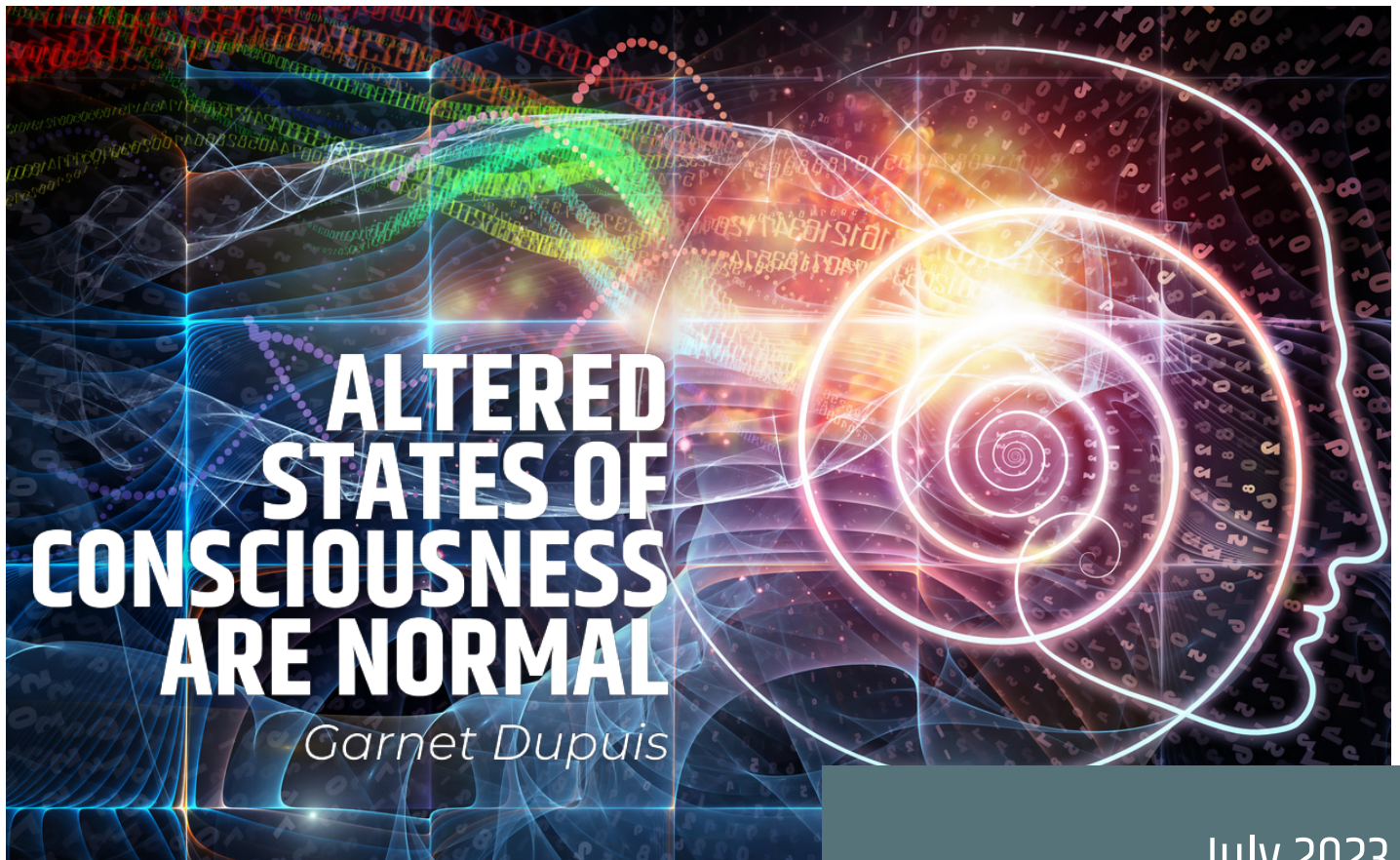




July 2023

INTRODUCTION

This topic is loaded with fascination and controversy.

The **position taken in this paper** is that the experience of an Altered State of Consciousness (ASC) is a **normal** and **natural** facet of general human consciousness. The ASC may be considered relatively **uncommon** despite the fact that it is embedded in our regular biological circadian cycle and can also be consciously developed for experiences in our more common waking state. An ASC is typically of short duration, lasting anywhere from minutes to hours. The ASC is also known as a Non-ordinary State of Consciousness or a NOSC.

The term "altered" raises the question - "altered" as compared to what? Similarly, "non-ordinary" as compared to what? If the baseline "waking" state constitutes the comparison to the ASC, it is tempting to say that the "waking" state is **normal** and would then define the ASC as **abnormal**. This is not correct - inasmuch as the ASC is **different** from the typical waking state, the ASC is also normal.

In this paper, the "waking" state is considered common (as opposed to normal), which then recognizes the ASC as uncommon. So, the ASC is normal or natural and occurs as an uncommon state compared to the basic and more common waking state.

Different systems or philosophies will approach this topic from their own unique perspective. Using classic Freudian/Jungian concepts, it is generally accepted that conscious brain/mind states are but a fraction of brain/mind activities and that a large percentage of such activity occurs at an unconscious level. Access into the unconscious may not be common; however, simply being **uncommon does not make the unconscious abnormal** (as stated above). The unconscious brain/mind activity is certainly a normal and natural aspect of the human mental condition.

NORMAL WAKING CONSCIOUSNESS, RATIONAL CONSCIOUSNESS AS WE CALL IT, IS BUT ONE SPECIAL TYPE OF CONSCIOUSNESS, WHILE ALL AROUND IT, SEPARATED BY THE THINNEST OF VEILS, THERE EXIST POTENTIAL FORMS OF CONSCIOUSNESS ENTIRELY DIFFERENT.
William James



DEFINING 'ALTERED STATE OF CONSCIOUSNESS':

Different cultures and eras will consider this topic according to their own values and customs. So, what is the definition of an altered state of consciousness (ASC), and when did it come into usage?

An altered state of consciousness (ASC), also referred to as an altered state of mind or mind alteration, is **any condition that significantly deviates from a normal waking state**. By 1892, the term was already being used in relation to hypnosis, although there is an ongoing debate about whether hypnosis can be classified as an ASC according to its modern definition. In academia, the term was first used as early as 1966 by Arnold M. Ludwig and became commonly used from 1969 onwards, thanks to Charles Tart. (Wikipedia)

Well, that definition seems quite broad, to say the least. Also, note that in the definition mentioned above, the waking state (and not the ACS) is described as "normal" (italics added by this author). However, this paper takes a different stance. Instead of using the terms "normal" and "abnormal," the perspective of "common" and "uncommon" is adopted here.

Further classification of Altered States of Consciousness is helpful when comparing or differentiating between induced ASCs and other variations of consciousness. Various researchers have attempted to classify them within a broader framework. The classification attempts discussed below focus on slightly different aspects of ASCs. Several authors have proposed classification schemes regarding the genesis of altered states and the types of experiences:

Vaitl suggested a classification with five categories to differentiate ASCs based on their inducement: (Vaitl, Dieter (2012). *Veränderte Bewusstseinszustände: Grundlagen - Techniken - Phänomenologie*. Schattauer. p. 14).

- Pharmacological (e.g., psychoactive substances)
- Physical and physiological (e.g., fasting and sex)
- Psychological (e.g., music, meditation, hypnosis)
- Pathological (e.g., epilepsy, brain damage)
- Spontaneous (e.g., daydreaming and near-death experiences)

The author of this paper adds one more category to the above five – hypnagogia/hypnopompia (which could be an extension of the Vaitl "Spontaneous" category). This additional category may also be known as the (Forgotten) Fourth State of Consciousness as described in ancient Tantra Yoga documents.

DEFINING 'NORMAL' STATE OF CONSCIOUSNESS:

The subject of this paper deliberately challenges the limits of fundamental beliefs regarding "mind/brain" and "consciousness." Any attempt to define and classify "altered" or "non-ordinary" states of consciousness automatically assumes the existence of a pre-established standard of "ordinary normalcy." So, how can we approach the investigation of what constitutes "normal" and "ordinary" consciousness? Considering that most sources perceive an ASC as being induced through various methods, it might be beneficial to closely examine regular and recurring biological states as a foundational baseline.

Let's begin with the 24-hour circadian cycle, which is essential for physiological maintenance and considered to be "normal" and "natural." The circadian cycle does not require induction since it naturally and normally asserts itself upon us.

THE NATURAL STATES OF THE CIRCADIAN CYCLE:

There are four fundamental biological states of consciousness that occur naturally and regularly. Therefore, it is reasonable to describe them as "normal" in the biological sense, rather than conditions influenced solely by personal or cultural efforts. It is important to acknowledge that each of these fundamental states also encompasses variations within itself and is not singular or absolute. The four fundamental states are as follows:

- Waking State
- Sleeping State
- Sleeping Dream State
- Waking Dream State

Among these four, the Waking Dream State is the least recognized, despite the fact that it is a natural and regularly occurring biological expression within the 24-hour circadian cycle. Consequently, it is appropriate to consider this biological state as The Forgotten Fourth State of Consciousness.

IF YOU ARE JUST HAVING UNUSUAL EXPERIENCES AND
FEELING SPECIAL-ESPECIALLY IF YOU FEEL BETTER THAN
EVERYBODY ELSE-I THINK THAT IS A DANGEROUS THING.

Charles Tart



Conventionally, the Waking Dream State is referred to as "hypnagogia/hypnopompia." These terms are derived from Greek and mean "leading into sleep/leading out of sleep." The names describe a fundamental characteristic of the Waking Dream State, which is that these states of consciousness naturally occur in relation to the shift from the Waking State to the Sleep State. This transitional state is completely normal and natural, playing a crucial role in our physiological regulation during every circadian cycle for health and well-being. In fact, this transitional state is quite common.

The next point is of critical importance.

The Waking Dream State is **NOT** limited to the brief transitional periods between waking and sleeping. In fact, it can be intentionally developed and accessed within the general Waking State using various methods and techniques that parallel and overlap with the different types of access mentioned earlier (Vaitl) for Altered States of Consciousness (ASC). Two simple examples of ASC experienced in the Waking State are: 1) progressively developed meditation experiences and 2) quickly induced psychedelic compounds. Other approaches could involve ASC induced by intense exercise, extended daytime hypnagogia, and psycho-physical flow states. Interestingly, even the state **of deep conscious relaxation** can trigger a powerful "gateway" progression into an ASC. Willfully developed hypnagogic states during the Waking State are known as "parahypnagogic."

And this fact points towards an appreciation that opens many doors of deep understanding regarding the normal core of Altered States of Consciousness. The perspective proposed here is that our brain is actually developed in such a way to accommodate these ASCs as an aspect of our normal regulatory and adaptive processes. More than that... if we don't regularly spend some amount of time in the Waking Dream/Fourth State of Consciousness, our physiological and psychological wellbeing is diminished.

The author here proposes the model of a "Fourth State Deficiency Syndrome" as the root cause of numerous regulatory imbalances and complaints. It is easy to recognize that a deficiency in any of the other three states (Waking, Sleeping and Sleep Dreams) will destabilize psycho-physiological adaptation and metabolism. Here it is proposed that a deficiency in the Waking Dreams State/Fourth State of Consciousness will also stimulate imbalances.

If this is true, then our brain must have a design quality to support these processes as normative and beneficial.

Current neuroscience supports this premise and the best models to examine for this purpose are the Entropic Brain as developed by Carhart-Harris and team and also an extended model called REBUS and the Anarchic Brain, co-developed by Carhart-Harris and Friston. Friston also brings the "free-energy principle" into the mix.

So, first the Entropic Brain and what it can tell us about Altered States of Consciousness (ASC) being uncommon yet normal.

THE ENTROPIC BRAIN & ASC:

We will here present a concise description of the concept of the Entropic Brain. Full descriptions from Carhart-Harris may be found at the following: The entropic brain: a theory of conscious states informed by neuroimaging research with psychedelic drugs ; <https://www.frontiersin.org/articles/10.3389/>

The Entropic Brain model is derived from extensive innovative research in which psychedelic compounds are used to stimulate the brain, resulting in Altered States of Consciousness (ASC). As referenced in the Vaitl list (see above), ASCs can be induced in a variety of ways, including but not limited to pharmacological/psychedelic stimulation. The Carhart-Harris team has successfully utilized psychedelic stimulation as a means of gaining insight into brain dynamics. It is important to note that their primary interest lies in studying the brain, with psychedelics serving as a tool for discovery.

Fundamentally, the Entropic Brain model posits that our brain has developed in "bottom-up" stages, progressing from more primitive sensory perceptual processes to later stages of cognitive conceptual processes.

Importantly, even in our currently developed brain, the older and more primitive functions remain intact and significantly contribute to daily consciousness in various ways.

OUR HUMAN BRAIN HAS A NUMBER OF NATURAL
STATES AND EACH STATE CONTRIBUTES TO HEALTHY
SELF-REGULATORY EXPERIENCES.

Garnet Dupuis



The Entropic Brain model considers the early or primitive consciousness as **Primary Consciousness**. **Primary Consciousness** is characterized by being flooded with perceptual inputs, exhibiting high degrees of uncertainty, and offering a wide range of creative possibilities. Thus, the metaphorical use of the physics principle of "entropy" is applied aptly in terms of Information Theory. This increase in "informational entropy" paradoxically generates a quality of "richness" to this "disorder." In its basic information-theoretical form, entropy is a measure of uncertainty about a dynamical phenomenon. The Entropic Brain model regards "entropy" as a measure of the uncertainty of neuronal fluctuations across time.

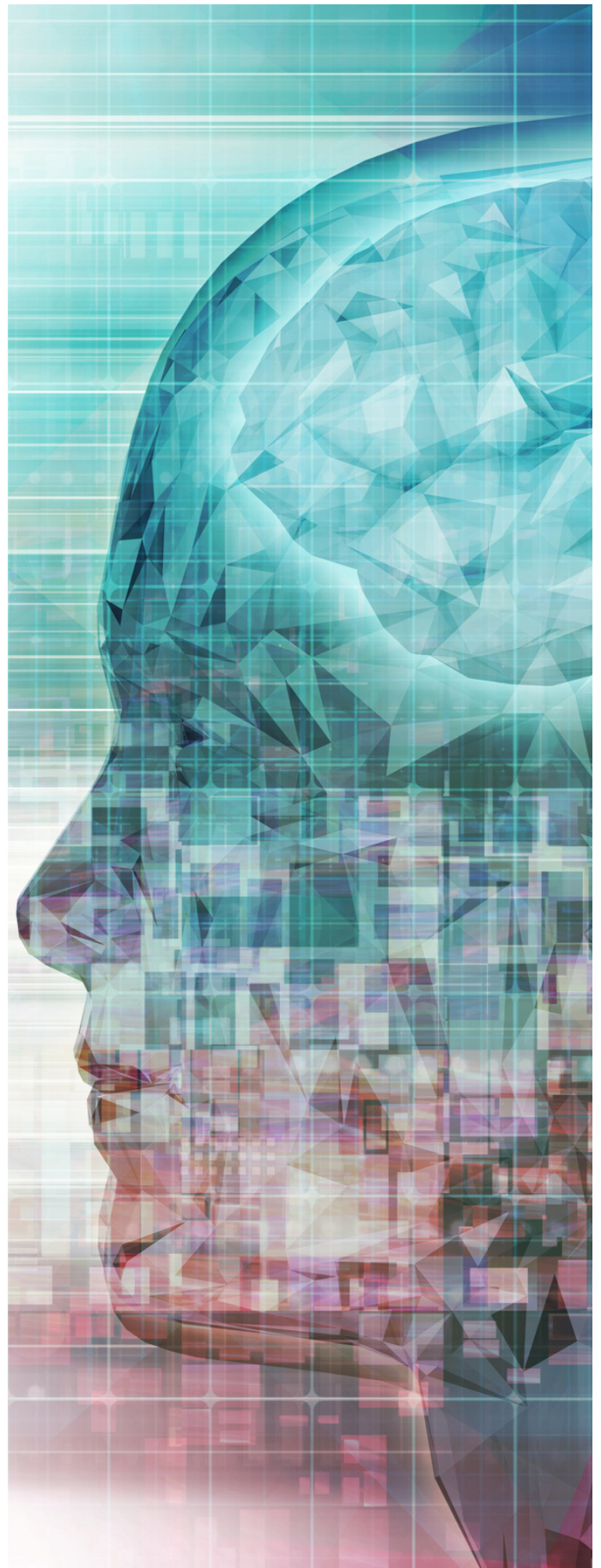
The model further describes an evolutionary phase of neurological development in which a reactionary response emerges to decrease entropic uncertainty and disorder. This subsequent evolutionary stage is termed **Secondary Consciousness** and is characterized as an ordered and more certain condition resulting from the reduction and suppression of the wide-ranging **Primary Consciousness**.

Ordered **Secondary Consciousness**, facilitated by new high cortical development, significantly enhances the likelihood of biological survival and consequently constitutes the majority of **Waking Consciousness**. Now, does **Primary Consciousness** serve any purpose? The answer is yes. When biological survival encounters significant adaptive challenges that the current Ordered state is unable to address, brief periods of **Primary Consciousness** can provide extraordinary access to creative information, enabling the establishment of new higher Orders of problem-solving experiences.

The Entropic Brain model proposes that within the spectrum between Primary Consciousness and Secondary Consciousness, the entropy of spontaneous brain activity corresponds to the richness (i.e., the diversity and vividness) of subjective experience within any given state of consciousness.

In simple terms, one can consider time spent in **Primary Consciousness equivalent** to the experience of an Altered State of Consciousness (ASC).

In the case of the Entropic Brain model experiments, psychedelics do not cause the experience of Primary Consciousness. Instead, the "non-ordinary" qualities associated with **Primary Consciousness** are simply expressed as inherent characteristics of the brain's temporary capacity to shift gears from Order to Disorder and back into Higher Order.



Entropic Brain Dynamics

Chaos /Disorder

Zone of Metastable Criticality – Transitional Consciousness

Critical SHIFT Zone

Order

Altered State of Consciousness

Chaos /Disorder

Border of Super-Criticality – Loss of Consciousness

Zone of Sensitized Criticality – Non Ordinary Consciousness

Zone of Metastable Criticality – Transitional Consciousness

Zone of Desensitized Criticality – Ordinary Consciousness

Border of Sub-Criticality – Loss of Consciousness

Critical SHIFT Zone

Order



REBUS & THE ANARCHIC BRAIN & ASC:

Karl Friston teamed up with Robin Carhart-Harris to integrate his "free-energy principle" of the brain with the Entropic Brain model. The result is REBUS and The Anarchic Brain model. We will discuss the "free-energy principle" later, but first, let's delve into REBUS and the Anarchic Brain (which does sound like a punk rock band, doesn't it?).

REBUS is a somewhat clumsy acronym that stands for **RE**laxed **B**eliefs **U**nder **p**Sychedelics (RElaxed Beliefs Under pSychedelics).

To understand REBUS, it is important to consider that our brain is a "pattern-recognition, prediction-generating" organ. The Ordered state of Secondary Consciousness primarily consists of stored "patterns" of experience. Based on this reservoir of patterns, our brain generates predictions of perceptions and subsequent actions. In the REBUS acronym, these stored patterns of experience that form much of the Ordered state of **Secondary Consciousness** are simply referred to as "Beliefs." Technically, these "beliefs" are termed "high-level priors" as they are deemed important (high-level) and derived from past meaningful experiences (priors).

These "beliefs" (high-level priors) serve as "top-down" filters in the actions of Ordered **Secondary Consciousness**. "Top-down" actions essentially encompass "new brain" conceptual activities, while "bottom-up" actions involve "old brain" perceptual activities.

(**NOTE:** In the Entropic Brain graphic above, the Ordered Secondary Consciousness is depicted beneath the Disordered Primary Consciousness. However, this is merely a graphic design and should not be confused with the neurological concepts of "top-down" and "bottom-up".)

Experiences of Altered States of Consciousness (ASC) have the potential to relax the "high-level priors" of **Ordered Secondary Consciousness** (also known as patterns/beliefs), thereby making them more receptive to the liberated bottom-up information flow from **Primary Consciousness**. With the right intention, care, and context, this can aid in guiding and cultivating the revision of entrenched negative or outdated priors.

This brings us to the concept of the Anarchic Brain. "Anarchic" is the adjective form of "anarchy," which literally means "without a leader."

So, what is the meaning of "Anarchic Brain"?

In this model, the "leader" refers to Ordered Secondary Consciousness, which is predominant during most of our daily activities. It serves as the "leader" in mundane tasks and helps interpret the continuous stream of external and internal stimuli.

An Altered State of Consciousness deviates from this leadership, allowing Ordered Secondary Consciousness to expand and explore the disordered and uncertain realms of possibility offered by Primary Consciousness. **Our brain engages in anarchy during an Altered State of Consciousness.** The crucial point to note is that this anarchic state is not foreign to the brain. It is an intrinsic and innate capacity within the brain to "let loose" of "high-level priors" and explore new adaptive possibilities that can be retrieved from **Primary Consciousness** and successfully integrated into a newly reconfigured **Secondary Consciousness**. It represents a dynamic form of learning that becomes necessary when old non-functional molds need to be broken.

While it may not be a common state, it is certainly a normal state, and we should be grateful to have it when we need it.

THE FREE-ENERGY PRINCIPLE: IT IS FULL OF SURPRISES...OR NOT:

We are now going to explore the underlying concept further, including the "free-energy" principle central to the work of Karl Friston. And yes, this holds importance when considering "normal" Altered States of Consciousness (ASC).

To grasp the "free-energy" principle, let's first understand "Bayesian Inference" (bear with me, it's actually fascinating and helps us relate to Altered States of Consciousness, including the NeuroVizr® experience for those involved).

Bayesian statistics is named after Thomas Bayes, who formulated a specific case of Bayes' theorem in a paper published in 1763. Pierre-Simon Laplace further developed the Bayesian interpretation of probability in papers from the late 18th to the early 19th centuries. Bayesian statistics is a theory in the field of statistics that is based on the Bayesian interpretation of probability. In this interpretation, probability expresses a degree of belief in an event.

This degree of belief may be based on prior knowledge about the event, such as the results of previous experiments, or on personal beliefs about the event. With the advent of powerful computers and new algorithms like Markov chain Monte Carlo, Bayesian methods have seen increasing use within statistics in the 21st century. (Wikipedia)



In simple terms, "Bayesian inference" describes a process in which "predictions" are made based on past experience and/or projected beliefs. The actual experience is then compared to the prediction to identify any "prediction errors." If the predictions are accurate, they are reinforced. If the predictions are incorrect, the system attempts to adjust its impressions to better align with the experience and reduce further "prediction errors."

In the context of the Entropic Brain model, the "top-down," "new brain," well-ordered Secondary Consciousness serves as the "command center" for Bayesian Inference. On the other hand, the Disordered Primary Consciousness of the Entropic Brain represents a "bottom-up" dynamic associated with the "old brain." The "top-down" Secondary Consciousness is more conceptual and cognitive, while the "bottom-up" Primary Consciousness is more perceptual and sensory.

Now, let's return to Friston and his "free-energy" principle (understanding Bayesian Inference will aid in comprehension).

To simplify this impressive and wide-ranging concept, the free-energy principle, as applied to the brain, works like this: our brain has numerous tasks to handle and, consequently, it must be cautious in managing its energy capacity and expenditure. One way to conserve energy is by taking as many "shortcuts" as possible. By making "educated guesses" (or predictions), our brain can perform tasks faster and more efficiently. In reality, our brain conserves energy by frequently "jumping to conclusions." Naturally, it dislikes making mistakes, especially in critical actions that involve life and death. At the core of the "free-energy" principle lies a well-ordered experience that ensures biological survival.

Friston charmingly states that our brain does not appreciate SURPRISES.

In this context, a "surprise" is equivalent to a "prediction error," which brings us back to Bayesian Inference and "educated guesses."

Therefore, Friston asserts that our brain fundamentally dislikes SURPRISES. Honestly, I'm not entirely convinced, but let's return to the Entropic Brain and Altered States of Consciousness. Additionally, we need to revisit REBUS and The Anarchic Brain because there is significant overlapping and importance in these areas.

PRIMARY CONSCIOUSNESS & SURPRISE:

You will recall that in the Entropic Brain model (as well as in the Anarchic Brain model), Primary Consciousness is a non-ordinary, uncommon mental realm characterized by "entropic" Uncertainty and Disorder. Ironically, it is also a realm of expanded possibilities and broad informational access. In the model, these characteristics are described in terms of increased "richness".

From this perspective, Primary Consciousness can be considered the natural realm of SURPRISE.

Altered States of Consciousness (ASC), induced by a variety of means, including but not limited to psychedelic compounds, appear to shift consciousness for limited periods of time out of the common Ordered Secondary Consciousness and into Disordered Primary Consciousness. The psyche is exposed to a myriad of "bottom-up" sensory perceptions saturated with curious and uncommon features and expressions.

Typical "top-down" cognitive thought processes often transform into layers of symbolic interpretations with potential new perspectives and, sometimes, significant insights. Predictions are confounded, and the "moment" can impress itself with a flow of delight and SURPRISE.

The impact upon the basic ego identity can be profound. Here REBUS can become evident, and the "relaxing of beliefs" alters the ordinary sense of "self" and can melt away the boundaries of the ego.

CONCLUSION:

Our human brain has a number of natural states, and each state contributes to healthy self-regulatory experiences. One such state is the Fourth State of Consciousness, also known as Waking Dreams. The Fourth State of Consciousness is a normal and regular feature of our natural circadian cycle that is expressed in transitional states related to Waking and Sleeping.

Furthermore, the Fourth State can occur within the period of Waking as a result of cultivated experiences such as meditation and induced by psychedelic compounds, to list just two examples. Deep conscious relaxation that does not give way to sleep acts as a reliable gateway to the Fourth State of Consciousness.

