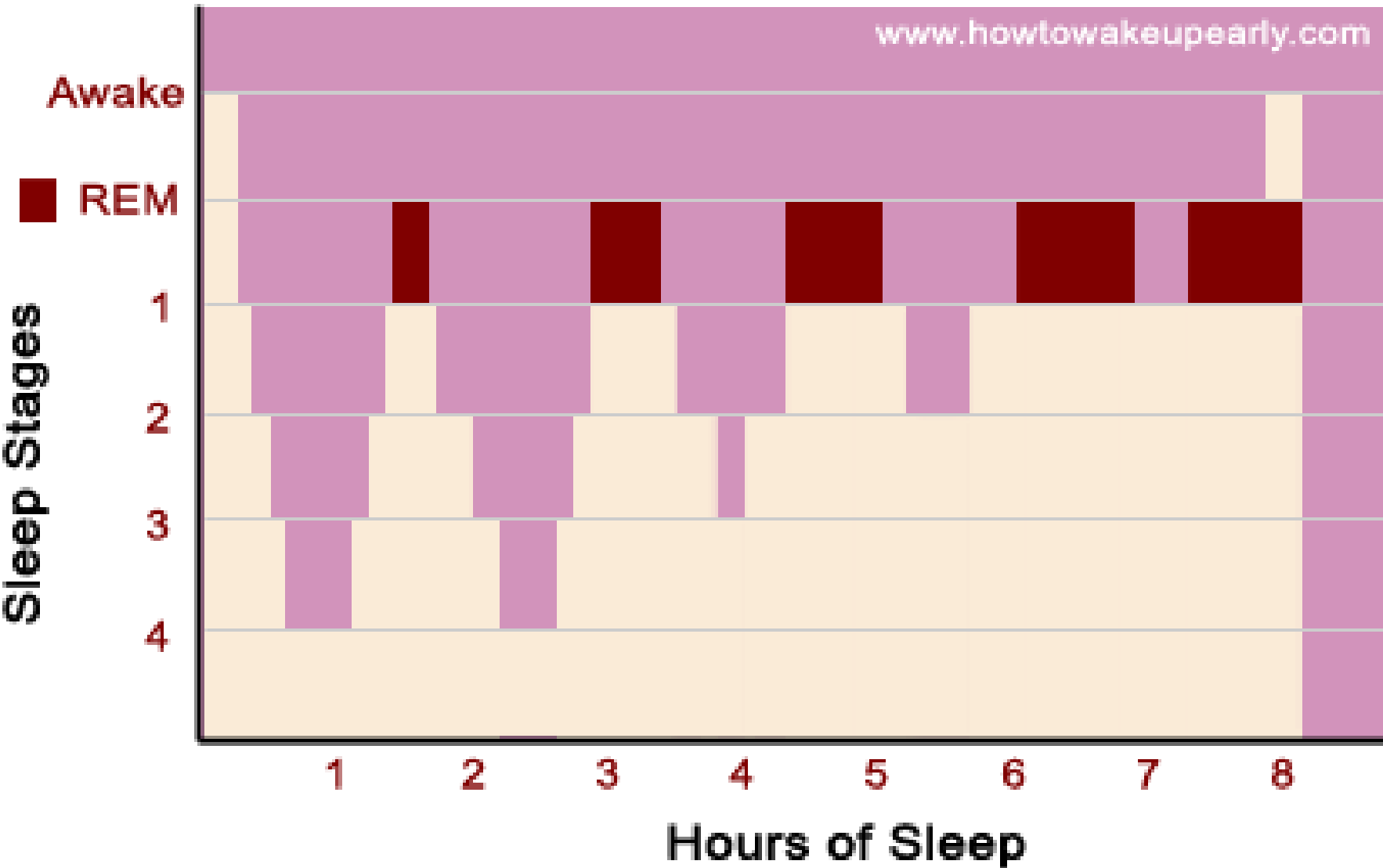
- **REM (Rapid Eye Movement) Sleep**
 - recurring sleep stage
 - vivid dreams
 - “paradoxical sleep”
 - Muscles and body are generally relaxed or paralyzed, but brain is very active

Toward a Science of Dreaming

- William Dement (b. 1928)
- Dement and Kleitman's articles (1957) described sleep stages and dreaming.
- REM: 74%
 - As high as 95% in future studies
- NREM: 10%
- REM=Dreaming?







Sleep Deprivation

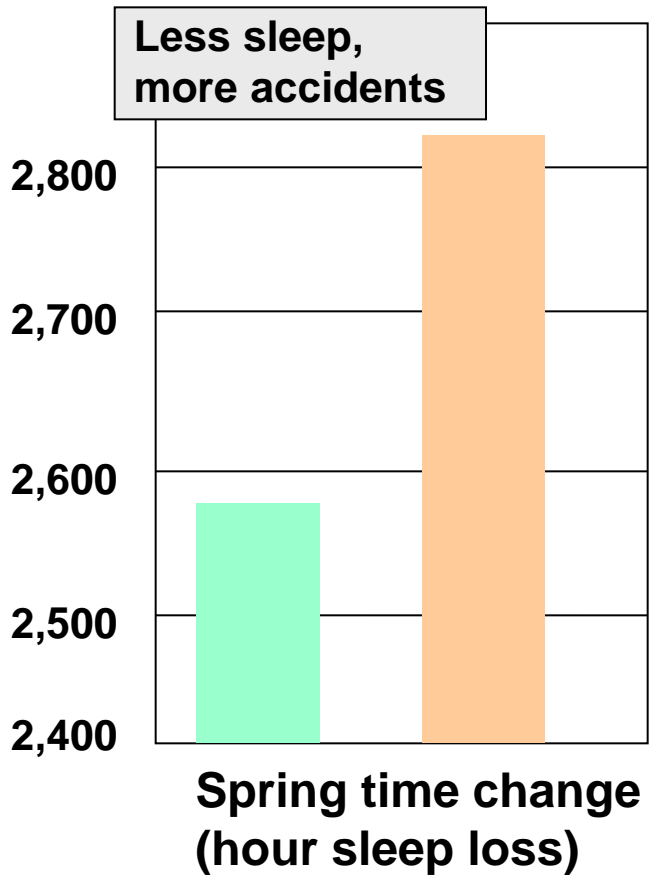


- **Effects of Sleep Loss**
 - fatigue
 - impaired concentration
 - depressed immune system
 - greater vulnerability to accidents

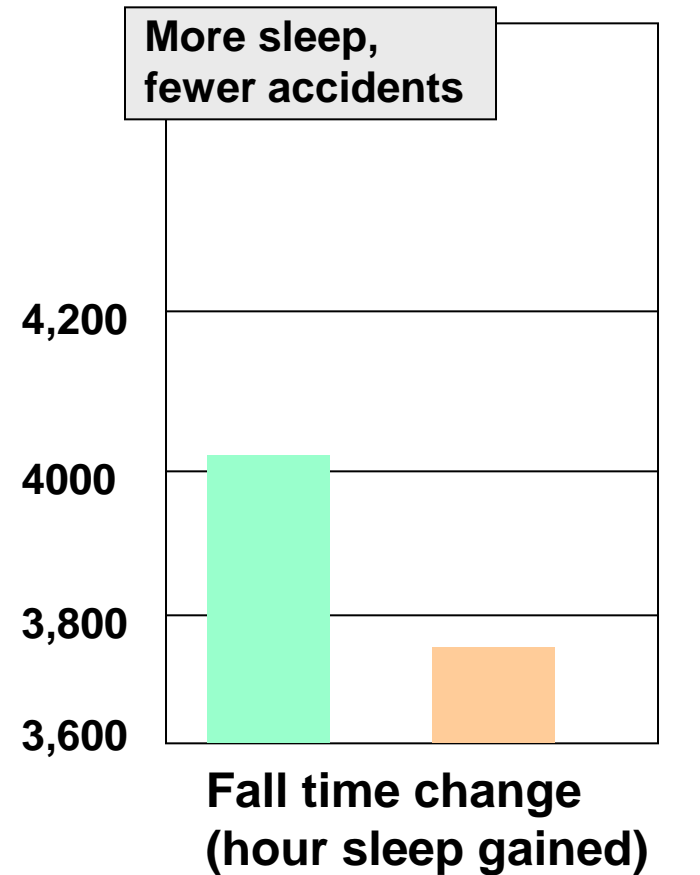
Sleep Deprivation



Accident frequency



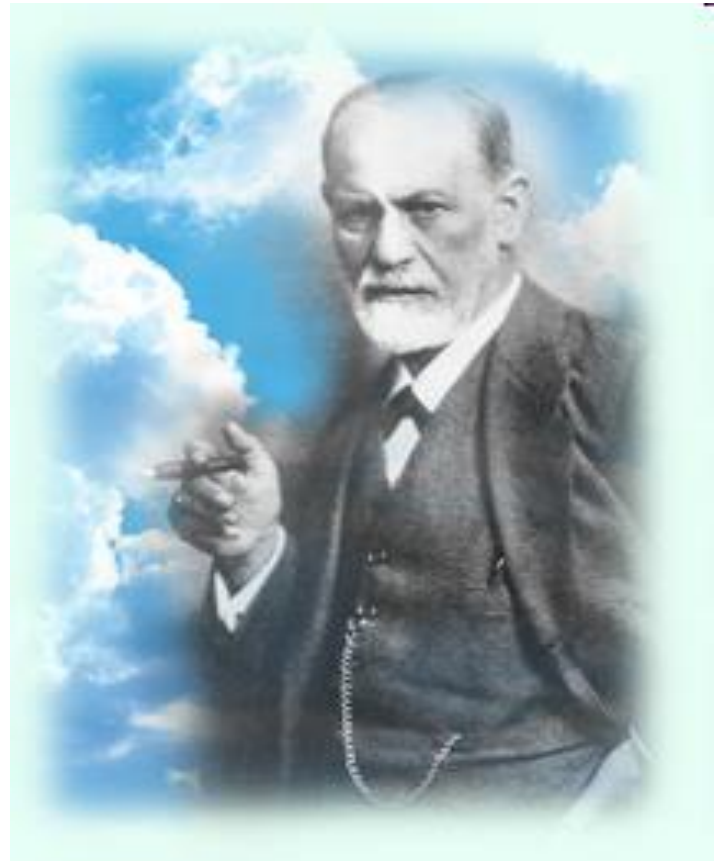
Monday before time change



Monday after time change

The “Royal Road” to the Unconscious

- Sigmund Freud
(1856-1939)
- *The Interpretation of Dreams* (1900?)



Freudian Dream Theory

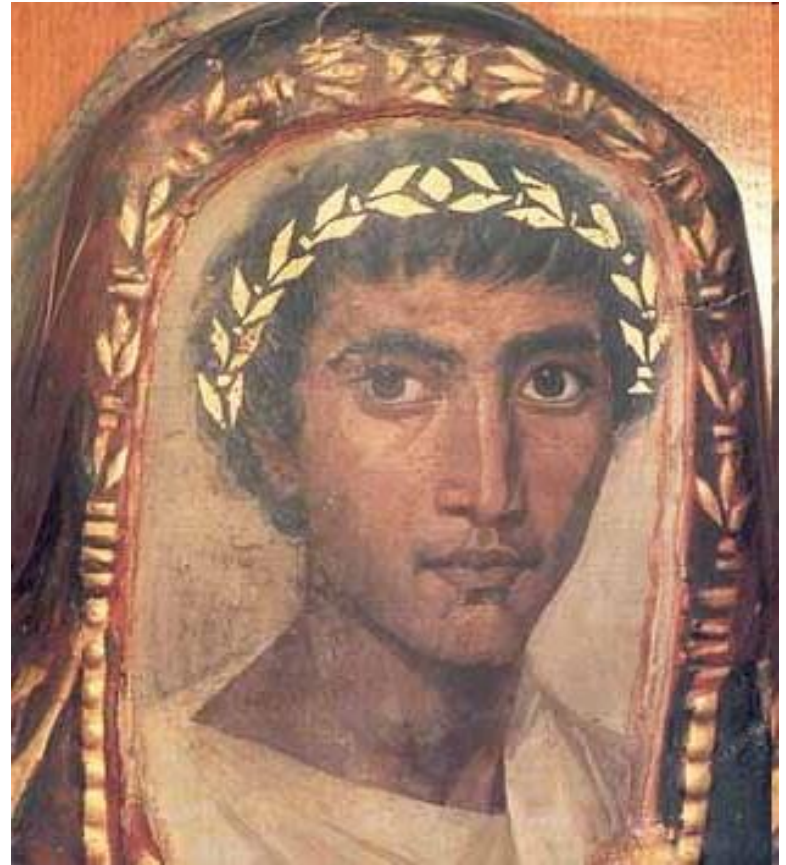
- Dreaming is wish fulfillment
- Manifest Content: What you actually dream about
- Latent Content: The underlying wishes and meaning.
- Dream analysis used in therapy

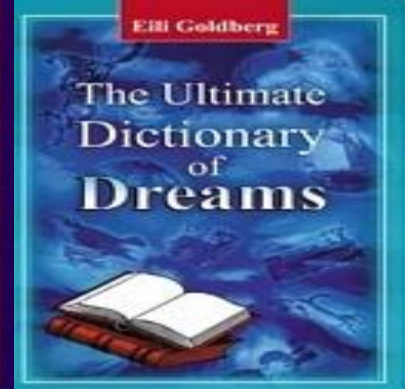
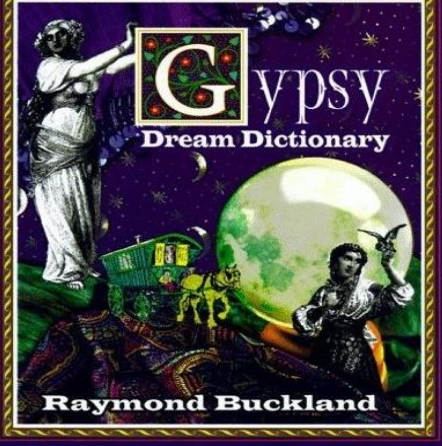
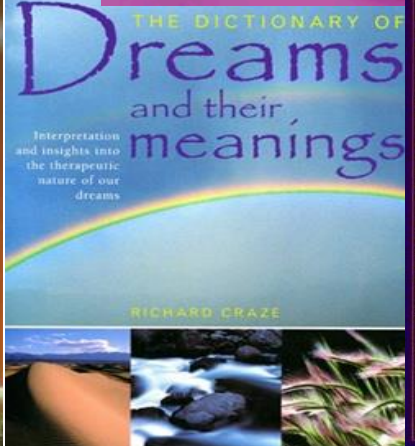
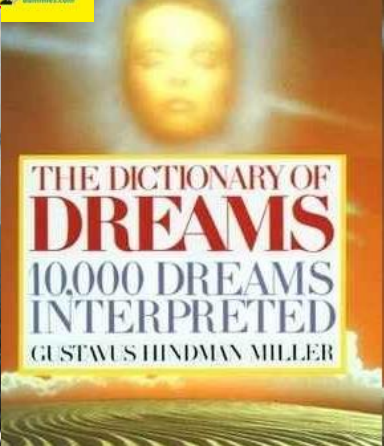
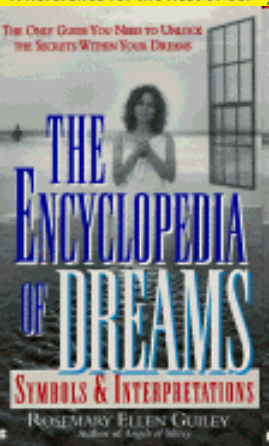
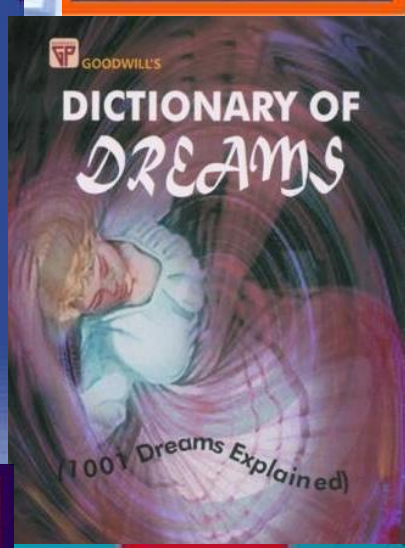
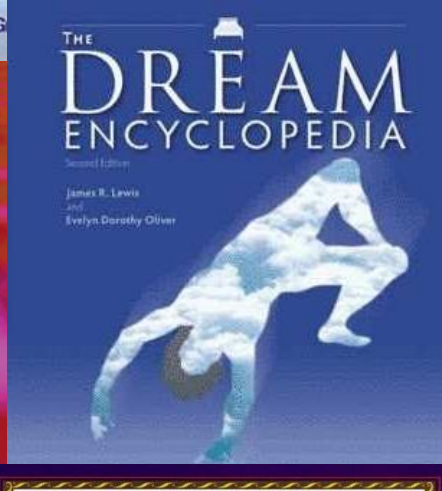
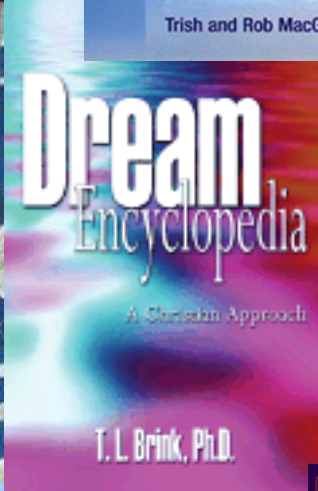
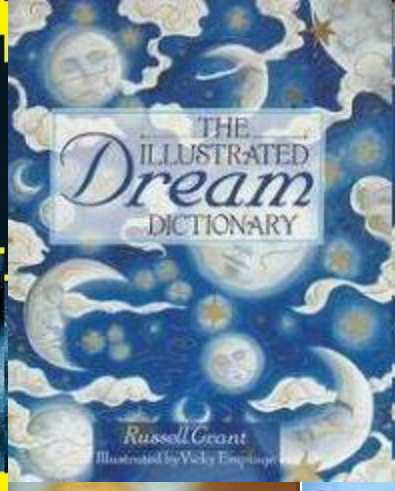
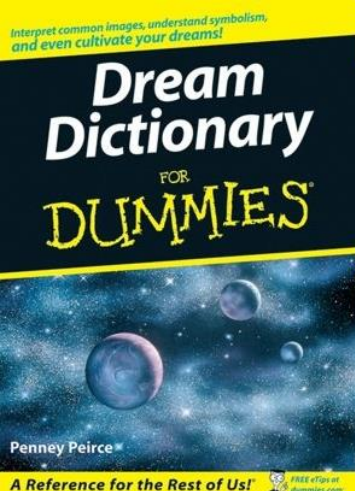
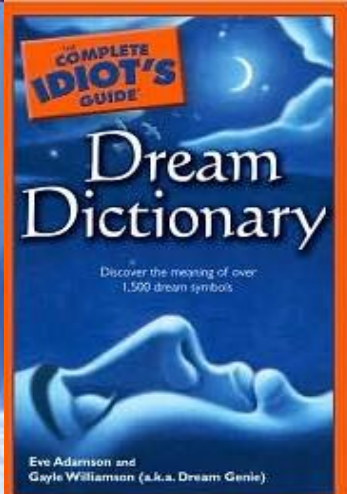
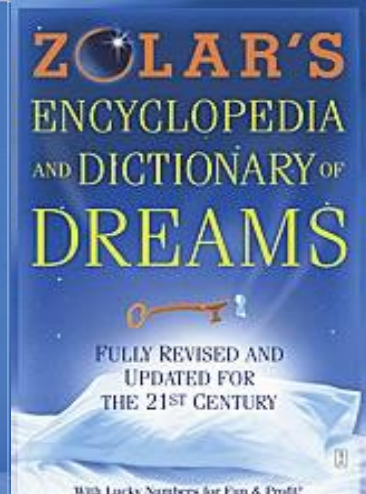
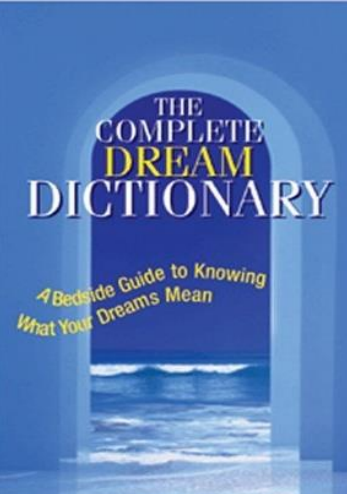
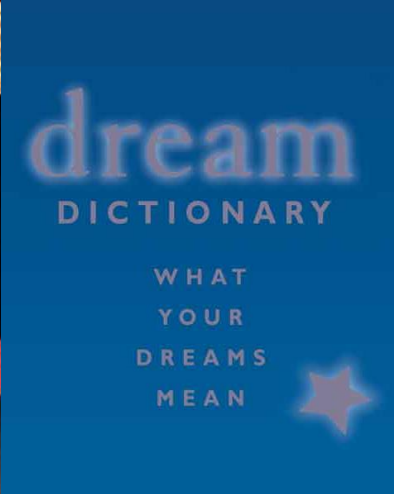
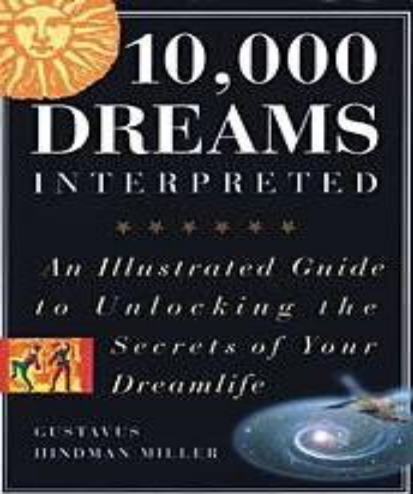


Freudian Dream Theory

Dreams are not
interpreted from manuals

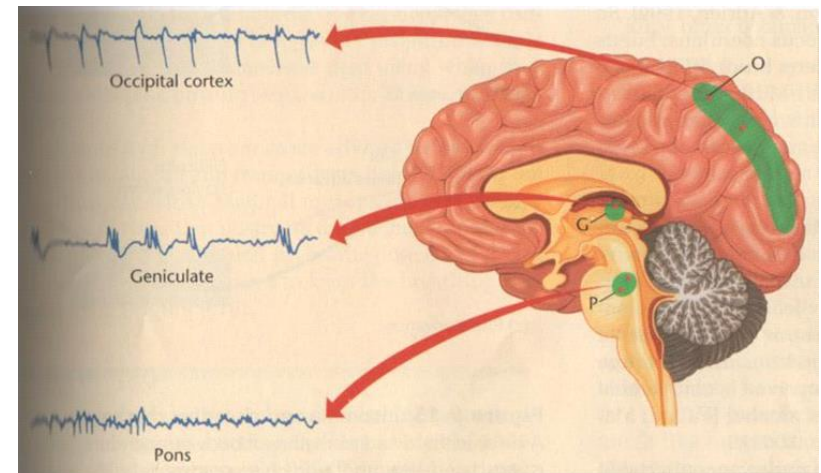
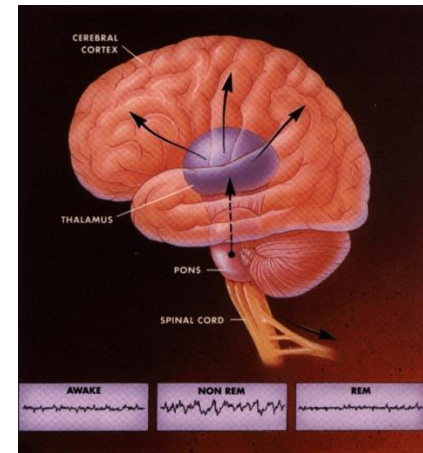
- Ancient Traditions
- Artemidorus
 - *Oneirocritica*
 - Metaphors





Why are dreams sometimes (or almost always) bizarre?

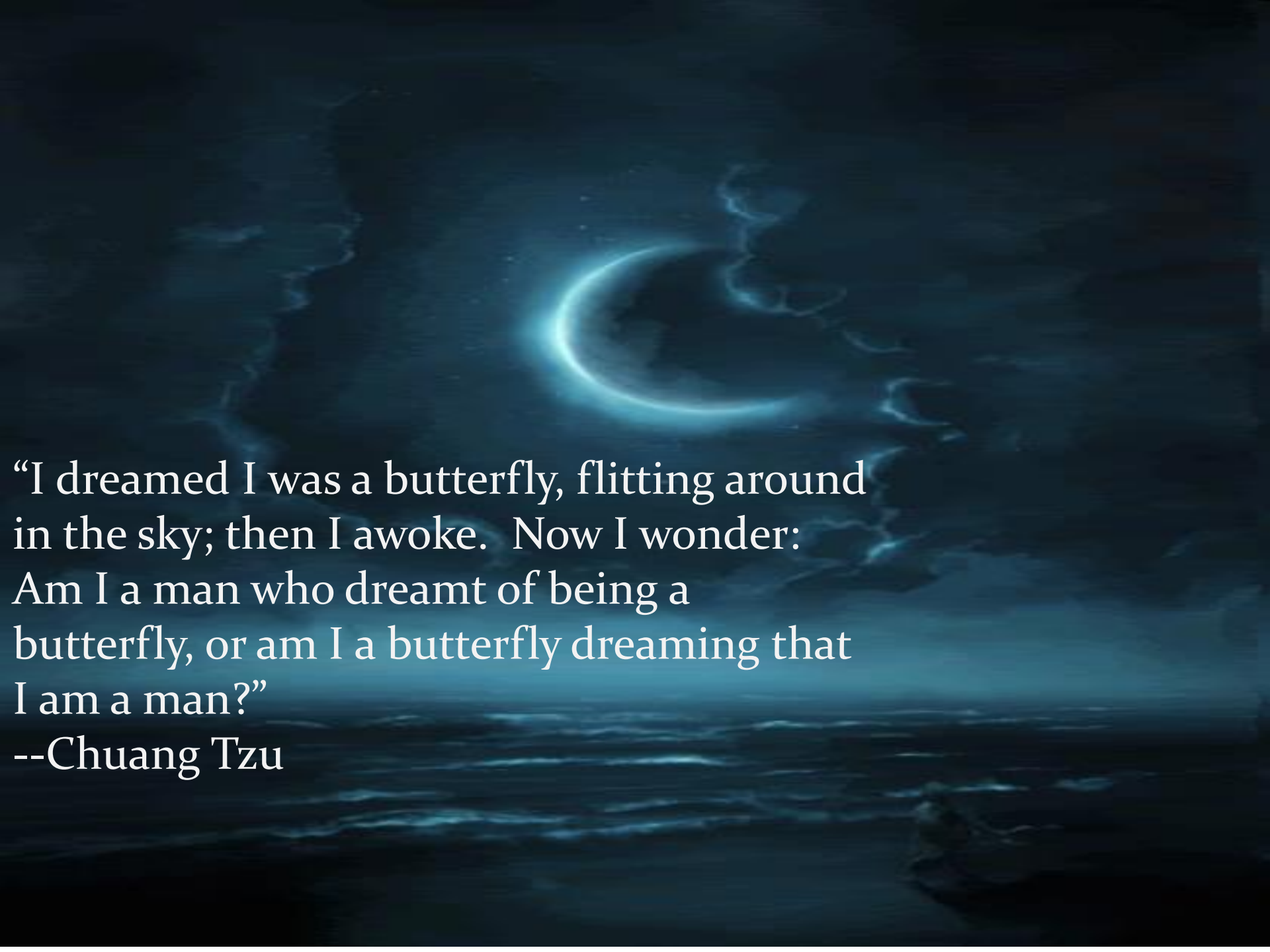
- Different parts of the brain are active than during waking life.
 - Frontal lobe shut down
 - Limbic (emotional) system turned on
- Different neurotransmitters (brain chemicals) are working.



Activation-Synthesis Theory

- Bizarreness
 - Errors in judgment
 - Scene shifts
 - Accepting dream as real
- Emotions
 - Anxiety and Fear
Common
 - Amygdala active (Fight or Flight)
- Difficulty Moving



A glowing crescent moon is centered in the upper half of the image, set against a dark, cloudy night sky. The clouds are illuminated from below, creating a soft, ethereal glow. The overall color palette is dominated by deep blues and blacks, with the white and light blue of the moon and clouds providing contrast.

“I dreamed I was a butterfly, flitting around
in the sky; then I awoke. Now I wonder:
Am I a man who dreamt of being a
butterfly, or am I a butterfly dreaming that
I am a man?”

--Chuang Tzu

Lucid Dreaming



Lucid Dreaming

- Stephen LaBerge
- Stanford University, 1977
- Dement, director of the Stanford sleep lab, allowed LaBerge to use sleep lab to study LD for doctoral dissertation

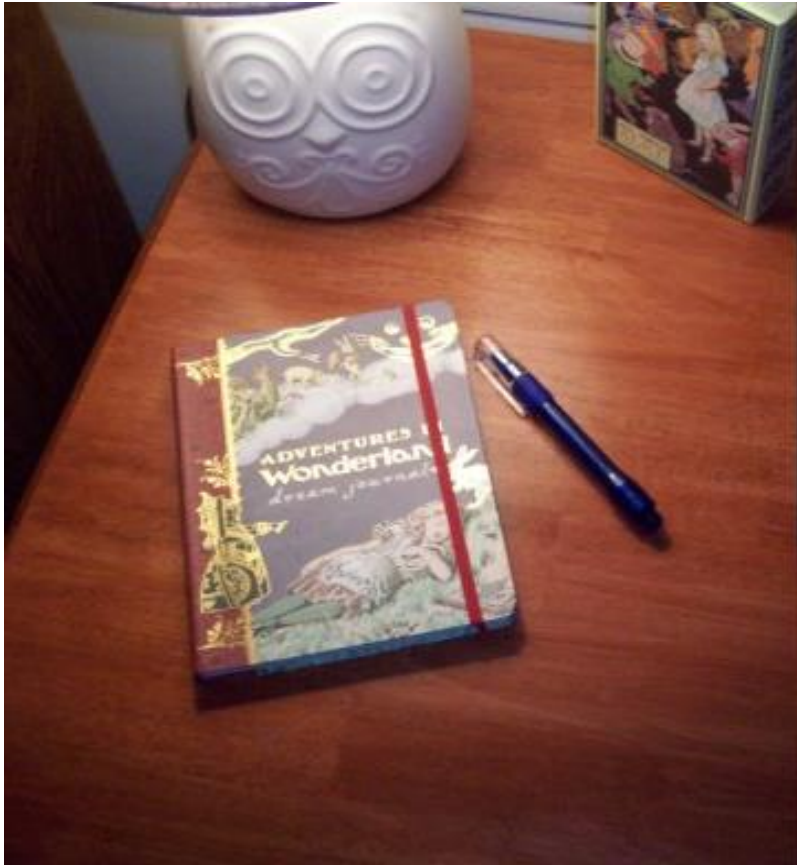


Lucid Dreaming

- LD in the lab
- LaBerge could direct vision in LDs
- Friday January 13th 1978
- LaBerge used prearranged eye movements to signal to the lab tech. that he was in a dream
- Polygraph showed LaBerge's eye movements.



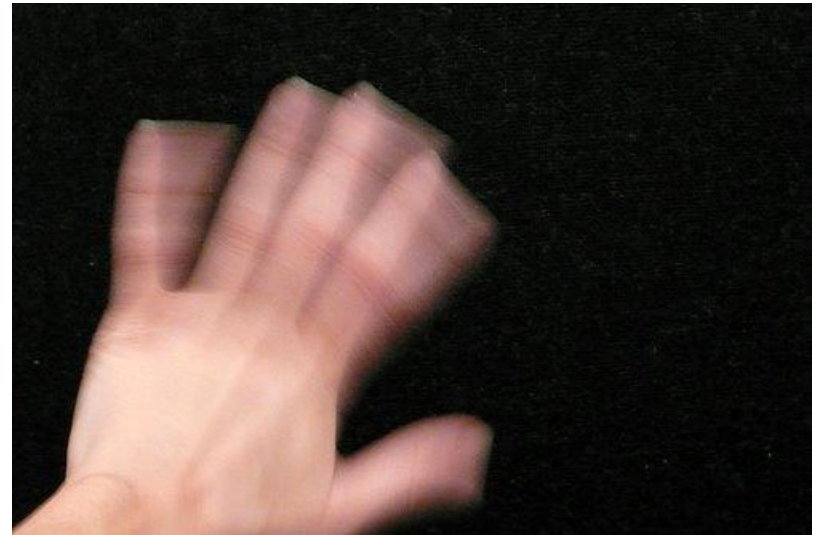
Lucid Dreaming Techniques: Remember your Dreams!



- Motivation
- In a comfortable sleep position, tell yourself you will remember dreams
- Wake up a couple of hours early and go back to sleep
- Get a full nights sleep!!!
- ← Keep a journal near your bed
 - Write down dreams immediately upon waking up.

Lucid Dreaming: Techniques

- Reality Check
 - Wave hands in front of yourself
 - Question whether you are dreaming
 - With time, RC may work its way into your dreams.



Lucid Dreaming: Techniques

- WILD (Wake Induced Lucid Dream)
- Enter lucid dream by maintaining consciousness as body falls asleep
 - More rare and difficult



Lucid Dreaming: Techniques

- Technology
 - Mask detects REM
 - Flashes red light into eyes



References

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