

A NEUROPHYSIOLOGICAL MODEL OF COGNITION
TO EXPLAIN THE VARIOUS MODES OF KNOWING SUCH AS:
THINKING, REASONING, CONTEMPLATION, REVELATION AND TELEPATHY.

Cognitive science is today well in the mainstream of psychology. It attempts to understand all the cognitive processes occurring within a human being. According to Moroz (1982), "cognition is knowing and cognitive studies are studies of what and how people know, how we gather, categorize, store, use and communicate knowledge" (p.119). Cognitive processes are seen as an actively, consciously constructed process. Cognition is said to be concerned with the construction of a model of reality, a model which must be of sufficient validity to insure survival. All our mental abilities - perceiving, remembering, reasoning, and many others -- are organized into a complex system, the overall function of which is termed cognition. Fundamentally, cognitive psychology is the study of knowledge and how people use and process it. Salner (1982) asserts that we continually make implicit assumptions about the **origin** of knowledge, and the central problem of western thought is whether truthful knowledge is to be found "out there" among the objects which make up our world, or is it to be found within the organizing mind of the subject who constructs the knowledge? Today the preponderance of evidence from the human science and cognitive psychology, strongly suggests that a human actively construct his/her 'reality'. This reality is called a 'mental representation' or cognitive map or schema.

In spite of the great importance of, and rapid growth witnessed in the cognitive sciences, it does not challenge the image or methods of science. In fact, contemporary cognitive psychology is very much becoming mechanistic,

computer sciences oriented, and Plyshyn himself asserts that cognitive processes are independent of neuronal architecture. That is, a computer can engage in or perform cognitive processes -- brains are not necessary.

Good points ✓
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✓
This essay proposes that cognitive psychology's strict adherence to the reductionistic paradigm is not advisable, as time and time again we are reminded of the great limitations and inadequacies of the scientific/reductionistic method when it attempts to address the complexities and subtleties of human nature. It is proposed that cognition is best understood by building a synthetic model incorporating the neuronal architecture and three levels of consciousness. This model will provide rich insights into modes of knowing such as revelation, intuition and telepathy which are presently not considered in mainstream cognitive psychology.

What is a "Cognitive Map"

It is currently held that patterns of neural activity (due to top-down and bottom-up processing) create the unit of stored knowledge called a 'mental representation' or 'cognitive map'. Singer and Rakic (1988) have suggested that experiential influences can alter structure and function at the molecular level. Furthermore, Merzenich and Kaas (1982) have suggested that "sensory cortex anatomy and physiology is indeed reordered -- written upon, so to say -- relatively quickly and effectively in adult primates by new or altered experience" (p.435). Such topographic neocortical representation (cortical maps) are thought to be quite 'plastic' or modifiable by certain stimuli and experiences. Maps appear to be dynamic, functional, (not fixed anatomical)

entities. They move in the neocortex, their borders move. They can undergo substantial change (even by enlarging a thousand-fold) depending on the stimuli or experience. Thus, in sum, our cognitive and cortical maps can, and do, change constantly with new experiences, stimuli, and environments. Furthermore, one can suggest that it is the failure to show cognitive flexibility or modification that creates dysfunctional behaviors, and poor cognitive abilities. Yet, it is suggested that such "continual cognitive map reorganization" does not occur only at the neural level but is intimately related to three (3) levels of consciousness -- such states that are critical to any type of information processing.

Neural Basis for Three Levels of Consciousness

Sheikh and Kunzendorf (1990) state that: "the current consensus is that mind may be represented as a vast set of nodes and relationships among these nodes. It would seem reasonable to identify nodes with neurons or groups of neurons in the neocortex... The nodes may be seen as being partitioned into various 'analyzers'. For example, there are separate analyzers for perception of printed words, faces, etc. The nodes in these analyzers are activated by the presence of the relevant stimulus. Consciousness corresponds to the set of nodes that is currently activated" (p.92).

Proposed Origin of Three Levels of Consciousness

Let us assume that when the nodes (a) in the **sensory** cortex ^{are} activated, we experience objective consciousness (of those particular frequencies in that

part of the spectrum, e.g., visual, auditory), **awareness of external stimuli**.
 When the nodes (b) in the **association** cortex is activated, we experience subjective consciousness (awareness of mental processes e.g. reverie, recollections, memories, images), and when the nodes (C) of the limbic system are activated, we experience or access subconscious experiences (such as dreams, noetic feelings, laws of nature). The additional assumption here is that the subconscious is intimately associated with and interacts with a higher energy level which I call "Consciousness of the Cosmos". Thus, indirectly, when we access the subconscious, we naturally access (at times) the highest frequency of "Cosmic Consciousness", the fundamental frequency

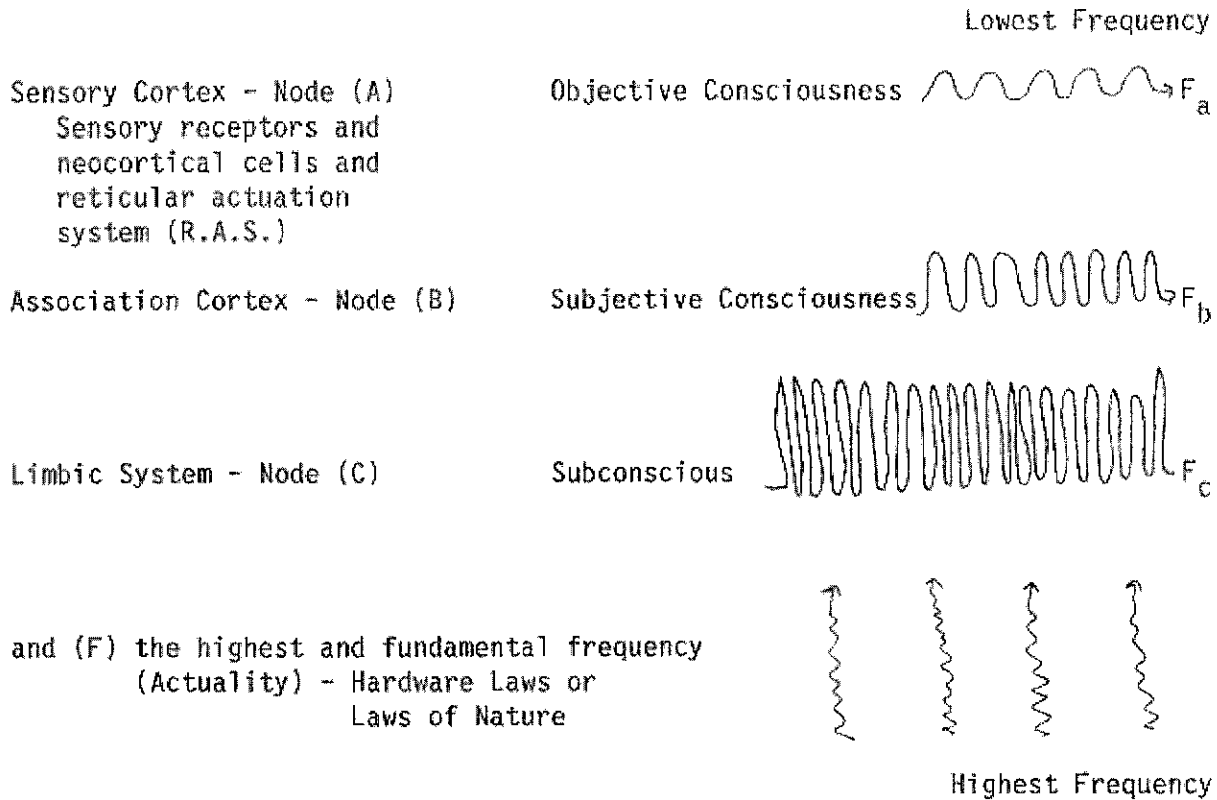
(F) ^{(F) need to be associated to this unified field concept of Hologram (), Urelic Soma (), Akur (), Capra (), Davies (), Berry (), Leifer (), Hawking ()}
 Let us further assume that:

- (a) There are laws of life or universal principles
- (b) That when each node is activated, a **net** "WAVE FORM" or frequency is created. Fa, Fb, Fc, representing the frequencies of the "levels of consciousness".
- (c) That at any given time Fa, Fb, Fc and F are all interacting and a certain degree of constructive or destructive interference of wave forms will exist. We can do a fourier transform and determine the **net (resultant)** wave form which exists in that person at that instant **and which constitutes one's mind**.

Let us further assume that objective consciousness/node (A) activation allows for analytic attention, thinking, and concentration, while subjective consciousness/node (B) activation allows for memory, recall, reasoning, contemplation and analysis. Further, that the subconscious (node (C)) activation allows for meditation, a synthetic/holistic view, and resonance

with (F).

Thus we can create the following model:



It is proposed that when a stimulus is perceived, sensory neocortical cells fourier transform this data by feature analysis, etc. and this wave form is converted into a hologram and stored in Glinisky's cognon. Note that these cognons are supposedly (according to Glinisky) in the association cortex AND cognons not only encode sensory stimuli but **emotional** data as well -- this is of great importance (as will be discussed later). The work of Pollen, Pribram, Rakic, Glinisky and Camhi give support to this view of cognon formation and information storage. Now we can understand why attention increases the

possibility of encoding at level (A) and why the stimuli must be meaningful, for if it is not, then there is not motivation to process, no attention, hence no encoding, hence no cognon formation. Moreover, since each cognon is aroused by activity in the sensory neurons that were responsible for the initial formation, or by association, when triggered, not only does the cognon elicit a previous memory store of Fourier analyzed stimuli (an image), but also the associated **emotional** content. Here then we can get insights into the persistent cognition-emotion conundrum, i.e., which is first. In fact, Parrot (1987) proposes not an either/or as causes but that cognitions are a part of emotional experience. The model would certainly support his position.

It is very important to understand that F_a , F_b and F_c are not mutually exclusive but each frequency always exists, but in varying states. That is, depending on the **overall** state of consciousness of the individual, the net wave form of his/her mind will be a combination of $[F_a + F_b + F_c + F]$. However, each human being tends to have a predominant or even preferred mode of consciousness. For example, we can expect to find the typical analytical scientist of a (F_a) type, the conceptual theorist of a F_a (F_b) type and the self-actualizing, creative person of a (F_c/F) type. Yet, because each frequency allows for a particular range of information or knowledge, one's cognitions are intimately related to the particular predominant 'mind' frequency which is operating and one's cognitive ability depends on the **extent** to which a harmonious relationship or resonance can be established among these frequencies.

How can this model explain various modes of cognition?

(a) Thinking: will occur with node (A) mode of consciousness and will be a function of the activities of the prefrontal cortex, left and right hemispheres, reticular activating system and other brain regions.

(b) Contemplation, Imagery, Recall, etc.: will occur with node (b) mode of consciousness, when the cognons in the association cortex are activated. Here there is continual comparison between the net F_a and F_b or in other words, with our observations and our existing cognitive maps. In the interaction of F_a and F_b we have cognitive dissonance, or reorganization, or construction. One is continually converting the actuality (sensory stimuli) to reality. Most scientists, researchers, and psychologists function between the two levels, F_a and F_b . In Beck's cognitive reappraisal, we can speculate that the therapist attempts to re-order the person's (his/her) F_b to fit F_a (to real world).

(c) Meditation, Revelation and Intuition: Mandell (1978) has proposed that continual limbic kindling of the CA_3 cells of the limbic system induces peak experience, higher state of consciousness and transcendence or unity with "God". Few humans are fortunate enough to access the node (c) F_c level of functioning. This is so because our contemporary metaphysics and epistemology even deny the existence of this node. This is reinforced daily by our adherence to the strict reductionistic paradigm. Yet modern physics continues to suggest the existence of a fundamental actuality, a universe comprising of a sea of energy pulsating in a rhythmic manner. Some contend that this fundament frequency of the Cosmos may be conscious and represent "HARDWARE LAWS" or laws of nature. Such a "SUPER FORCE" according to Davies (1983) would have the properties of harmony, simplicity, and symmetry and be a complete

storehouse of knowledge (all frequencies -- past, present and future).

During highly creative work then, or during revelation, it is proposed that F_a , F_b and F_c approximate resonance with (F), hence the individual "cognates" for the first time hardware laws or the "pulse" of the Cosmos. Since our theories, models and paradigms are based on $F_a + F_b$ data which comprise "software" laws (that we have discovered), to the extent that F_a and $F_b + F_c$ resonate with (F) the software laws will become a mirror image of the hardware laws. When this occurs, during one's moment of insight, aha experience or peak experiences, we glimpse the grandeur of Cosmic law and understand the totality of the problem. In other words, the limited human ($F_a + F_b$) wave form of that problem or issue is bathed in the "light" of the (F) frequency. Thus the created product is unique, serendipitous, absolutely elegant and constitutes pure knowledge. During periods of solitude, relaxation and diminished $F_a + F_b$ stimulation, the F_c side becomes predominant and can then reunite with (F) -- then illumination follows. One might even speculate that individuals who continually engage in creative pursuits, or are on the path of self-actualization, would be creating a more resonating ($F_a + F_b + F_c$) wave form in the mind, eventually with continual limbic kindling. Their ($F_a + F_b + F_c$) wave forms eventually merges with and totally resonates with (F) and we have the experience of Cosmic Consciousness.

The implications of this model are great. According to Rosicrucian mysticism (see Figure 2), cognition cannot and must not remain static at the concentration of node (A) level, or between nodes (A + B) (concentration-contemplation). Rather, the cognitive process is incomplete and inadequate

CREATIVE
SYNTHESIS & REASSEMBLY OF PARTS
INTO A UNIFIED MODEL OR HYPOTHESIS.
NEW RELATIONSHIPS & INTERACTIONS
DISCOVERED & PREDICTED.

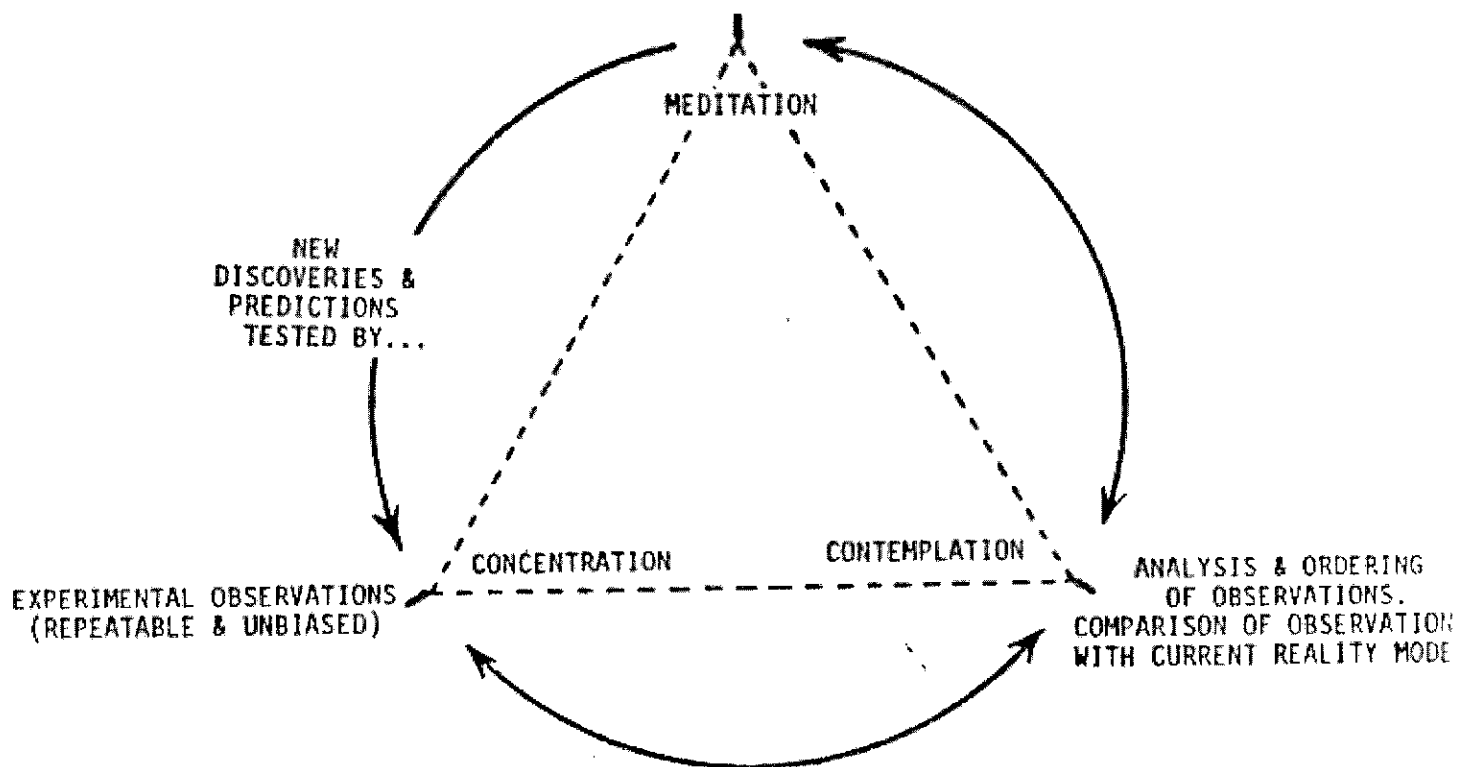


Figure 2. Correspondence of the methodologies of science and Rosicrucian mysticism. One of the basic tenets of both methodologies is the rejection of authority and dogma - the refusal to accept a statement just because someone says it is so. Rather, by having an open-mind toward new realities and by using the process of concentration-contemplation-meditation, individuals come to self-knowledge and a knowledge of self.

until and less the third point, node (C) level is activated. It is interesting to note in the autobiography of highly creative people, Nobel Prize winners and other renowned researchers that their resultant creative cognitions or knowledge, findings or discoveries occurred when they tapped -- consciously or unconsciously, the $(F_c + F)$ nodes and levels of consciousness. They shifted from a knowing to a being mode, from **knowledge** of software laws to **wisdom** of hardware laws.

Thus allowing self to tap into higher stages of human development and spiritual growth.
Energy + self-actualization Alexander (1988)

This model also has implications for cognitive 'therapeutic' psychology. We should realize that genuine cognitive restructuring cannot focus merely on the (F_b) but on allowing the client to resonate the $(F_b + F_c)$ aspects of his/her mind with (F_a) .

This model can also explain the phenomena of telepathy and precognition often claimed by mystics.

I wish you had said more here. Fascinating!

Mechanism of Telepathy/psi Phenomena

Given the foregoing model, each human mind and consciousness will be essentially a net wave form of $(F_a + F_b + F_c + F) \rightarrow (F_N)$. If we assume then that in a population we have multi minds of F_{N1} F_{N2} etc.

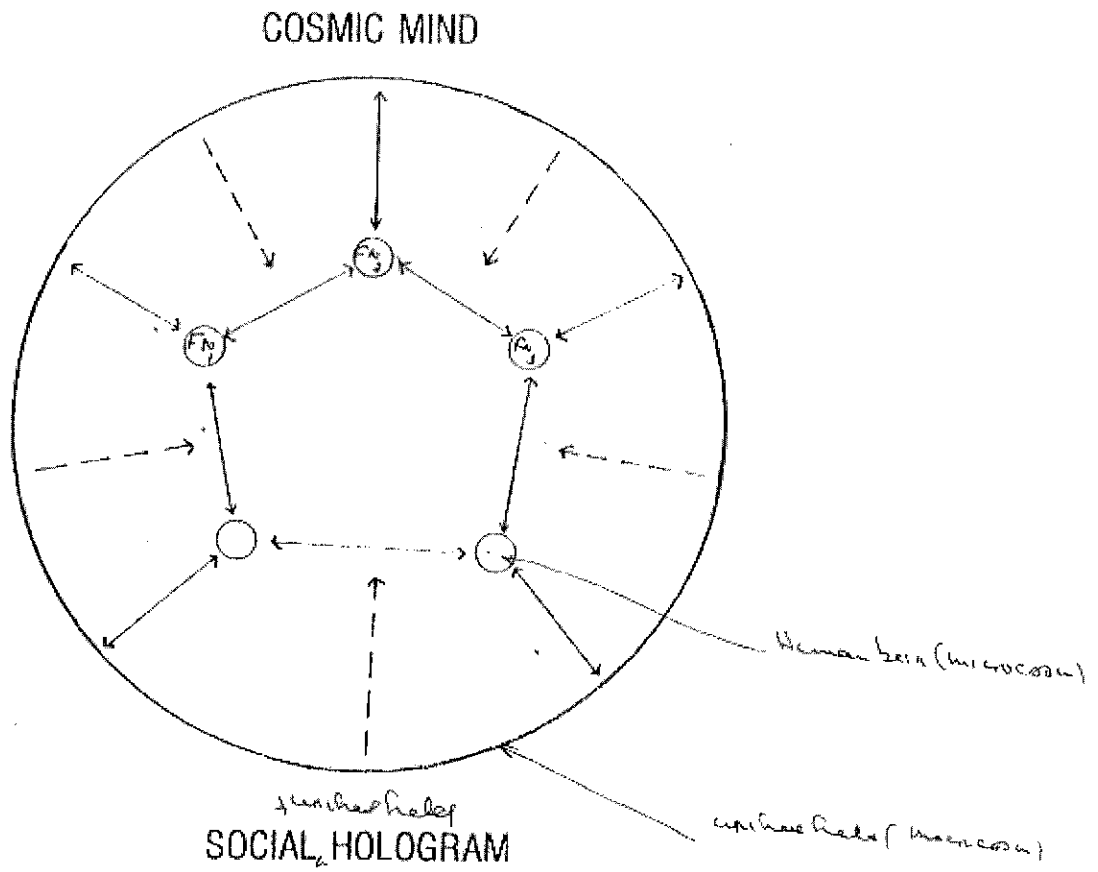
See Figure (1) - Social Hologram

Terrence and McKenna (1975) have proposed a holographic theory of mind. Wilber (1982) discusses the holographic paradigm wherein the entire universe and our minds and brain is a hologram -- a pattern of wave energy where time and space to not exist since they are human constructs. There is continual interaction between and among (F_n) -- human minds and the overall (F)

DYNAMIC INTERACTION AMONG MINDS

Individual Mind / Other Minds / Cosmic Mind

Systems Theory: Every new addition or decrease alters the system.



This model allows for ESP, Psi Phenomena, Telepathy, and Attunement.

frequency, the net frequency in external flux is the human created social hologram -- our collective illusions (according to Salner, 1982); or our collective facts and knowledge.

Possibly it is the quantum level vibrational social + complex field hologram which allows for consciousness medicine concerning non-localized consciousness healing.

The field of cognition is vast, complex and exciting. It seems that the reductionistic paradigm of cognitive psychology is out of step with the finding of modern physics and biology. As such, it must be transcended (not discarded) and the new paradigm to replace it must focus on issues such as quantum mechanics, holistic thinking that is; -- left and right hemispheric functioning, EEG coherence, and the need to cognate along the $F_a + F_b + F_c$ and F levels of consciousness.

Modern humanity is indeed in exciting times, as we realize that we have the power, ability and right to reconstruct individual and/or social holograms to reflect hardware laws. In so doing, we can achieve happiness and peace profound.

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