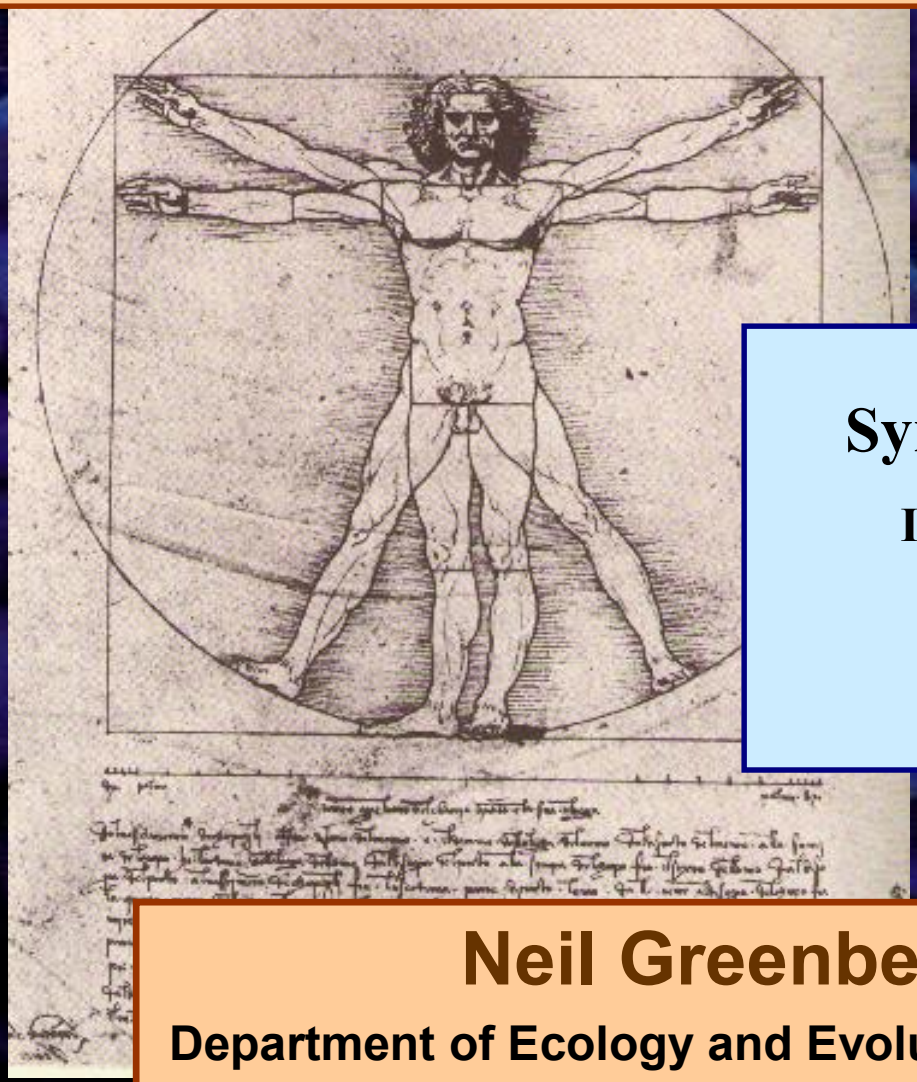
THE NATURAL HISTORY OF INTUITION



Adapted from The Symposium on Intuition

Institute of Noetic Sciences and Bastyr University

Seattle, Washington
March 21, 2006

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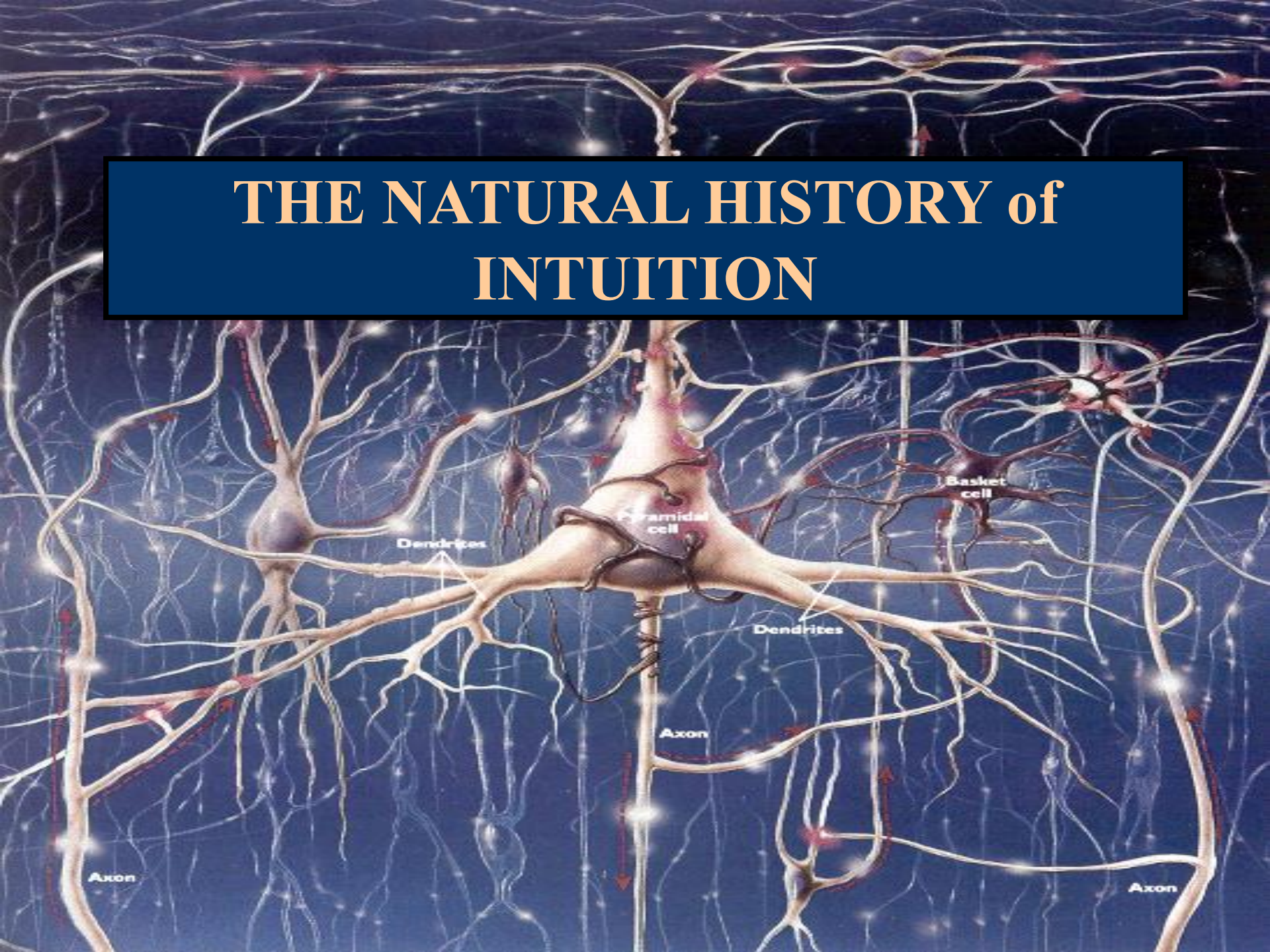
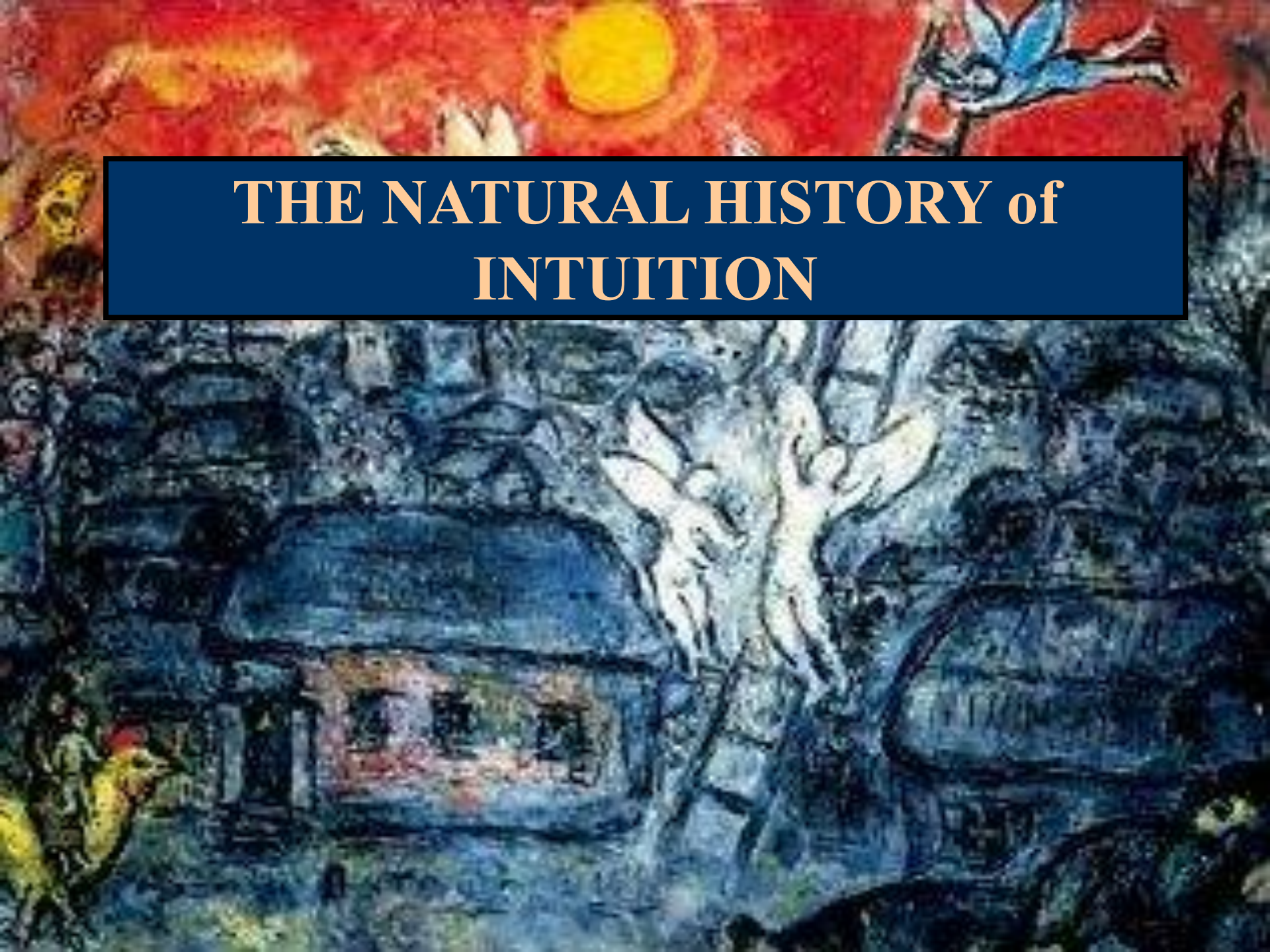
THE NATURAL HISTORY of INTUITION




THE NATURAL HISTORY of
INTUITION

OBJECTIVES

- **INTUITION**
- **NATURAL HISTORY (“DEEP ETHOLOGY”) of INTUITION**
- **CONFIDENCE (in a BELIEF)**
- **WOUNDED HEALERS**

OBJECTIVES

- **INTUITION:**
  - DEFINED
  - Much like CREATIVITY
  - Involves resolution of dichotomies of consciousness (such as “heart and mind” or “passion and reason” or “non-conscious and conscious cognition”)

OBJECTIVES

- **NATURAL HISTORY of INTUITION:**
  - A behavioral pattern is a biological trait
  - DEEP ETHOLOGY:
    - Development
    - Ecology
    - Evolution
    - Physiology

OBJECTIVES

- **CONFIDENCE:**
  - As to the "TRUTH" of a belief
  - Attributable to the reciprocal interactions between CORRESPONDENCE & COHERENCE
  - These are much like PRACTICE & THEORY

OBJECTIVES

- **WOUNDED HEALERS**
  - A healer begins with one's SELF -- by "knowing one's self"
  - The "primal wound" may be attributable to alienation from one's self during the process of individuation and then reintegration.
  - The process tests REALITY and establishes COHERENCE

DEFINITIONS of INTUITION

HOLISTIC: ***eg,*** **"experience of a clinical situation *as a whole*, to solve a problem or reach a decision with limited concrete information** (Schraeder and Fischer, 1986)

CREATIVE: ***eg,*** **"the *sudden perception of a pattern* in a seemingly unrelated series of events…. Beyond what is visible to the senses"** (Gerrity, 1987 p. 65).

"the integration of forms of knowing in a *sudden realization* [which] precipitates an analytical process which facilitates action in patient/client care." (Rovithis & Parissopoulos 2005)

INTUITION and CREATIVITY

PATTERN DETECTION

Patterns emerge when connections are found or created between previously unrelated percepts – this involves activation of specific pathways involving multiple levels of consciousness.

Patterns can be “perceived” where non exists (Type I error) or not perceived when they do (Type II error)

INTUITION and CREATIVITY

INTEGRATING LEVELS OF CONSCIOUSNESS

Intuition draws upon nonconscious knowledge made accessible by enhanced activation of specific pathways (or centers along the path) involving multiple levels of consciousness.

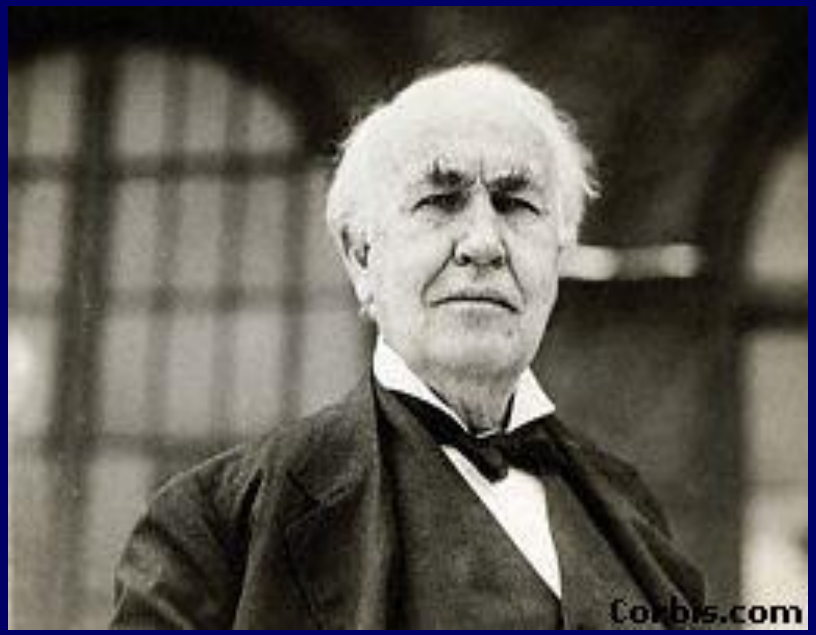
CREATIVITY

- energized by emotion *(there is a need)*
- focused by motivation *(what is it?)*
- coordinated by cognition *(how to meet it)*

These are all affected by stress evoked by the loss of equilibrium (eg, novelty or dissonance)

Interpreted in context

- Joan: **. . . you must not talk to me about my voices.**
- Robert: **How do you mean? Voices?**
- Joan: **I hear voices telling me what to do. They come from God.**
- Robert: **They come from your *imagination !***
- Joan: ***Of course*. That is how the messages of God come to us.**



Thomas Alva Edison

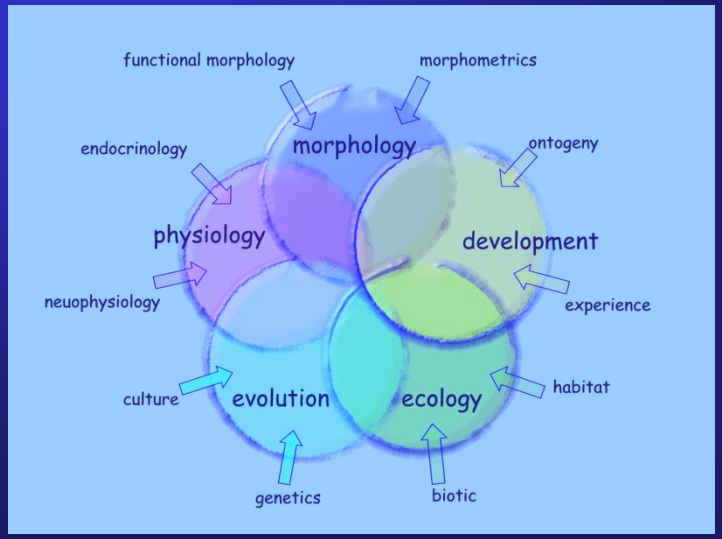
“Genius is one per cent inspiration, ninety-nine per cent perspiration.”

The Natural History of Intuition

"Ethology" is the discipline that seeks to understand the ***causes*** and ***consequences*** of natural behavioral patterns.

Once defined, a behavioral pattern can be best understood using the complementary approaches of four biological disciplines:

- **Development**
- **Ecology**
- **Evolution**
- **Physiology**



The Natural History of Intuition

Intuition must be studied in its "natural habitat"

For example, **One's sense of self** is supremely intuitive and can be viewed from the perspective of DEEP ethology.

This understanding can empower individuals to more-or-less freely rely upon "intuition" to energize their daily lives as well as important decisions.

This power is exemplified by **creativity** expressed in art and science, but also in clinical *diagnosis*.

DEEP ETHOLOGY:DEVELOPMENT

Progressive changes within individuals

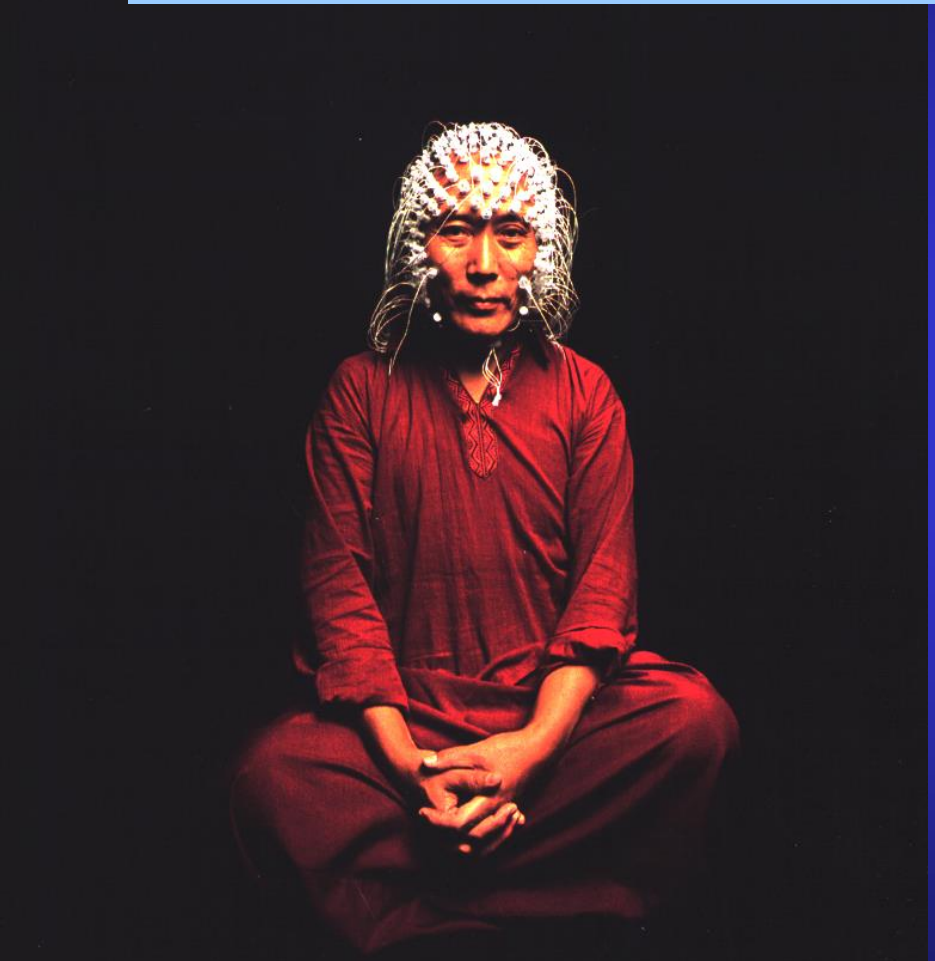
Epigenesis – Our "genetic program" interacts with specific stimuli in the environment, energizing (or suppressing) specific genes.

Social Constructivism – As social organisms we are part of one another's environment.

Social referencing – trusted "caregivers" resolve ambiguous feelings

Neuroplasticity – all learning, including (eg) meditators

The Natural History of Intuition:
DEVELOPMENT: Neuroplasticity



Neuroplasticity:

Highly experienced meditators have much greater basal activity levels in their left prefrontal cortices than non-meditators

(Richard Davidson group at Wisconsin-Madison)

DEEP ETHOLOGY: ECOLOGY

Continuing accommodation to the context

Organisms must continually cope with change of both *internal* and *external* environments. . .

Optimization – the organism has both innate and acquired ways of estimating the costs and benefits of specific behavioral options in whatever environment it finds itself in at a given moment

EPIGENESIS

The developing organism both shapes and is shaped by the landscape

DEEP ETHOLOGY: EVOLUTION

progressive change from generation to generation

"ULTIMATE causation" – The survival problem solved, often in the ancestral past

Inclusive Fitness – The sum of **direct** and **indirect** fitness

Self actualization – "being all you can be" = maximizing fitness; Transmitting "biologically relevant information" that can affect the next generation: genes *or* memes

Ritualization – A trait that helps the organism cope with one specific needs is also available for more or less "retasking"

Competition – for limited resources requires that we be better than our competitors, not perfect.

RITUALIZATION

- What begins as a thermoregulatory reflex of the autonomic nervous system
- Can end up as a precisely controlled display behavior to communicate reproductive intentions and competence

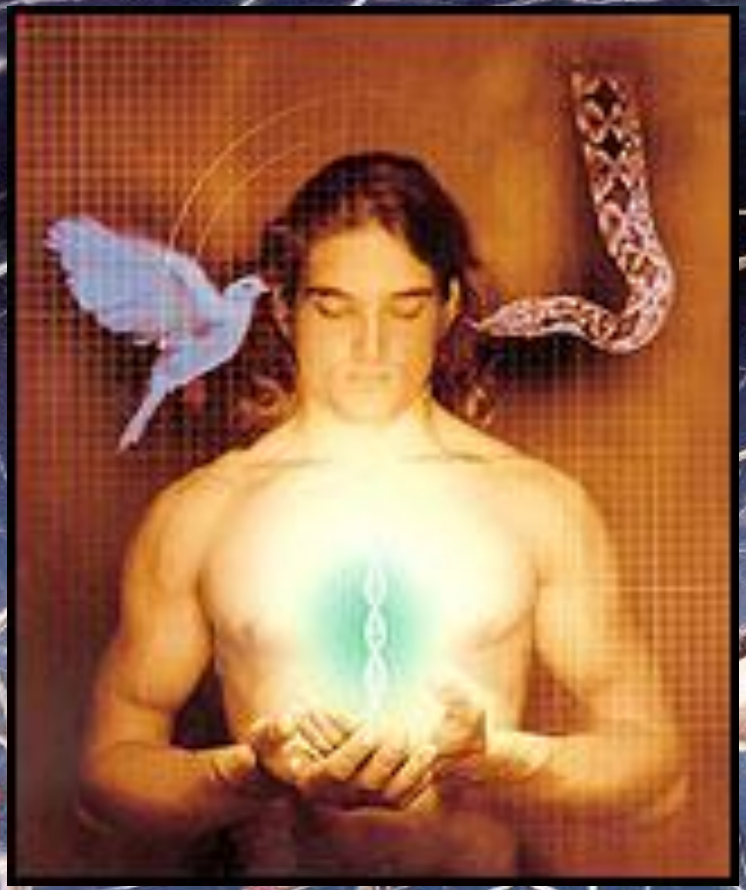
DEEP ETHOLOGY: PHYSIOLOGY

Intrinsic Mechanisms to Maintain Homeostasis

"PROXIMATE" causation – preceding phenomena within the organism

Nervous System – Neural coordination and effectors for systems that maintain homeostasis - including behavior.

Endocrine System -- Chemical coordinators that interact with nervous system, body, and each other to modulate systems that that maintain homeostasis



CONFLICT is wired into us: paths to action compete and the outcomes reflect the optimal (estimated) solution to meeting a real or perceived survival need

The relative urgency of the need evokes more-or-less of the stress response

SUBLINICAL STRESS affect OUTCOMES

STRESS (in moderation) is an essential coping mechanism

When stressed, **sensory reception is enhanced** (eg, pupils dilate), and **energy available** to specific functional modules in the brain is **reallocated** (eg, prefrontal cortex may be by-passed), affecting the outcome.

This is easy because multiple parallel paths of information through the organism are in continual interaction, even **competition**.

Thousands of competing afferent paths – inputs, sensations, percepts . . .

Thousands of competing efferent paths – outputs, activations, actions . . .

Input, Output (1999)

INTEGRATIVE PHENOMENA THAT BEAR ON INTUITION

PAREIDOLIA is the perception of a pattern where none is apparent (=false positive, "Type I error") --seeing a pattern in apparent random stimuli or "noise" (a face or castle in the clouds, a syndrome in a collection of complaints). (Apophenia, when perceptions are spontaneous)

REDINTEGRATION is when a specific percept or connection acts as a lightning rod for additional percepts that are connected at some deep level and which only cumulatively reveal a specific pattern

Γνωθι σεαυτον

GNOTHI se AUTON

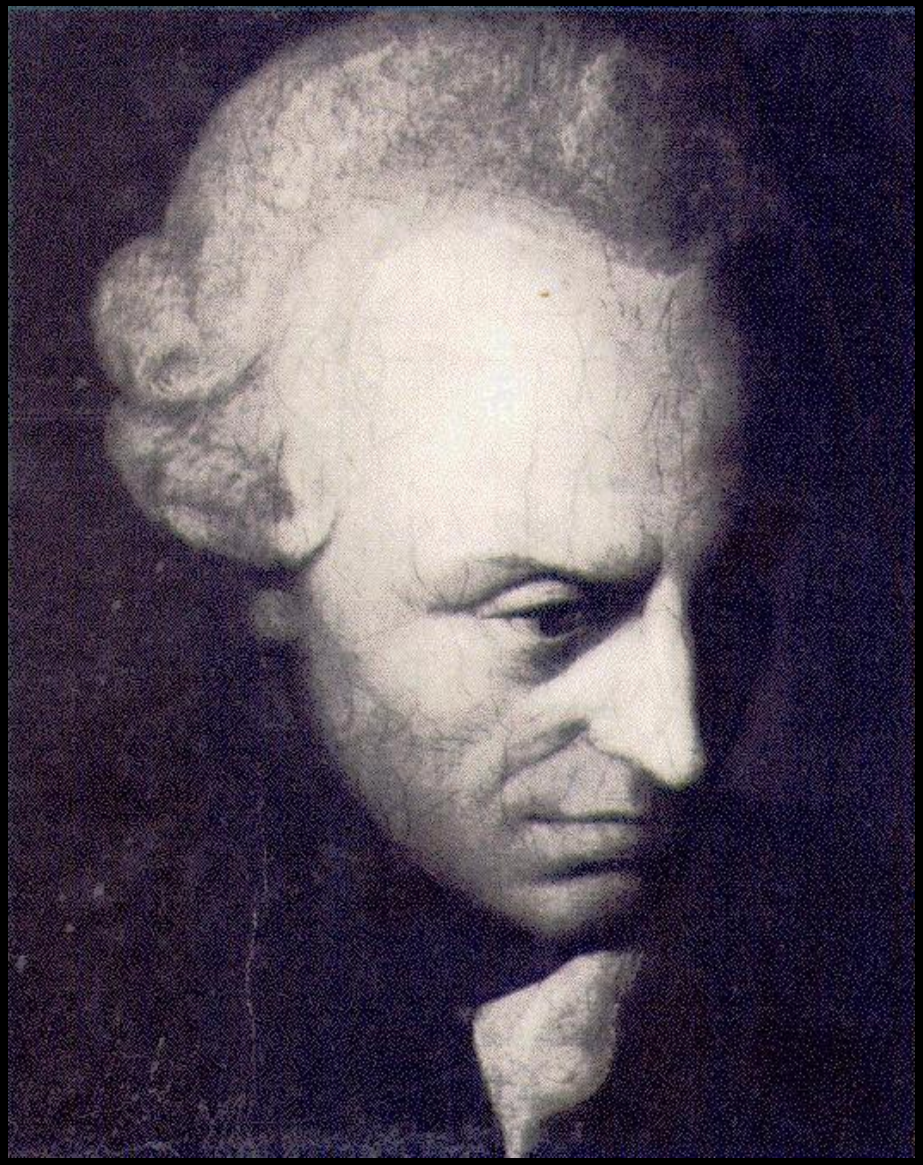
the ancient ruins of the sanctuary of Apollo at Delphi. is spread out over the southern slopes of Mount Parnassos, beneath the Phaidriad rocks.

To be an effective, competitive organism, we would be wise to follow the advice of the Oracle at Delphi:

"*Gnothi se auton*"

(Know thyself)

Is this the primal function of art? Of science?



Immanuel Kant

"The senses cannot think.

The understanding cannot see."

Critique of Pure Reason

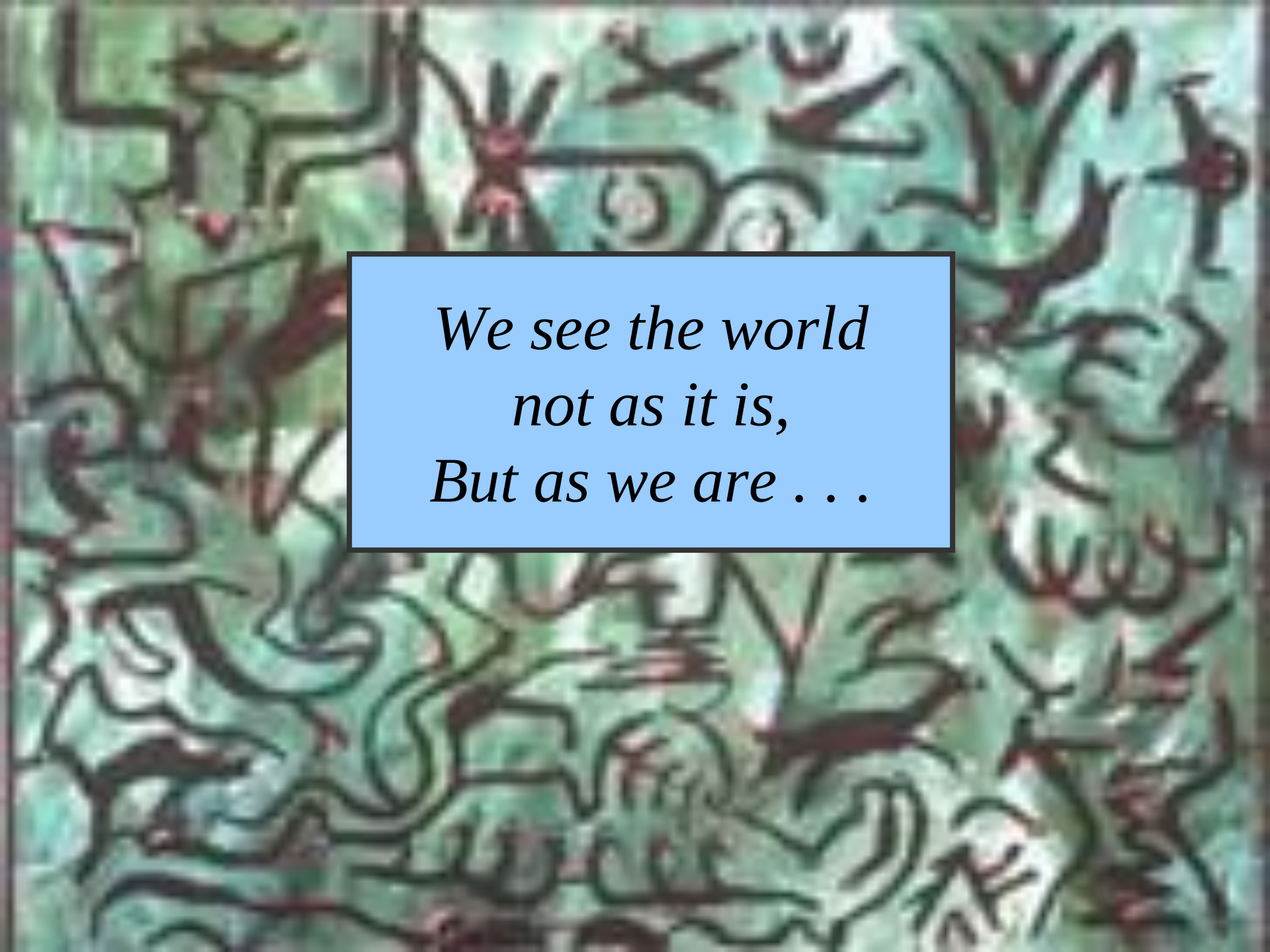
קבלה

We see the world
not as it is,
But as we are . . .

(*Talmud*)

We see the world
not as it is,
But as we are . . .


We see the world
not as it is,
But as we are . . .
Dendrites
Axon
Axon
Axon


We see the world
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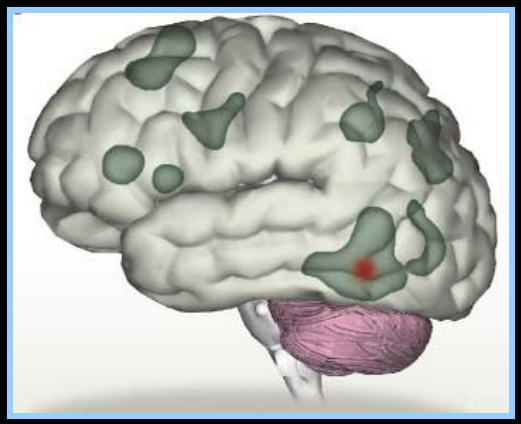
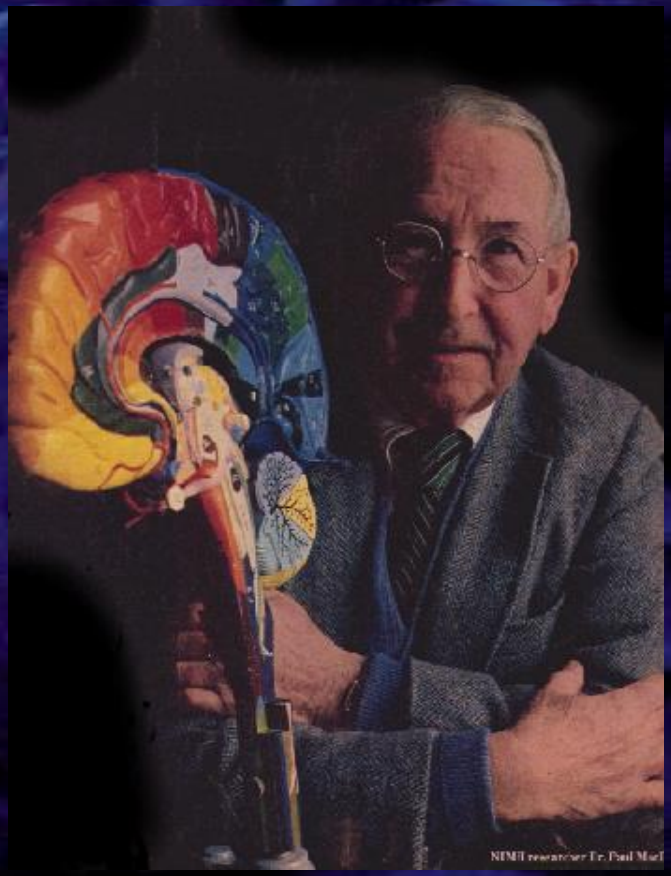
Orchestration

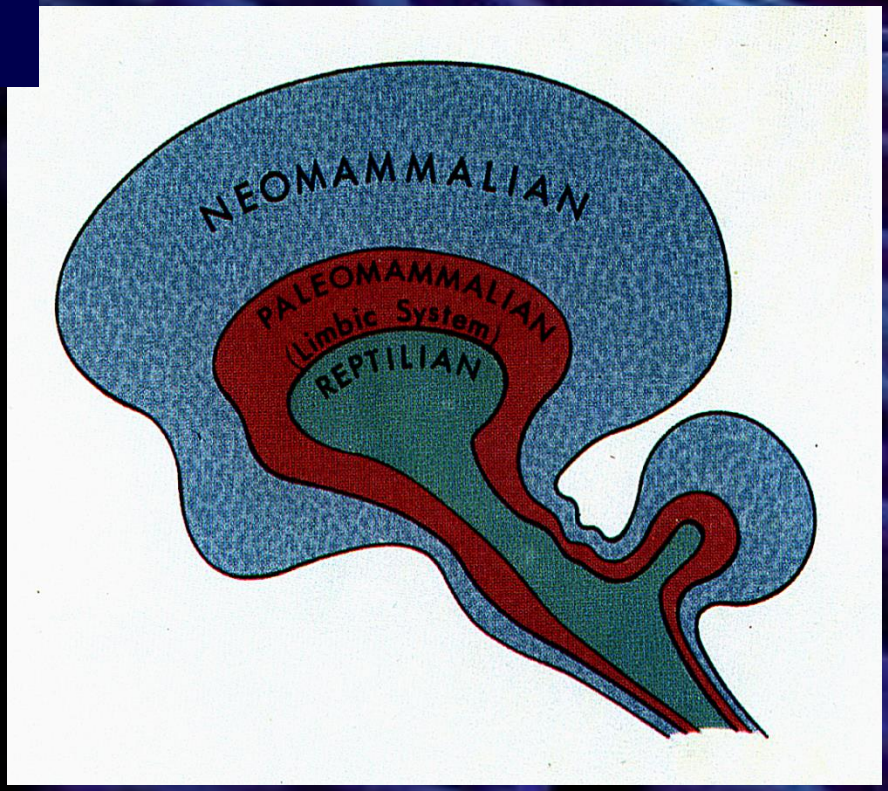


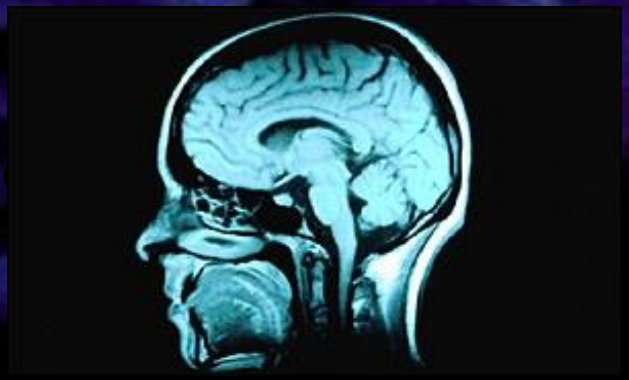
Our brains have areas that are highly specialized for different kinds of information, feelings, and actions.

The cognitive powers of the frontal cortices “modulate” the “instincts” programmed in the “lower” centers

Paul D. MacLean's TRIUNE BRAIN





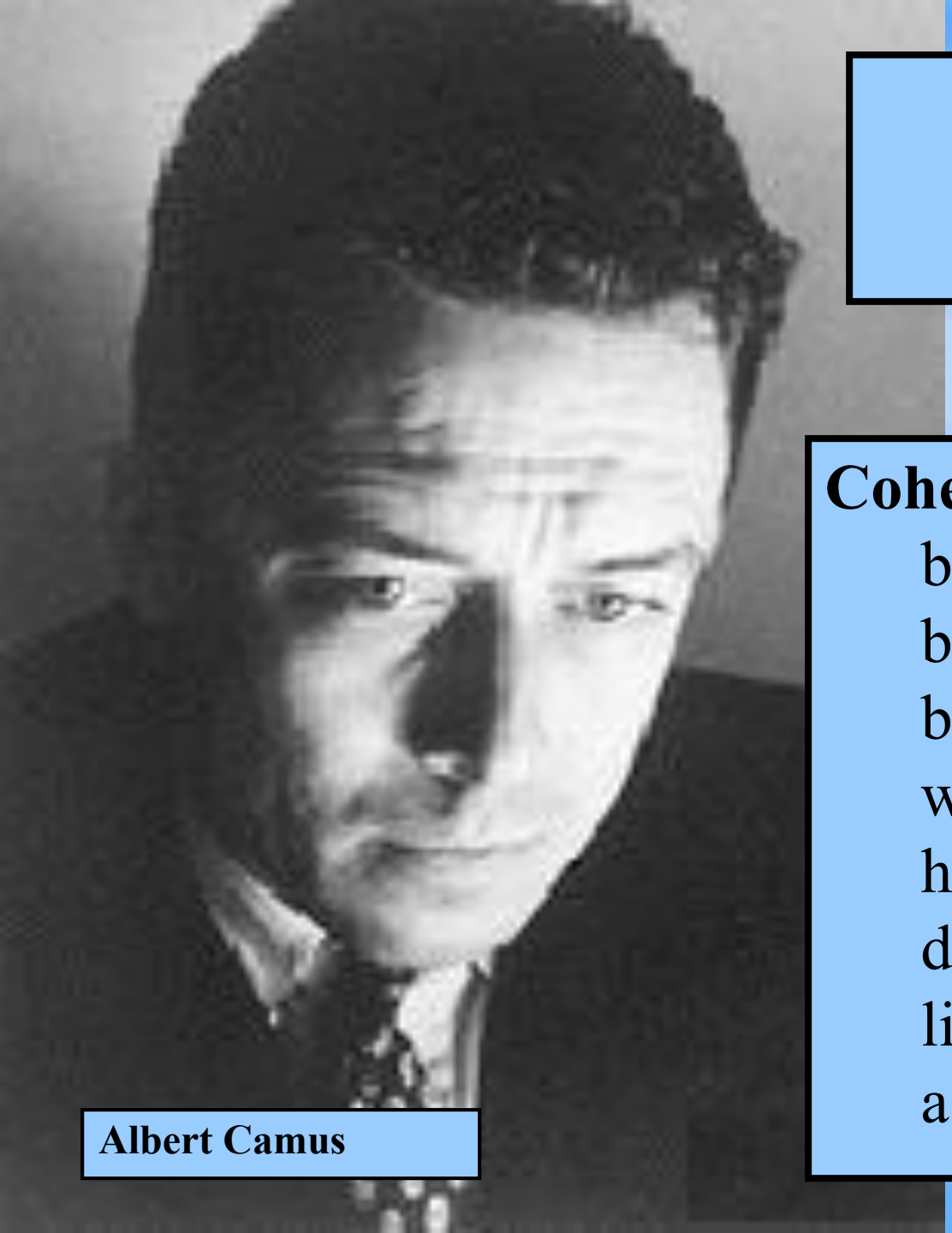


TRUTH in the BRAIN

"TRUTH" is a quality of a belief we hold in our heads -- It has met certain tests:

1. **CORRESPONDENCE:** our *sensory* experience of the world. Does it match reality? ["reality testing"] (Novelty evokes stress – it is anxiogenic – it evokes the *stress response*)

2. **COHERENCE:** our *reasoning* experience of our sensations. Do they fit in with all our other experiences? ["Story-telling"] (Familiarity mitigates stress – it is anxiolytic – it *relieves stress*)



Albert Camus

We *NEED* explanations

Coherence helps us feel better: "A world that can be explained even with bad reasons is a familiar world. But on the other hand, in a universe divested of illusions and lights, man feels an alien, a stranger. . . ."

TRUTH in the BRAIN

LEFT HEMISPHERE

Coherence: creates a "stable and internally consistent belief system"
(Ramachandran 1998)

Probabilistic reasoning
(Osherson et al 1998)

Abstract object recognition
(Marsolek 1999)

RIGHT HEMISPHERE

Correspondence: tests reality and if damaged, confabulation runs rampant
(Ramachandran 1998)

Deductive reasoning
(Osherson et al 1998)

Specific object recognition
(Marsolek 1999)

Kant: "The senses cannot think, the understanding cannot see."

essential tensions

The dualities of mind are adaptive and serve specific needs. Their reciprocity enables a balance of functions that can be rapidly reconfigures and activated in varying proportion to cope with specific needs. web link

- ***tradition* and *innovation*** (the known and the knowable, past and future --Thomas Kuhn)
- **The *heart and mind*** (affect and thought, passion and reason, theory and practice)
- **The *senses* and the *understanding*** (Kant)
- **The *conscious* and the *non-conscious***

The DIVIDED DISCIPLINE

PRACTICE

- More intuitive
- Correspondences
- Direct experience, empirical
- Pattern recognition
- External locus of control

THEORY

- More rational
- Coherence
- Interrelated networks of causes and effects
- Narrowly focused
- Internal locus of control

The Wounded Healer

we are all wounded healers:

the dual functions that enable consciousness and confidence also seeks patterns in nature. These help us predict its course and liberate us from slavery to its caprice or vagaries

. . . but there's a price

"When we understand that man is the only animal who must create meaning, who must open a wedge into neutral nature, we already understand the essence of love."

— Ernest Becker

"Our life is an apprenticeship to the truth that around every circle another can be drawn; that there is no end in nature, but every end is a beginning, and under every deep a lower deep opens"

--Ralph Waldo Emerson

Searching for truth...

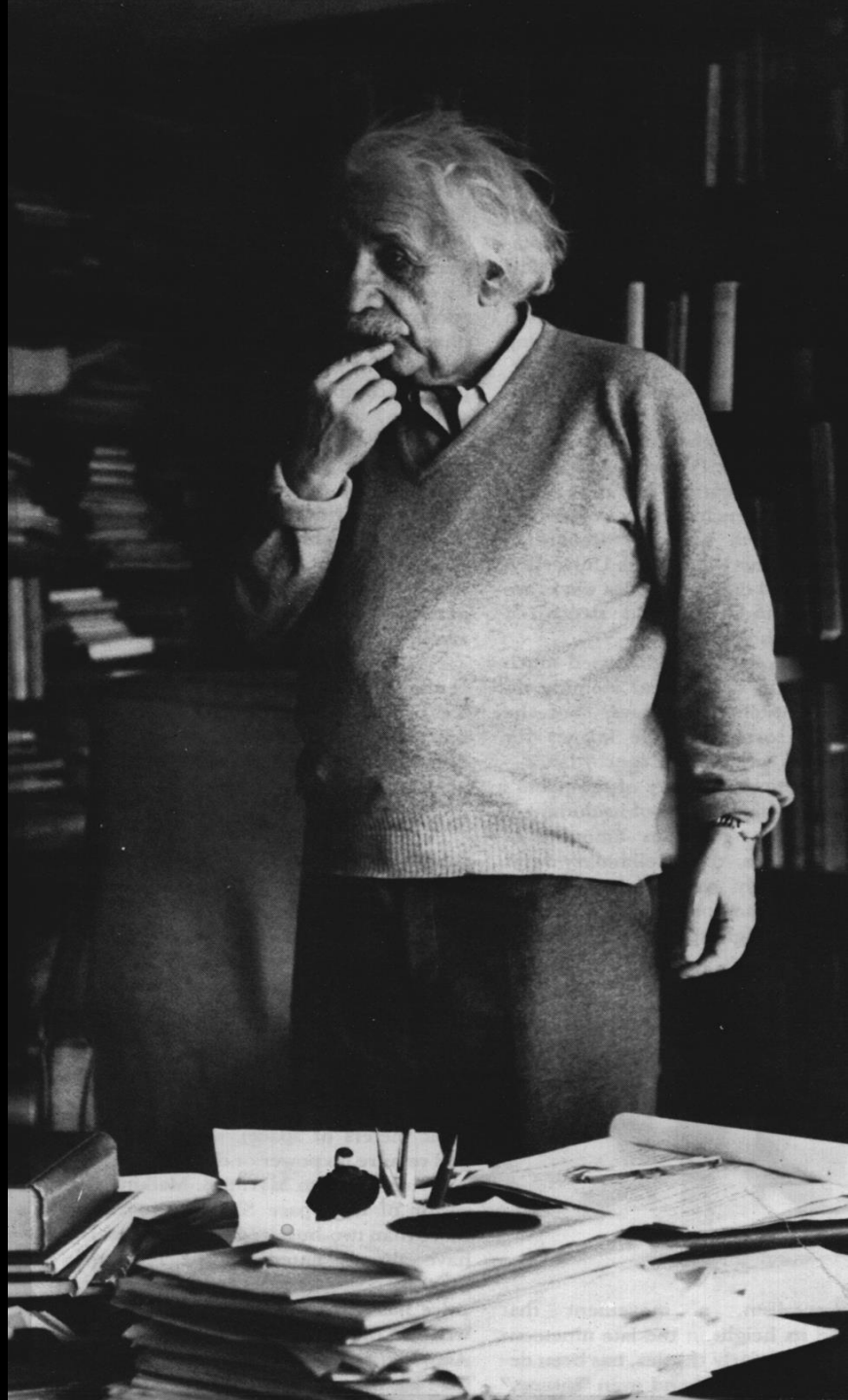
creating connections...

We make the road by walking

"The intuitive mind is a sacred gift and the rational mind is a faithful servant.

We have created a society that honors the servant and has forgotten the gift.“

--Albert Einstein



BUT we are justifiably wary of emotions and emotionality:

The sleep of reason produces monsters

CONSCIOUSNESS & COGNITION

Consciousness is "a graded integration of multiple cognitive functions yielding a unified representation of the world, our bodies, and ourselves" – Alan Hobson (2000)

These converging functions, each more-or-less energized or competent result, in their varying orchestrations, are manifest as varying **states of consciousness** –more-or-less focused on or attending to specific needs and viewed along a spectrum from coma through self-consciousness and transcendence.

CONSCIOUSNESS & COGNITION

Cognition is: “The mental processes coordinated to acquire, organize, and apply information –

Sensory information is transformed into perceptions which are then categorized and organized, stored, recovered, abstracted or combined, and used. Cognition includes the use of memory (a "trace" of a past experience) to guide behavior and "thinking" (the retrieval of stored bits of information and its manipulation to ascertain relationships between them and (often) new information). Along with **affect** and **motivation** constitute a useful "triad" of psychological functions. Associated with the cerebral cortex in mammals.” -- Ethology Glossary

BIAS is CONGENITAL and ACQUIRED

- Amongst the most compelling biases are SIMPLICITY (Occam's Razor) and HOLISM (Grand Unified Theory, monotheism).
- BUT since "there are two sides to every question, exactly opposite to each other." (Protagoras)
- the simplest way to cope with contradictory information is DUALITY (A&O notes)

The inner tension

the delicate balance of dualities

- **The tension is between modules of mind and is modulated by their neurochemical support systems**
- **The place of REASON has been elevated out of context because it is *our most distinctive HUMAN characteristic* and the one enjoys increase as we develop and new experiences are assimilated or accommodated**
- **REASON** is coordinated by the highest cerebral attainments and has a central role in restraining or selecting between instinctive or automatized patterns organized at "lower" levels of the brain.
- But reason is impotent and helpless without the sensory experience of reality

Types of Consciousness

AFFECTIVE

- More Subcortical
- Less Computational
- More Analog
- Intentions in Action
- Action to Perception
- Neuromodulator codes (Neuropeptide)

COGNITIVE

- More Neocortical
- More Computational
- More Digital
- Intentions to Act
- Perception to Action
- Neurotransmitter Codes (Glutamate, etc)

Types of Thinking

DIONYSIAN

external locus of control

affective-cognitive belief systems, high susceptibility to hypnotic suggestions

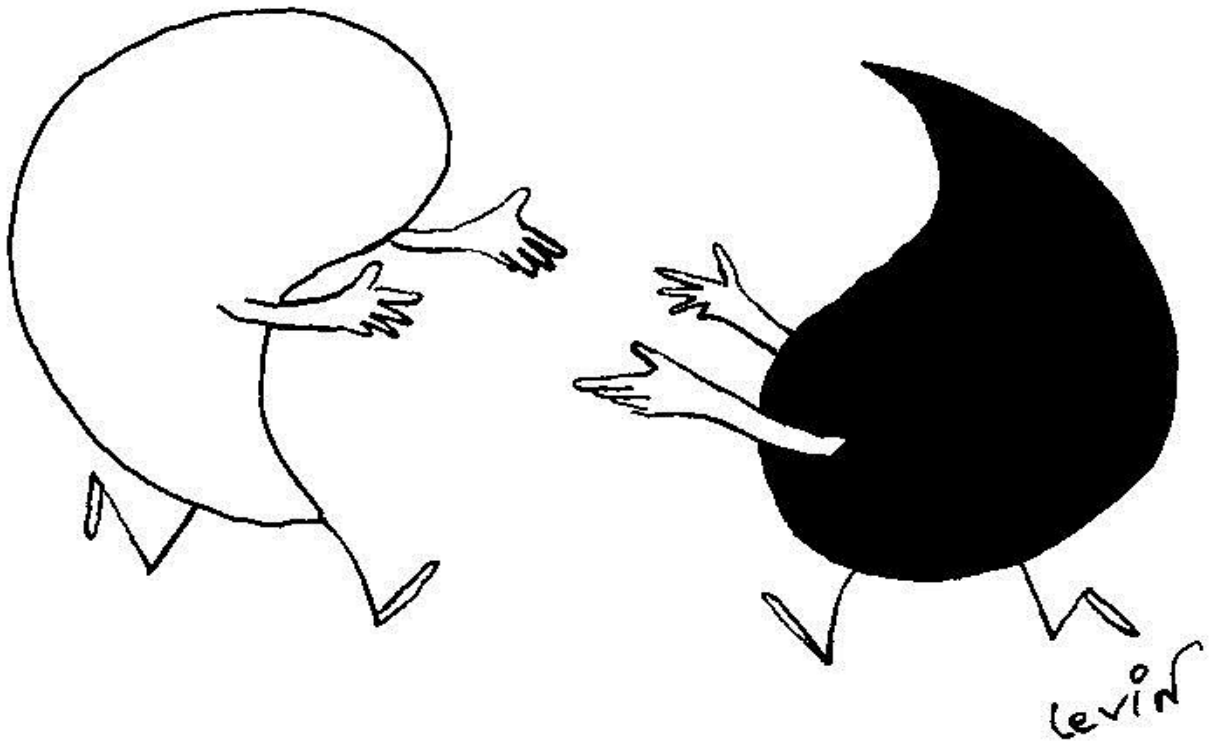
high levels of written output of low complexity and suspended critical appraisal

APOLLONIAN

internal locus of control

cognitive-affective belief systems, low susceptibility to hypnotic suggestions

low levels of written output of high complexity, and immediate critical appraisal.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