

# THE MENTAL WORLD

Ben Francis



1<sup>st</sup> Edition

*Glaucon said, with a ludicrous earnestness:  
By the light of heaven, how amazing!*

THE REPUBLIC

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# THE THREE WORLDS

PLATO HAS SUGGESTED that reality is comprised not of one *world*, but of three.

First and most noticeably is the PHYSICAL WORLD, which comprises of matter-energy and space-time. A spectacularly rare state of matter arrangement, namely the *nervous system*, gives rise to a *mind*, which exists in the MENTAL WORLD. We each inhabit our own mind in this world during our subjective experience. Finally, a small part of the human mind, which Plato has termed the *intellect*, seems to access a more mysterious aspect of reality, termed the PLATONIC MATHEMATICAL WORLD. Here the human mind gains access to mathematics and beauty.

This comprises the THREE WORLD MODEL, of which this paper aims to describe the Mental World in further detail. Though this concept is philosophical in nature, it can be found that a powerful method of describing reality is made available within this framework.

As proof of its elegance, it may be noted that a precise subset of the Platonic Mathematical World, the laws of *physics*, somehow give rise to the Physical World, forming an *ouroborus* triad of reality.

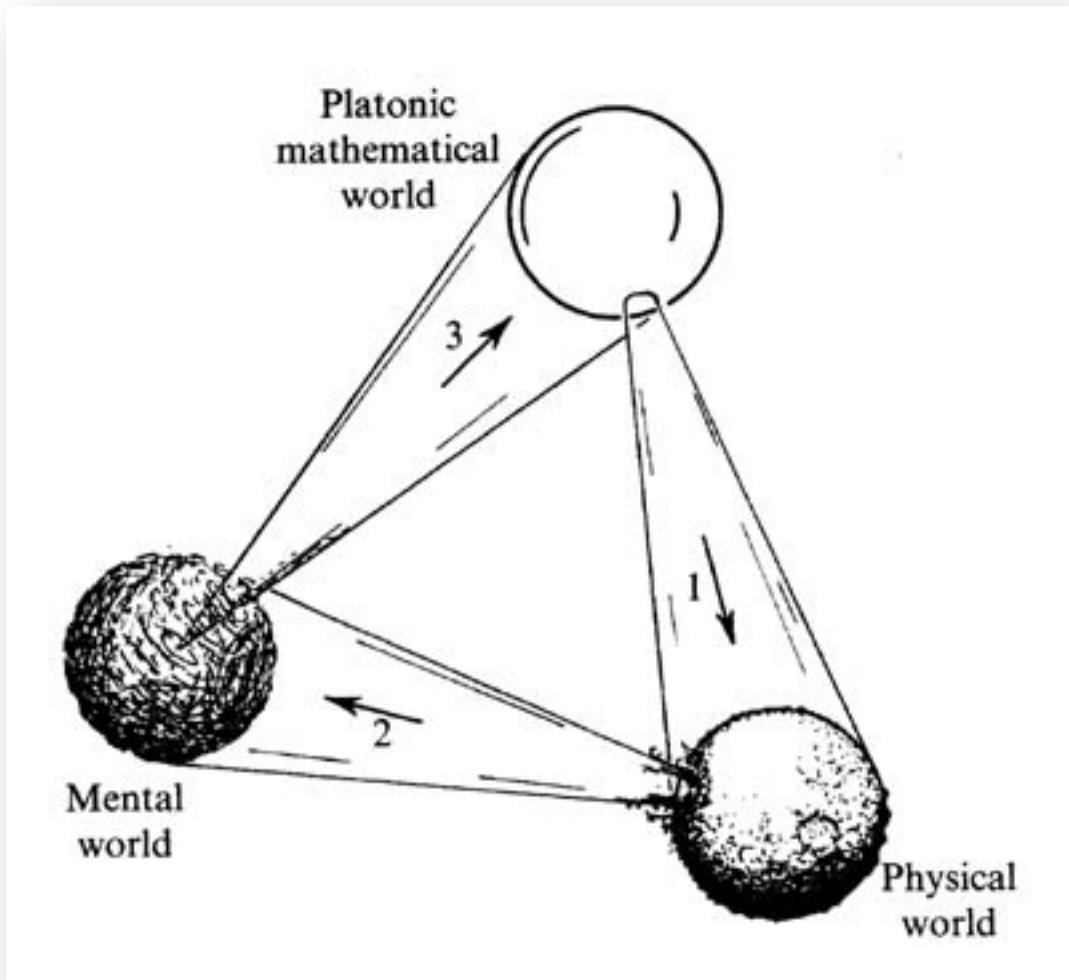


Fig 1. The Three Worlds<sup>18</sup>

TO MY FAMILY AND LOVED ONES;

TO HUMANITY,

IN WHICH I HAVE SUCH GREAT FAITH.

# I

## THE MENTAL WORLD

# THE MENTAL WORLD

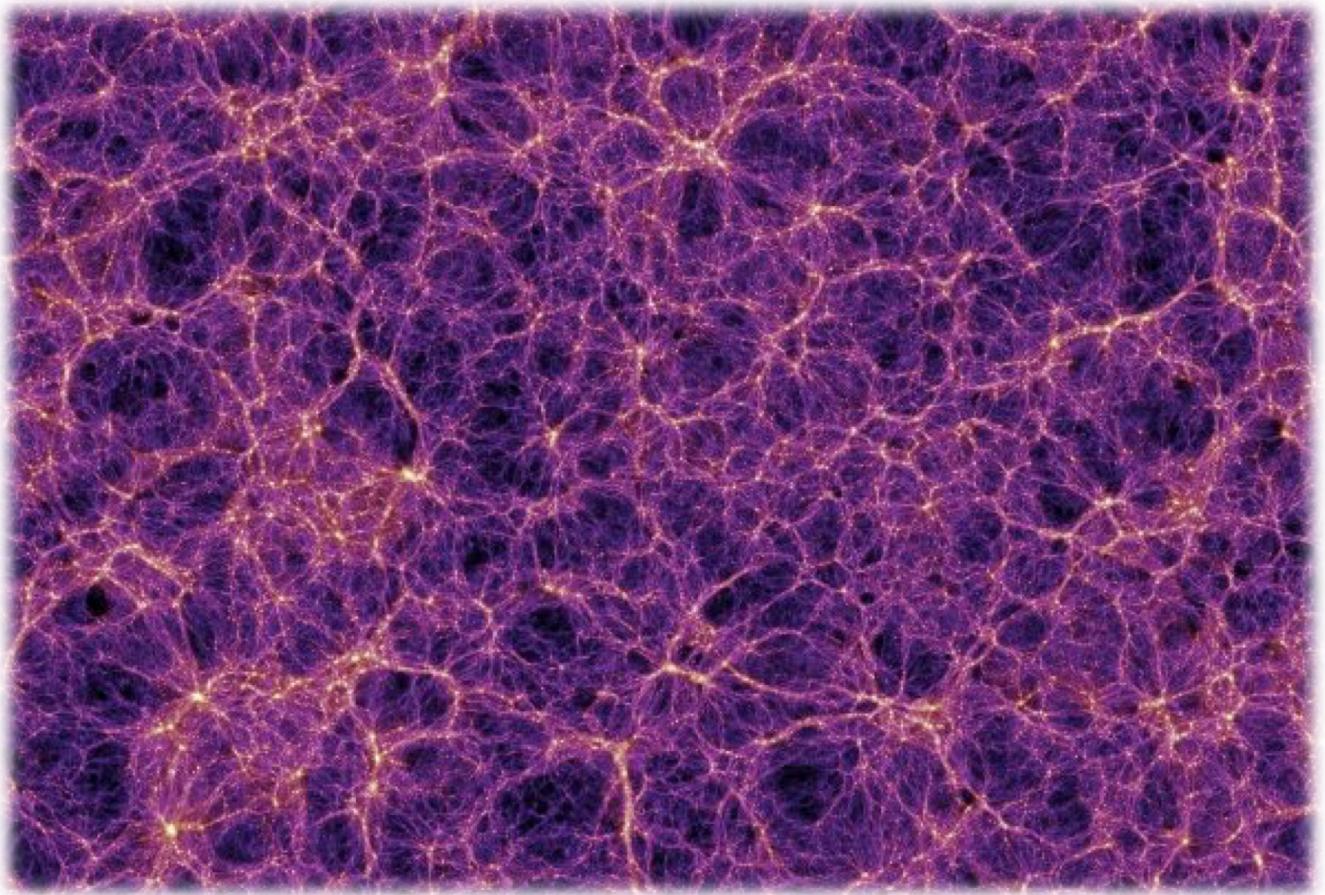
ISAAC NEWTON based *Principia* upon the maxim:

*That which is Below, corresponds to that which is Above,  
and that which is Above corresponds to that which is Below,  
to accomplish the miracles of the One Thing.*<sup>2</sup>

Likewise, we will assume a rough correspondence of principles with the Physical World.

The first two concepts taken from physics are the originally Greek assumptions of *atom* (*ἀτομον*) and *void* (*χάος*), which have now transformed into the physical ideas of mass-energy and space-time. So as these make up the *Cosmos*, we will propose the *mind* to be composed of a fundamental unit called the PSYCHON, which will exist in a void termed the MENTAL SPACE.

This model will focus on the description of these two postulated principles, and how they may be organized as such to describe the human mind.



*Fig 2. The Physical World: Mass-energy and space-time compose the Cosmos. In this diagram, yellow represents matter, while purple represents the yet-understood dark matter.<sup>13</sup>*

# THE MIND FROM THE BRAIN

THE EXACT PHYSICAL STRUCTURE which gives rise to the Mental World is the animal nervous system. Here we will focus on how the human nervous system, primarily the human brain, creates the structure of the human mind.

All of the mind's processes are in principle directly mapped from specific atomic spatial organizations. However, limitations between modern knowledge of neuroscience and psychology prevent this from being currently practically possible.

Certainly, the mind is constructed ultimately by electrical, chemical, and quantum effects in the human organism.

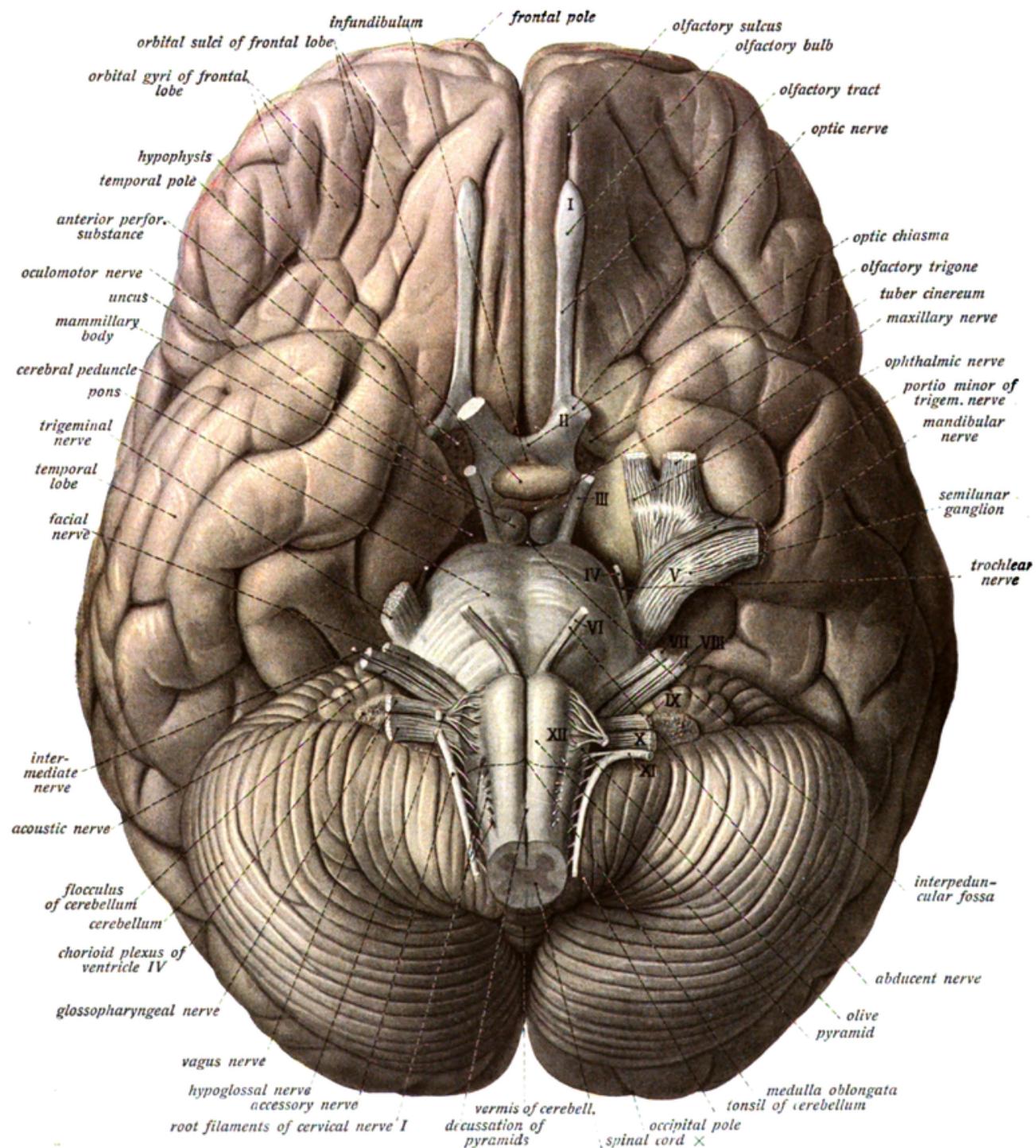


Fig 3. The Human Brain<sup>10</sup>

# THE NEURON

THE FUNCTIONAL UNIT of the brain is the neuron, which via chemical and electrical signals communicates with other neurons to form neuronal circuits. Neurons generally receive chemical signals from their *dendrites* and emit them from their *axons*.

Recent research suggests that quantum computation also occurs in dendritic informational processing, via the unique structure of microtubules, which is analogous to the skeletal structure of the cell. The theory of ORCHESTRATED OBJECTIVE REDUCTION accounts for this, increasing the operations per second of the brain from  $10^{15}$  to  $10^{26}$  and lowering its functional scale from micrometers to nanometers.

# THE PSYCHON

THE FUNCTIONAL UNIT of the mind will be here termed the *psychon*. Similar to the neuron, it is only the interactions of multiple psychons that truly give rise to the mind.

Many properties will be detailed out of necessity for the psychon, but for now it is best to think of it as simple, like an atom, as opposed to the complexity of a cell. We will find that the best metaphor will be like that of a quantum particle and a star; the former for its character and the latter for its ability to form galaxies.

Like a quantum particle we will find it is *non-localized*, and so distributed over mental space, characterized by the tension of this distribution. Like a star it will be subject to an attractive force, similar to gravity, that creates the structure of the mind.

Like *Paracelsus*, the alchemist, we too shall ‘*behold the darksome psyche as a star-strewn night sky ...*’

# PHYSICAL SPACE

THE PHYSICAL WORLD was equally once pressed for an understanding of the *void* that the Greek's sought. In 300 BC, Euclid published his famed *Elements*, which seemed to describe the geometry of the Physical World in full. This geometry behaves essentially how we perceive the world to act; it is phenomenally intuitive.

However, a new geometry, based upon the work of Bernhard Riemann, was discovered by Albert Einstein to be vastly more accurate in the description of the Cosmos. Described in the theory of General Relativity, this geometry is *curved* by mass-energy, and works counterintuitively to every day experience in high mass-energy situations. Einstein also combined the concept of space with the concept of time in this geometry, creating a four-dimensional *space-time*.

# MENTAL SPACE

FOR OUR PURPOSES, the most important aspect of a *space* is its ability to mathematically describe how figures move, especially in relation to each other. This was critically important in the physics described by Isaac Newton, where proximity of position is related to the ability to transfer energy between atoms.

Though modern physics has diverged from the ideas of Euclid and Newton out of necessity, these original ideas certainly remain the most simple and intuitive for an arbitrary space. Were it not for certain experimental data requiring change, these would certainly uphold the ancient principle of:

ENTI PRAETER NECESSITATEM NON SUNT  
MULTIPLICANDA

\*

PRINCIPLES ARE NOT TO BE MULTIPLIED  
BEYOND THE NECESSARY

Thus, unless required in our inquiries, we will assume mental space to be Euclidean in nature. We will also assume it to be *infinite-dimensional*. This requires the least assumptions and is generally inconsequential.

# MENTAL ENERGY

AND SO we have defined *psychons*, which exist in *mental space*, much as atoms existed in Euclidean space before the revolutions of 20th century physics. Then the only mandatory principle needed is some quantity to define the psychons, and for which they are to exchange in mental space, in order for the mind to be dynamic through time.

This will be defined as *mental energy*, or simply *energy*. Like the Physical World we will assume a conservation of energy principle, so that no energy may be created or destroyed in the mature mind, otherwise its value would be diminished. This is not to rule out the possibility of its creation or destruction, but upon first principle we will here assume *as above, so below*.

Largely, psychons can be defined as small packets of mental energy, a precedent we will soon see is upheld in the Physical World.

# PHYSICAL ENERGY

PHYSICAL ENERGY is essentially the only constituent inside the space-time of the Physical World, which acts as excitations on certain quantum fields that compose the Cosmos, these manifesting as vibrations called *particles*.

Physical energy also obeys a conservation principle. However, its most important property is probably its ability to interact with the *Higgs field*, so that dense packets of energy gain the property of *intrinsic mass*. This in turn allows for further complexity in the universe and eventually phenomena such as *abiogenesis* on planets.

Given an amount of physical energy  $E$ , this is equivalent to a mass  $m$  of:

$$m = \frac{E}{c^2}$$

$c$  represents the speed of light in a vacuum. This equivalence of mass and physical energy is the reason for the term *mass-energy*.

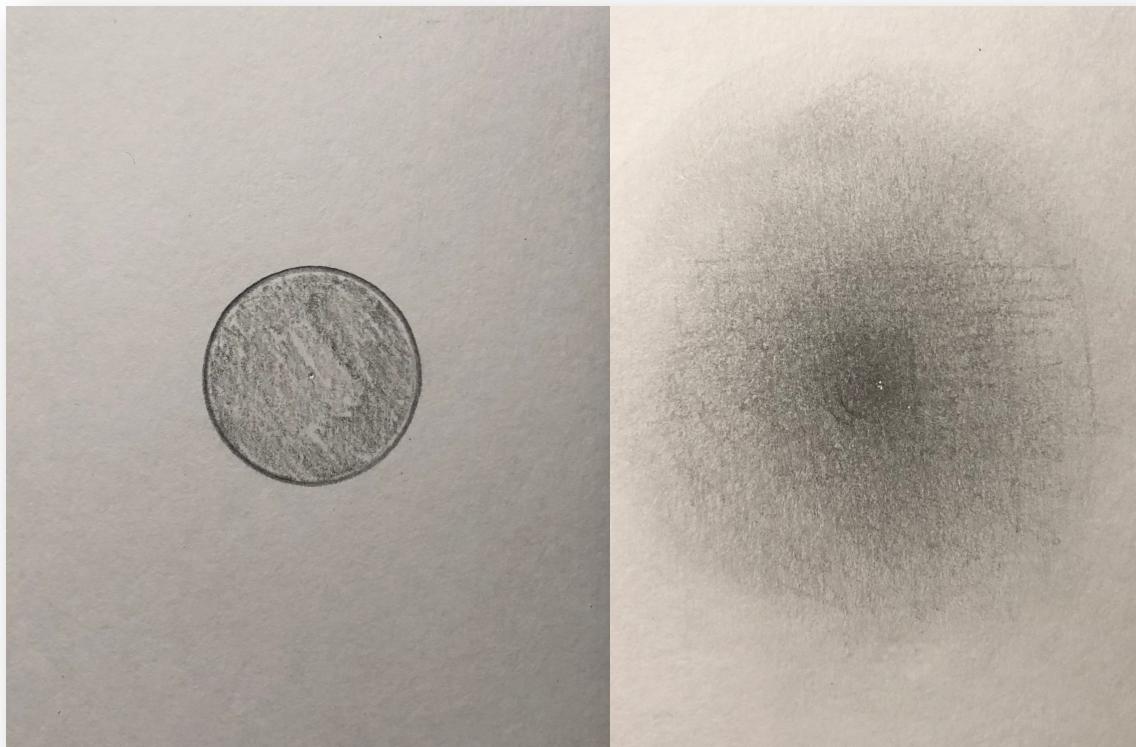
# NATURE OF THE PSYCHON

THERE IS GREAT EVIDENCE for a conceptual bisection of the human mind. There exists a *conscious* and an *unconscious*. This difference is proposed to be due to the energy values of psychons, where in order for a psychon to be conscious it must possess an energy greater than a certain *threshold energy*,  $C$ .

The nature of a psychon is not like that of a ball in space, but rather like a cloud centered around a certain point. This is also essentially how quantum particles behave and is illustrated in *Fig 4*.

Due to the wave nature of the psychons, it is possible a wave equation could be determined, playing a similar role for psychons as the Schrödinger Equation plays for matter-waves. Theoretically, the energy may need a *mental field* to operate on, but this will not be discussed.

No ‘exclusion principle’ will be assumed, so that two psychons *can* occupy the same space and state. This is similar to the behavior of photons and shapes in Euclidean mathematics, and the principle was only required for fermions such as the electron.



*Fig 4. Left: A billiard ball in space, similar to the Newtonian conception of atoms. Right: A psychon in space, which behaves like a cloud and quantum particle.*

# ENERGY TENSION

BELOW THE THRESHOLD ENERGY, unconscious psychons possess an *energy tension*,  $\lambda$ , which is the inverse of the statistical property of *variance*. The tension  $\lambda$  is proportional to the energy  $E$ , with some undetermined tension proportionality constant,  $n$ . Thus:

*If:*

$$E < C$$

*Then:*

$$\lambda = E * n$$

It is possible that  $n$  is different between different individuals. The tension value of a psychon plays a critical role in determining its different behaviors. *Fig 5.* shows both a low energy and tension psychon on the left, and a high energy and tension psychon on the right.



*Fig 5. Left: A low energy psychon has low tension and high variance. Right: A high energy psychon has high tension and low variance.*

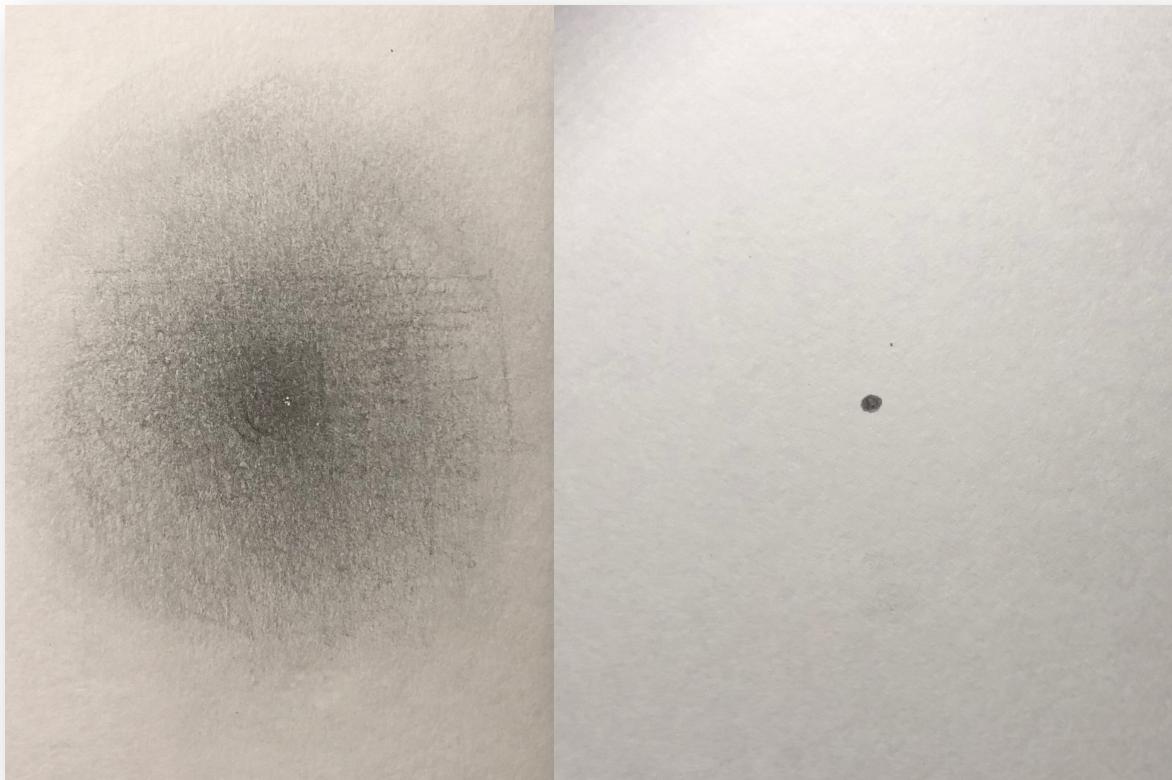
# THRESHOLD ENERGY

HOWEVER, if a psychon possesses energy greater than  $C$ , then it becomes a conscious psychon. Conscious psychons undergo a process equivalent to the wave function collapse of quantum mechanics, where the normal wave nature is replaced by a *Dirac delta*. A Dirac Delta is no longer spread out over space, but rather infinitely precise in all dimensions; thus, it plays a role equivalent to a point or dot. This is also the reason an electron is often described as ‘infinitely small’.

The unconscious psychon described by a wave function is given the symbol  $\zeta$ . The conscious psychon described by a Dirac delta function is given the symbol  $\delta$ .

This is seen in *Fig 6.*, where the left is an unconscious psychon  $\zeta$ , with characteristic tension, and the right is a conscious psychon  $\delta$ , with its characteristic point nature.

However, the threshold energy  $C$  is specific to the individual and is capable of change over time. The inertia resisting this change is characterized by an individual’s *threshold rigidity*,  $\rho$ , which itself may change over the lifetime of the mind.



*Fig 6. Left: Psychon  $\zeta$  with energy less than  $C$ . Right: Psychon  $\delta$  with energy greater than  $C$ .*

# CONSTELLATING FORCE

NOW THAT the energy nature of the psychon has been described, there must be a force by which one may act on another. For conservation of principles and similarity to the Physical World, we will assume this to be an attractive force. This will be termed the *constellating force*, and we will find much utility later in its ability to describe complexes, motifs, and the overall structure of the human mind.

Every psychon attracts every other psychon proportional to their energies. Given one psychon of energy  $E$  and another of energy  $e$ , the constellating force  $F$  will be:

$$F = \Gamma * E * e$$

Here  $\Gamma$  is an arbitrary proportional constant, which may possibly vary over individuals or time. We will find an analogous force exists in the Physical World.

# GRAVITATIONAL FORCE

LIKewise, the general shaping principle of the Cosmos on a large scale is the approximate Newtonian gravitational force. Here it is the product of two masses, perhaps a star  $M$  and planet  $m$ , times a constant  $G$ , divided by the square of the distance,  $r$ , between them.

$$F = \frac{GMm}{r^2}$$

Here  $G$  was determined using astronomical data. Interestingly, the division by  $r^2$  is due to the fact gravity ‘falls off’ over distance, as it spreads out in three dimensions, due to being distributed over the surface area of a three-dimensional sphere, which is  $4\pi r^2$ . The reason for the absence of a ‘falling off’ factor in the constellating force is due to its infinite dimensionality, which surprisingly yields no falling off factor.

As an interesting note, this version of gravity is only an approximation. General relativity has shown it is actually due to a fundamental relationship between mass-energy and space-time.

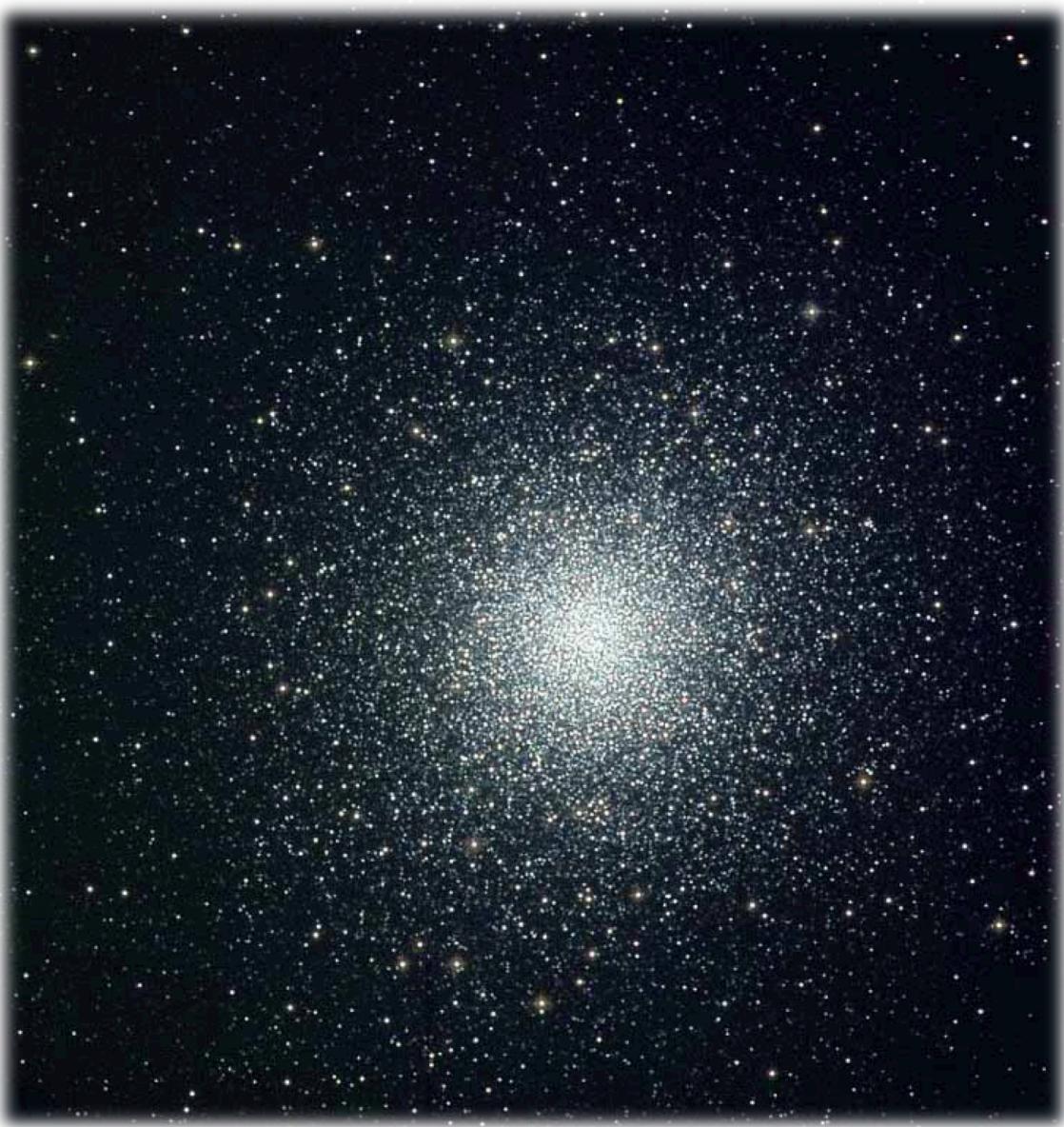
# PSYCHON CLUSTERS

THESE ASSUMPTIONS thus far allow us to suspect certain features of the mental world. The first is *psychon clusters*, or just *clusters*. This occurs when the constellating force between two or more psychons is great enough to keep them in a *bound state*, where psychons orbit each other, instead of just affecting each other's path. This implies a certain *kinetic energy* of psychons, which we will not discuss in detail.

Thus the psychons with the greatest energy will tend to be toward the center of the clusters. This is a pattern seen repeating on all scales of the physical universe, from solar systems to star clusters to galaxies. Here certain celestial objects are bound to others or other groups of objects.

We will see that in the mind these form structures such as motifs, complexes, and the ego. When clusters share psychons, so that psychons are bound to both clusters, they are *related*. This brings to mind the sharing of valence electrons in covalent chemical bonds.

Motifs are clusters that, due to their connectivity and inter-relatedness in the mind, manifest as a category of ideas.



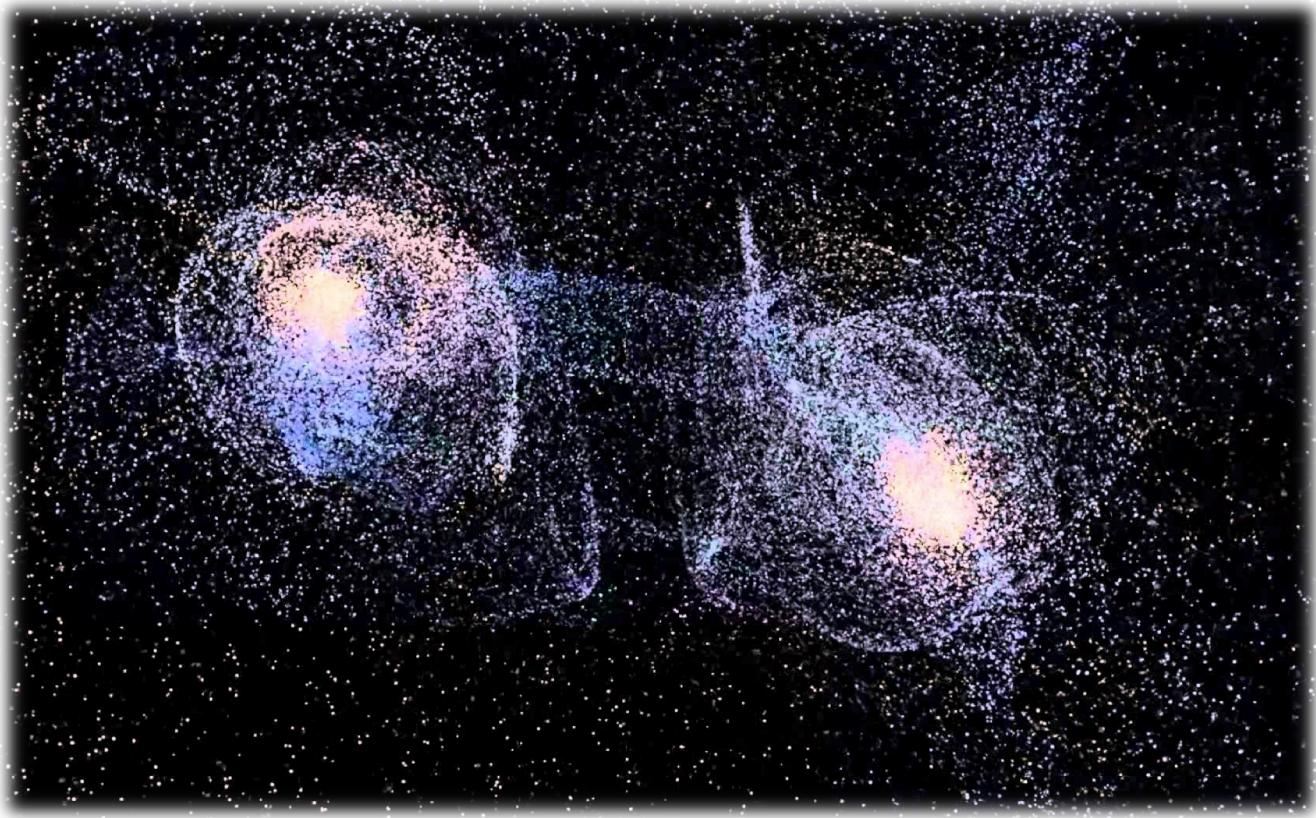
*Fig 7. Messier 92, a star cluster in the Herculean constellation.<sup>12</sup>*

# CLUSTER RECOMBINATION

THESE CLUSTERS allow for dramatic changes in the mind, such as *cluster recombination*, the mental equivalent of a galactic collision, shown in *Fig 8*. Here two clusters are attracted to each other with enough force as to bring them together in mental space, where their component psychons recombine with those of the other cluster.

Though initially destructive and chaotic, this allows for the formation of new and unique clusters, as well as *free psychons* in the mind, which have escaped their bound state.

This process will be taken advantage of in the phenomena of *imagination* and is the large scale method of change in the mental landscape.



*Fig 8. Simulation of two galaxies in mid-collision.*<sup>20</sup>

# ENERGY TRANSFERENCE

THE LAST FUNDAMENTAL ASPCET of the psychon is also one of the currently least well understood. Somehow, psychons transfer energy. This allows for certain psychons to gain consciousness, and others to lose it and enter into the unconscious.

Though this mechanism is not yet understood, it is assumed that, like in the Newtonian Physical World, transfer between two psychons has to do with proximity in mental space.

# THE PSYCHE

THUS OUTLINES the general properties of the Mental World. Psychons have a unique character, and are subject to forces that shape the mind. Now we will begin our specific focus on the anatomically modern human mind, which is termed the *psyche*.

The psyche has an incredibly specific basis in the physical world, as well as generally observed characteristics in the mental world. First and foremost is the general dichotomy of the unconscious vs. the conscious. Furthermore, the unconscious has aspects that are both unique to the individual and those inherited via genetic transmission for specifically human survival. The form is the *personal unconscious* and the latter the *collective unconscious*.

The combination of the conscious and the personal unconscious form the *self*, which is responsible for the total personality of the individual. In general, in terms of representative psychon population, the collective unconscious is vastly largest, the personal unconscious smaller, and the conscious the smallest.

# PHYSIOLOGICAL SENSORY INPUT

THE PSYCHE receives information from the Physical World via certain physiological constructions in its representation in the physical world, the nervous system. Here sensory systems map physical information onto *sensory spaces*, which corresponding cerebral cortices then read.

1. Sight detects edges of light patterns and their movement, as well as color.
2. Hearing detects frequency and intensity of air pressure.
3. The Vestibular and Proprioception System detect the location of the body and its relationship to the environment.
4. Taste detects chemicals on the tongue and Smell detects chemicals in the air.
5. The Somatosensory System detects external and internal pressure, tissue damage and temperature.

Different sensory systems are integrated with each other and obey certain trends. All senses adapt over time to stimuli, enhance contrast, sharpen in precision with use, and are subject to feedback from the cerebral cortex.

# MENTAL SENSORY INPUT

IN THE MIND, these physiological sensory spaces manifest immediately into *sensory ports*. Here a set of psychons, called *sense-perceptions*, are in perpetual rearrangement to match the sensory input.

*Attention*, a mechanism of the conscious, distributes energy to the psychons of the sensory ports in a *sensory attention distribution*.

The psychons that achieve threshold energy affect the conscious, while the large percentage that do not affect only the personal unconscious.

# MENTAL ACTION OUTPUT

SIMILAR TO THE SENSORY PORTS, there exist *action ports* in the psyche. Here a set of psychons called *action psychons* are in perpetual rearrangement to control the somatic motor and autonomic divisions of the nervous system. The action psychons control the physiological response, in contrast to the receptive nature of the sensory ports.

Here too, attention from the conscious provides an *action attention distribution*. Thus the unconscious can affect the physiological output, and indeed does play a large role, specifically in the autonomic division of the nervous system, which controls much of the hormonal and organ activity of the body.

II

PERSONAL  
UNCONSCIOUS

*The soul, as hitherto postulated by the philosophical intellect and equipped with all the necessary faculties, threatened to emerge from its chrysalis as something with unexpected and uninvestigated properties.*<sup>3</sup>

*C. G. Jung*

# THE UNCONSCIOUS

BEFORE THERE WAS THE HUMAN, there was the unconscious. The concept is best understood as the entirety of the psyche that is *not* conscious. The evolution of the *homo sapiens* is possibly best understood as the slow growth of the conscious, either from a seed-like entity or non-existent at all, to the current state.

The conscious acts as a spotlight against the background of the unconscious, illuminating its sea of psychons with the threshold energy necessary for adaptation, as required in the African Savannah.

However, the discoveries of Carl Jung have lead to the distinction of two halves of the unconscious; one consistent throughout the species, differentiating the human mind from that of the chimpanzee, and one personalized to the individual specimen.

# THE PERSONAL UNCONSCIOUS

THE PERSONAL UNCONSCIOUS consists of all unconscious psychons that have been affected by the sense-perceptions or the actions of the conscious. All unconscious psychons that *can* be affected whatsoever are in the personal unconscious.

These effects characterize patterns in the personal unconscious that can influence the conscious. New psychons may be added to the unconscious due to previously conscious psychons falling below threshold energy.

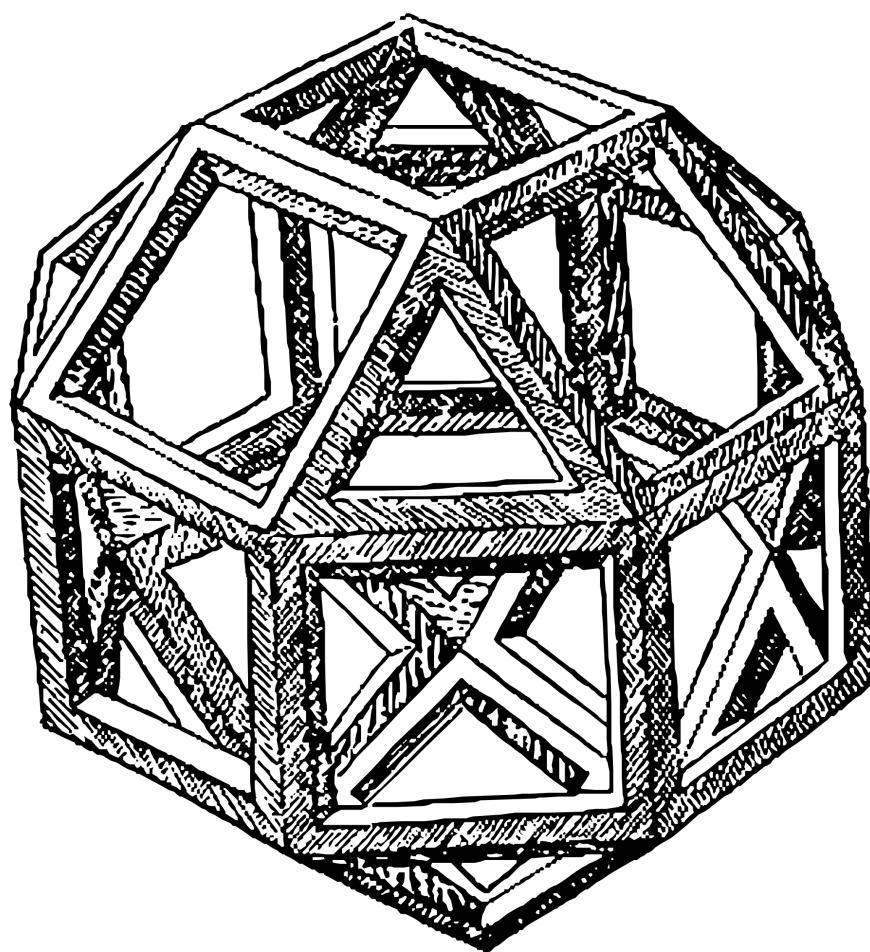
# TYPES OF UNCONSCIOUS PSYCHONS

THREE TYPES OF PSYCHONS are stored in the unconscious. First are psychons that can achieve threshold energy via actions of the conscious, which will be discussed in the next section. These psychons are called *memories*, and this process is called *remembering*.

Second are psychons that cannot achieve threshold energy via conscious action, but may still do so via other processes or sense-perceptions. These are called *inaccessible psychons*.

Thirdly are psychons that cannot achieve threshold energy whatsoever. These are called *incompatible psychons*.

Memory and inaccessible psychons belong to the personal unconscious, while incompatible psychons belong to the collective unconscious.



*Fig 9. Rhombicuboctahedron by Leonardo da Vinci<sup>22</sup>*

# COMPLEXES

THE MAJOR STRUCTURAL CONSTITUTENTS of the personal unconscious are called *complexes*, a certain type of unconscious cluster. One of the more surprising discoveries of 20th century psychology is the *dissociability* of the psyche, the realization that the self consists of many fragments. These constituent parts are complexes, where the highest energy complex is called the *ego*, to be discussed next section.

Complexes form generally from high energy unconscious clusters. This threshold for *complex energy* is termed  $\chi$ . Note that it is the total energy of the cluster that must reach  $\chi$ , not an individual psychon.

If the cluster reaches an energy greater than  $\chi$ , it will undergo four processes: *Sensation*, *Thinking*, *Feeling*, and *Intuition*.

# SENSATION

SENSATION is the ability for complexes to be affected by sense-perceptions. This is due to their high energy providing enough attraction between the sensory ports and the complex for an effect on the complex.

This impact on complexes is called *perception*.

# THINKING

PERCEPTIONS CAUSES VARIOUS CHANGES in the complexes and their related psychons and clusters. These changes are called *thinking* and are subjectively experienced as an interpretation of the perceptions.

These changes are obviously incredibly important, and so their specific mechanisms are an interesting area of future study.

# FEELING

FEELING establishes the value of the perception. There appears to be some mechanism of accepting or rejecting perceptions, likely involving subtleties of a pain-pleasure reaction. This mechanism is not currently well understood in this model, but is well documented in the human experience.

Highly complex combinations of these acceptance-rejection reactions, in addition to their effects from thinking, cause a spectrum of *emotions*. While a continuous spectrum, some parts may be discretely separated. These relatively independent webs of acceptance-rejection reactions throughout the psyche are called *emotional tissue*. When one part of the emotional tissue is affected, it may trigger parts of the entire tissue.

Thus emotions are not an activity of the psyche, but something that affects it.

# INTUITION

INTUITION is the ability for a complex to approximate, based upon its perceptions. Perceptions are relatively precise and may not include all spatial and temporal relationships needed for a cohesive picture of the Physical World. Intuition is used to determine relationships of the perception to the possible past and possible future, as well as estimate unperceived spatial relationships.

It is presumed that the large psychon-makeup of a complex, necessary to achieve complex energy, assists in this approximating function. This processes is particularly useful in highly complicated physical situations where approximation is useful for survival.

In regards to all four of these processes, each individual develops each process differently throughout their mental developmental. This leads to particular differences in individuals that have been called *attitudes*. This is due to differences between thinking and feeling, as well as sensation and intuition (objectivity vs. possibility).

# DREAMING

FOR APPROXIMATELY one-third of the psyche's existence, the conscious is extinguished due to the phenomena of *sleep*. The energy of the conscious psychons is released into the personal unconscious, as they too fall below threshold and become unconscious. Occasionally, some of the psychons regain threshold energy in discontinuous patterns we observe as *dreams*.

Certainly, the processes of dreaming are of extraordinary value to understanding the personal unconscious, as well as its interactions with the collective unconscious, and must be of great focus for the next series of research.



*Fig 10. Dream Caused by the Flight of a Bee Around a Pomegranate  
a Second Before Awakening*<sup>9</sup>

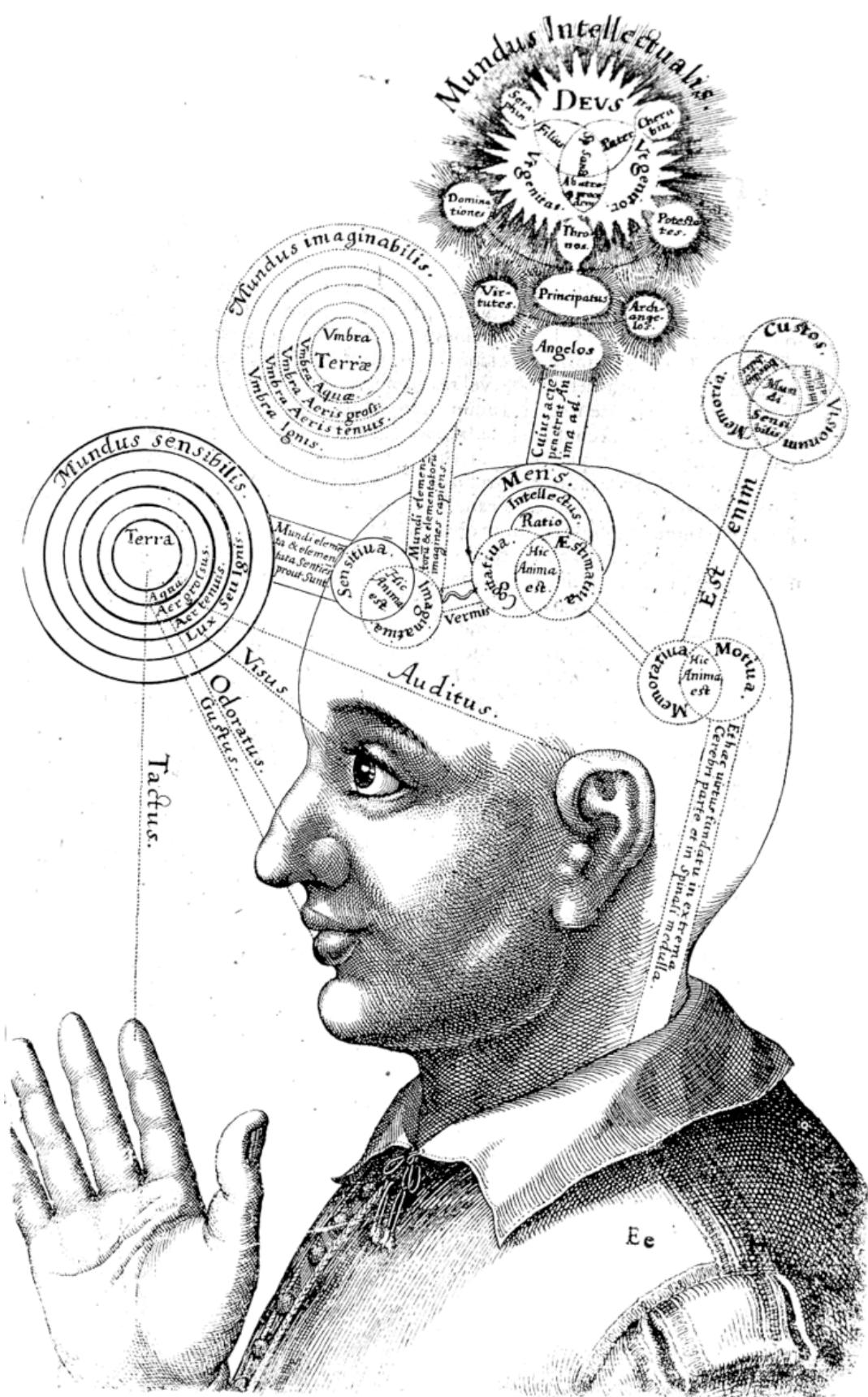
# THRESHOLD TRANSITIONS

UNCONSCIOUS-CONSCIOUS transitions occur when an unconscious psychon gains threshold energy. Due to this higher energy, they break free from their previously bound state and become free psychons. They are then attracted to the most energetic complex in the entire mind, the ego.

Here they become bound, unless they later lose their energy and become free again, where they might attach to the personal unconscious.

III

CONSCIOUS



*Fig 11. Mundus Intellectualis*<sup>14</sup>

# THE CONSCIOUS

THE DESCENT OF THE HUMAN occurred with the inception of the conscious. It is not clear whether animals lack a conscious or the human's is in some way one level greater, but certainly:

*'When for the first time in a living creature  
instinct perceived itself in its own mirror,  
the whole world took a pace forward'*<sup>4</sup>

The conscious consists of all conscious psychons. These are generally continuous, meaning they are all related within one system. There are, however, fragmentary aspects of consciousness which are not related to the greater system; these have, for historical reasons, been called *luminosities*. They will not be treated further here.

A useful measurement of the mind is its *degree of consciousness*, the ratio measure of total psychons in the conscious over those in the personal unconscious.

# THE EGO COMPLEX

THE CONTINUOUS AND GREAT complex of conscious psychons is called the *ego*. In cognitive development, many complexes aim to reach some critical energy threshold, whereupon a runaway effect occurs and the victorious complex becomes the ego. This is reminiscent of the interstellar gas cloud allowing many bodies of accretion, before the victory of the star and the subsequent submission of the planets.

This *ego energy* is termed  $\Omega$ . Except during sleep and certain mental disorders, the ego constantly maintains this threshold energy. In addition, it has the critical ability to establish the *direction of consciousness*, which controls the mind's ability to affect itself and the body.

Like all complexes, the ego is *oriented* to the Physical World via the four processes of sensation, thinking, feeling, and intuition.

# ATTENTION

THE DIRECTION OF CONSCIOUSNESS is used to create the previously discussed action attention distribution. In addition, it creates a *self attention distribution*, by which it is able to affect the process of thinking. Like all attention distributions this is merely additional energy that the conscious may freely distribute across psychons, where here the energy is distributed across the self.

Thus the attention is distributed across three systems: The Self, The Sensory Ports, and the Action Ports. All of this free energy distributed via the direction of consciousness is called the *attention reservoir*, which may differ across individuals and across time. The ratio of attention focused on sensory ports over that focused on the self at any given point in time is termed the *extraversion ratio*.

The energy effects of the self attention distribution affect complexes in the same way as the effects of the sensory attention distribution: via sensation, thinking, feeling, and intuition.

# WILL

THUS THE WILL, which controls the attention distributions via the direction of consciousness, plays a fundamental role in the life of the human. The process by which the will is determined is called *judgment*.

Judgment occurs via the influence of *motivations*, which are influencing forces caused by the personal unconscious. These may be either *instinctual*, *intellectual*, or *conditioned motivations*. Instinctual motivations promote certain physical behaviors, intellectual motivations promote certain intellectual behaviors, and conditioned motivations promote whatever behaviors have been conditioned.

Based upon these motivations, the direction of consciousness is selected.

# MOTIVATIONS

MOTIVATIONS then play the critical role of unconscious influence upon the actions and conscious of the human organism. All three types are patterns of psychons in the personal unconscious. Instinctual and intellectual motivations are caused by the structure of the collective unconscious, while conditioned motivations are caused by the self or sensory input.

While conditioned motivations will not be discussed further here, the source of the instinctual and intellectual motivations will indeed be the central focus of our next section, playing a role in connecting the Mental World to its two compatriots.

# INSTINCT

INSTINCT is the set of motivational patterns that defines how the biological organism physically acts. A wolf howls into the moon, while a baboon commits infanticide. The total instinctual motivations of the personal unconscious acting upon the will at any given point in time is the mind's *instinct*.

These frequently conflict, as across all of the motivations and all three of the motivational types only one direction of consciousness can be chosen.

# INTELLECT

The effects of the intellectual motivations play a slightly different role. They do not aim for certain physical actions, but rather aim for different self attention distributions. They do so by affecting the *intellect*, which in turn affects the will, in some mysterious way.

THE INTELLECT is the part of the mind that directly accesses the Platonic Mathematical World. In Plato's *Allegory of the Cave*, the intellect is the aspect of the mind that may turn from the wall, and gaze into the fundamental reality. The intellect is not the sum of intellectual motivations, but rather its own entity, which they only influence.

The intellect is like a flashlight in a pitch-black *Louvre*. The intellectual motivations move the flashlight around this Platonic Space via an *intellectual distribution*, which makes the light be spread and dim, or narrow and sharp. In this way the intellect perceives *intellectual forms*, which in turn influence the will.

Each individual has a different amount of *intellectual energy*, the reservoir of energy dedicated to this intellectual distribution, and it may change over time.

# SUBJECTIVE CONSCIOUSNESS

WHAT, THEN, is the aspect of the conscious that provides the experience of *subjectivity*, by which we all experience the world? Recent research suggests this is not due to a structure or mechanism in the mind at all, but rather that this subjectivity is a property of physics.

The experimentally tested theory of *Orchestrated Objective Reduction* postulates that consciousness is a physical property of quantum wave function collapse, due to gravitational forces between quantum superpositioned states. This is proposed to be a fundamental aspect of the universe, much like mass.

ANIMA MUNDI

\*

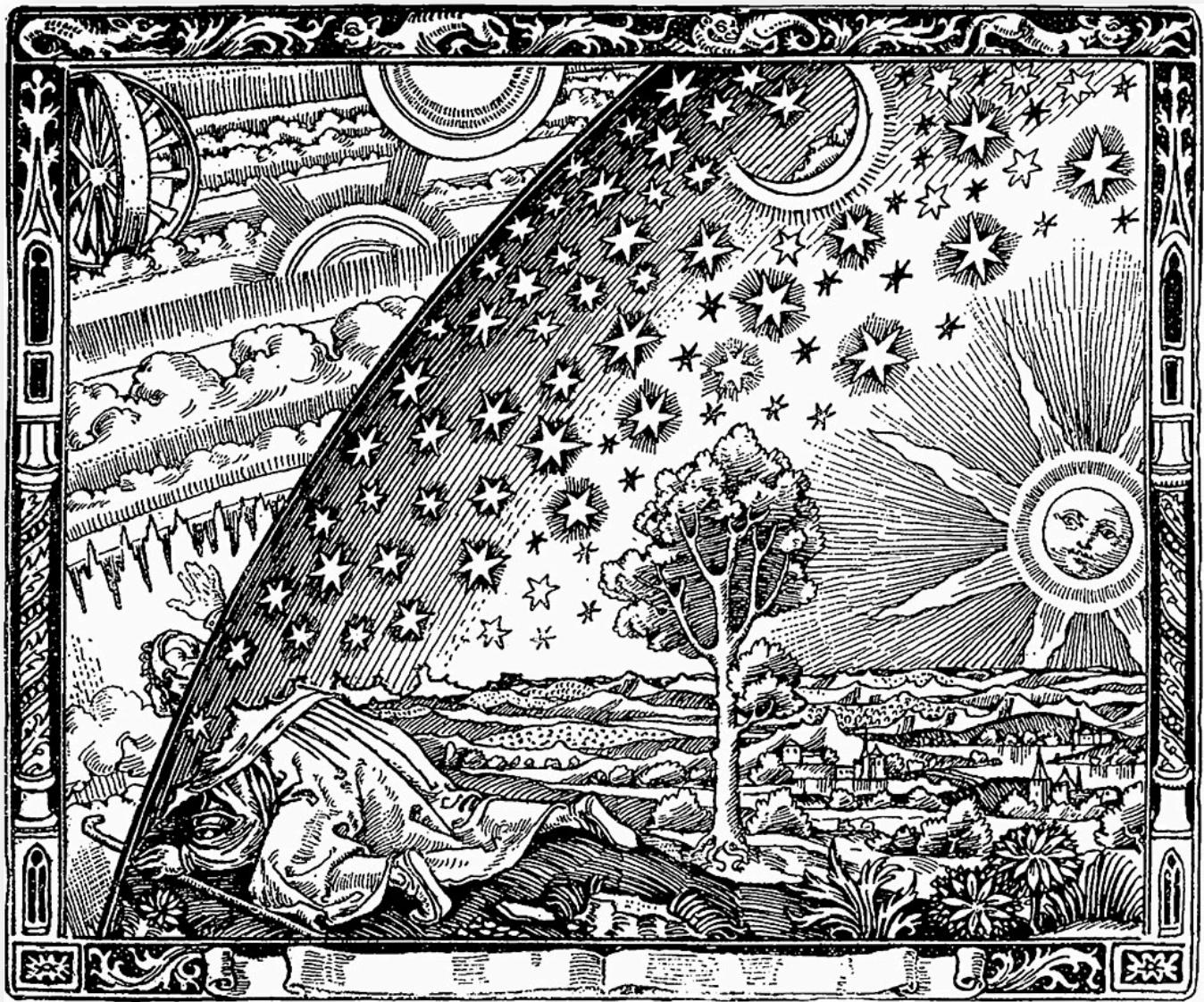
WORLD SOUL

# ORCHESTRATED OBJECTIVE REDUCTION

IT IS HYPOTHEZIZED that using specific mechanisms of the brain, namely topological quantum computation in neuron microtubules, the brain appears to be able to orchestrate these collapses in a way that is valuable for dendritic informational processing.

Roger Penrose, one of the creators of this theory, believes that the nature of these collapses is related to the Platonic Mathematical World, as used in this model. Thus the nature of subjective conscious experience is postulated to have its roots in the Physical World, and be due to the influences of the Platonic Mathematical World.

Many experimental tests done so far have come out in favor of Orchestrated Objective Reduction (*Orch OR*), and the creators have come out and declared the theory should be accepted.



*Fig 12. The Firmament*

# IV

## COLLECTIVE UNCONSCIOUS



*Fig 13. Swiss Town*<sup>16</sup>

# COLLECTIVE UNCONSCIOUS

THE COLLECTIVE UNCONSCIOUS is the final part of the triad psyche, and the only part inherited throughout the species. This is similar to how all humans share vastly similar traits, as compared to a butterfly. The collective unconscious is composed of sets of incompatible psychons organized in a highly specific and complex way due to evolutionary selection. Like the organization of genes, this setup is organized not to be conceptually simple, but to be practically effective.

These sets of incompatible psychons are designed to influence patterns of psychons in the personal unconscious. They come in two types. First are the *instinctual valleys*, which tend to manifest as patterns in the personal unconscious called *instincts*. Second are the *intellectual valleys*, which tend to manifest as patterns called *archetypes*.

These affect the personal unconscious psychons via *regulation* and *amplification*. This produces the overall effect of modification of patterns, but not creation.

# INSTINCTS

INCTINCTS are the patterns that arise in the personal unconscious due to the influences of the instinctual valleys. This modification process is called *psychization*.

Instincts have been critical to the survival of life on Earth for almost four billion years. It has certainly kept humans, and our evolutionary ancestry, alive for time immemorial. However, it may also give rise to destructive forces. Human history is replete with both the successes and the failures of our species due to instincts such as aggression and sexuality.



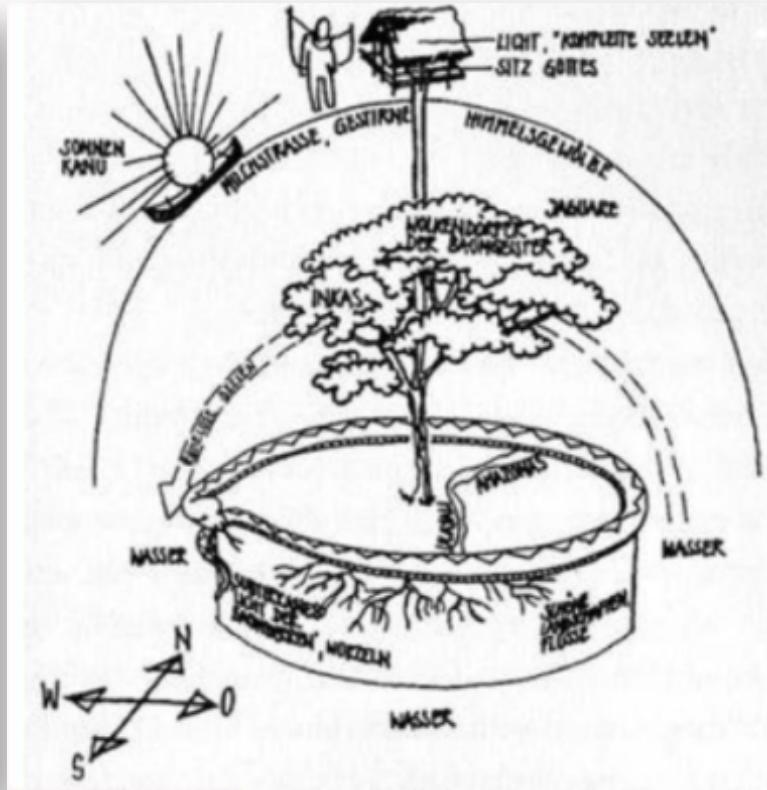
*Fig 14. The Intervention of the Sabine Women*<sup>11</sup>

# ARCHETYPES

ARCHETYPES are the patterns that arise in the personal unconscious due to the influences of the intellectual valleys. They too undergo psychization, and they too may be healing or destructive. Probably due to the immeasurable importance of vision to the primate *homo sapiens*, these have a tendency to manifest as visual symbols.

The archetypes cause intellectual motivations, which has been discussed as a guiding force to the intellect. But that does not make their influence seem less mysterious and difficult to understand. For whatever reason, they have played a powerful role in our survival.

Our knowledge of them comes largely from the fact that, regardless of their purpose, they have shaped our collective mythologies and religions. Though they occur on a personal level, their ubiquity is due to their collective nature. We find mandalas around the world, and trees of life in continentally separated cultures.



*Fig 15. Tree of Life motifs, the left found in Norse cosmology, the right found in Amazonian cosmology.*<sup>8,21</sup>

# INTELLECTUAL FORMS

THE PLATONIC MATHEMATICAL WORLD has played a critical, although background, role in our theory of the Mental World. We have seen that there are forces that are coded by the biology of the Physical World, with the goal of influencing the mind's access to the Platonic Mathematical World, for use in the Mental World. In turn, we humans use our cognitive powers to affect the physical planet.

What exists in this Platonic World, with its possible Platonic Space? Certainly there exists *mathematical truth*, which is necessary for our *ouroboros triad*. But Plato has suggested there also exists *beauty*, which is deeply intertwined with mathematical truth. Given our tendency to associate beauty with mathematics, from music to symmetry, this is not surprising. He has also associated moral goodness with this realm, with the asterisk that it is deeply related to the Mental World. Perhaps this is the world of *ideas* in general.

The Platonic Mathematical World certainly has many secrets yet to be discovered by us. The hope by this author is that upon a better understanding of the Mental World, we may come a little closer to this crowned jewel of reality as well.

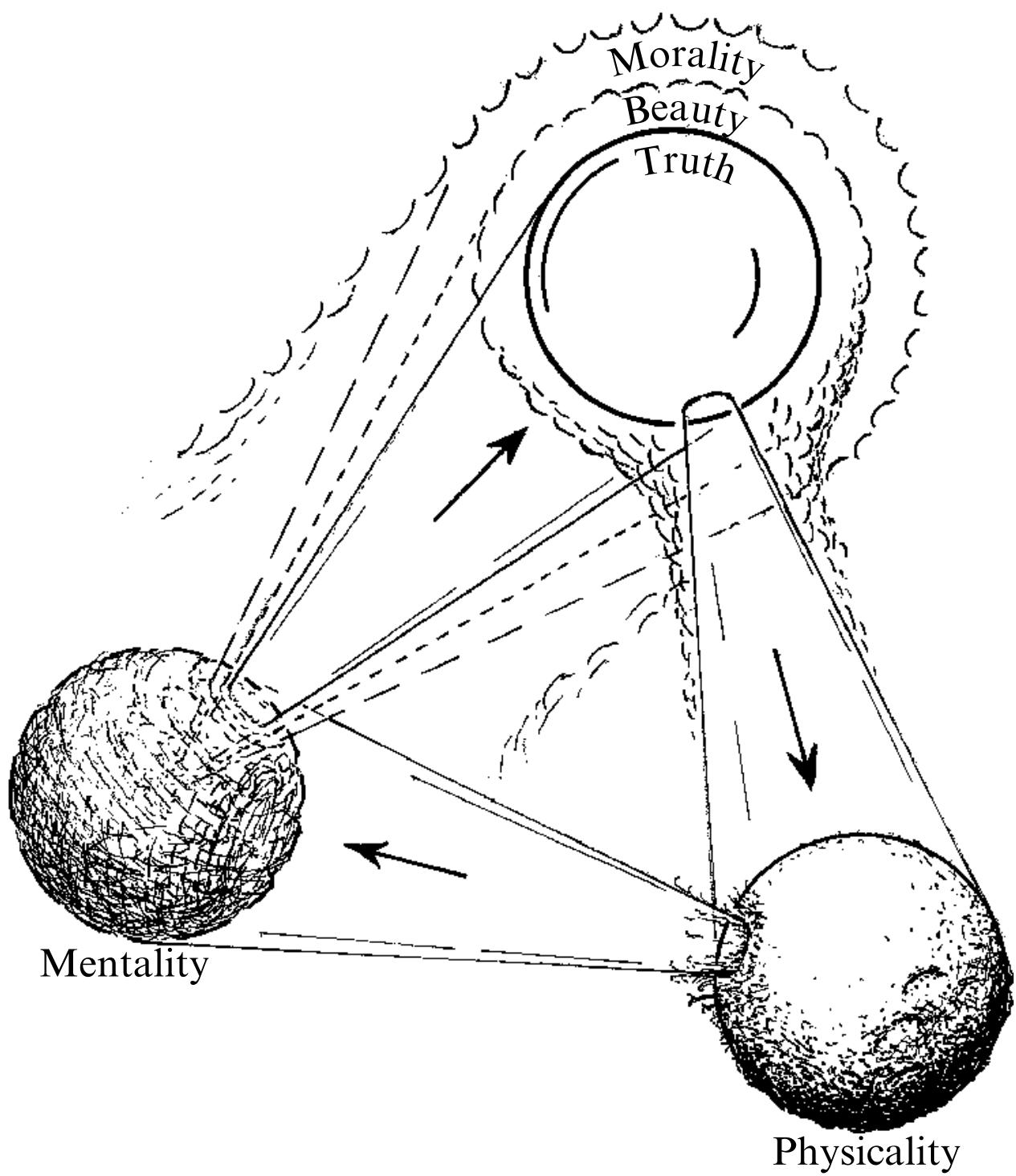


Fig 16. Three Worlds and Three Mysteries<sup>18</sup>

# THE PSYCHE (REVISITED)

We now revisit our titular painting. This is *The Tree of Life*, painted by Carl Jung in his formative years. Along our discussion of the Mental World, perhaps we have noticed that he has not quite painted a tree at all.

We have found that the mind exists in the solid bedrock of the collective unconscious. We have also seen that this gives rise to patterns and symbols in the personal unconscious, which exists atop its foundation. Finally we have seen how these influence the conscious, which is characterized as being generally one continuous and whole ego. Inside, we have discovered the mysterious and fundamentally unique intellect.

Indeed, in a later career-summarizing essay, he remarked that, to use the spectrum of light as metaphor, the personal unconscious can be understood as *red*, the conscious as *blue*, and the collective unconscious *violet*.



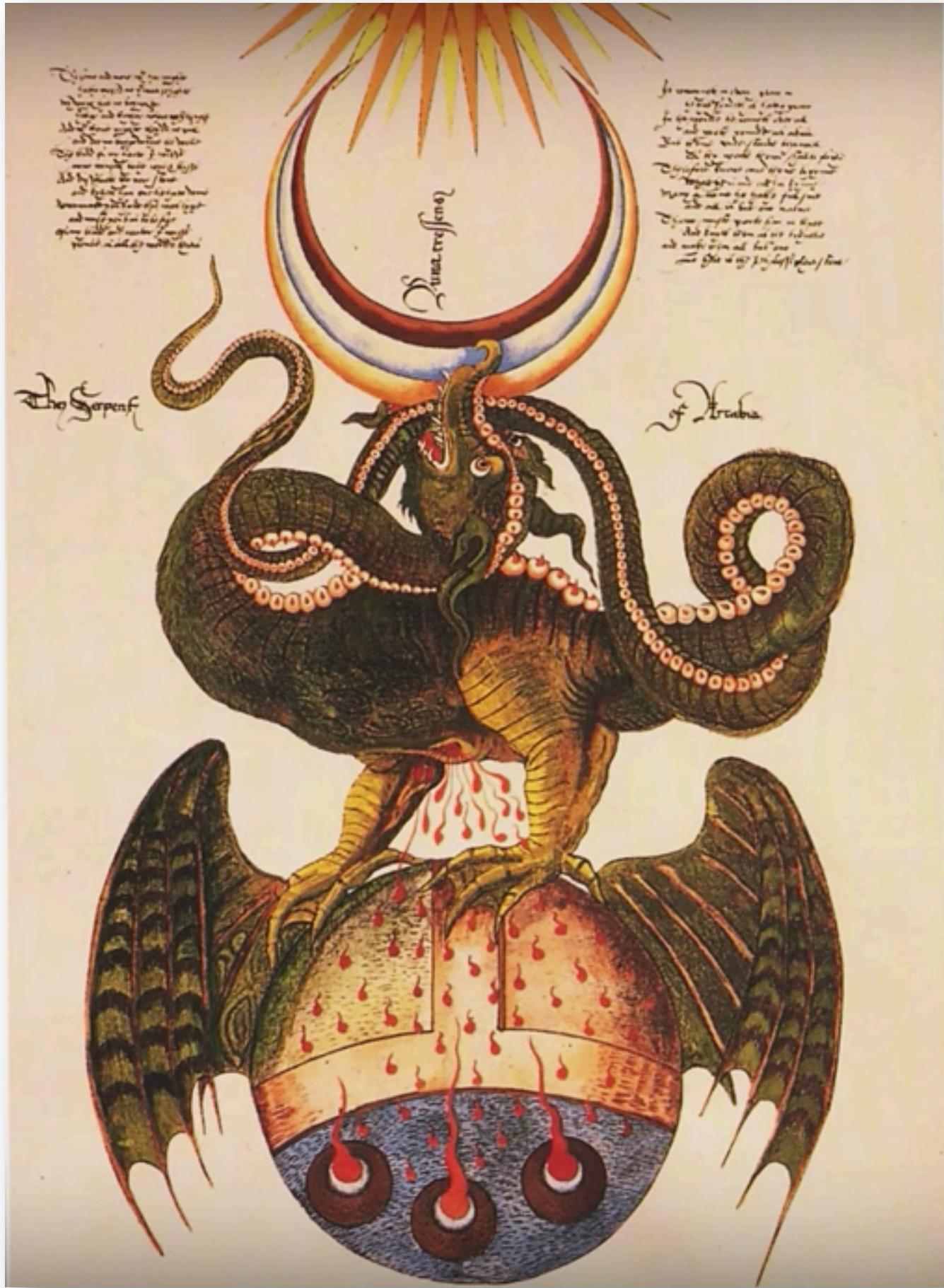
*Fig 17. The Tree of Life*<sup>19</sup>

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# EPILOGUE



# TUNING VIA EVOLUTION

There were many constants in this model. What are they, why are they so, and how can they be determined? These were constants that have been molded by the forces of evolution, because they are based in principle in the structure of the brain. They are exactly those values because they *needed* to be, in order for the ancestors of the human in examination to survive. They are likely different in every person, and due to the dynamic nature of brain structure, are almost certainly liable to future change.

This does bode an interesting parallel to the constants of the Physical World, which by some *anthropic principle* seem to have been necessary for the formation of life.

# DEVELOPMENT

Mature minds do not occur in nature. Instead, they develop over time, in accordance with the biological development of a human. The accretion nature of the ego's formation has been discussed, but many other questions still remain. For instance, where does the intellect come from?

An interesting note can be taken from the ill-advised but useful *recapitulation theory*, where the ontogeny of the developing organism has a tendency to parallel to the phylogeny of its evolutionary history. As such, perhaps an examination of the history of mental evolution may be useful in describing mental development on an individual level.

This model certainly needs both much revision and advancement. The work into the development of the mind will likely aid in refinement of existing concepts, as well as progress towards the new.

# FUTURE ADVANCEMENTS

Throughout the text many other aspects of needed progress are mentioned, but a few should be highlighted.

In reality, memory is perhaps one of the more complex facets of the human mind and, as such, extensive progress is needed. The mental system is likely very similar to the cell assembly nature of physiological memory. Dreams are incredibly complex and have only been touched on briefly. Finally, language and imagination, two of the hallmarks of humanity's mental abilities, have not been detailed at all.

In addition, methods of experimental measurement and testing will be needed, a subject that has haunted psychology and philosophy since their inceptions. Luckily, modern techniques of brain-computer interfacing and the search for general artificial intelligence may be useful in this endeavor.

Finally, in the next volume of this work, many, if not most, concepts need reworking and calibration with existing knowledge. For every aspect, modern neuroscience should be matched to the ideas and the mathematics should be worked out in more detail.

# WHAT IS THIS MODEL?

What is this model? It is certainly not a scientific theory, at least not yet. As it stands it is a model based upon observations in the connection between Platonic philosophy and Jungian psychology, with the attempt to describe this intersection with the principles of mathematics. Many fortuitous metaphors were granted from the physical universe as well.

As such, this model should be regarded as *metaphysics*, with deep roots in psychology, and with the aim of becoming a sort of physics for the mind.

\*

Giordano Bruno, thinking for the first time upon the infinite nature of the Cosmos and realizing the stars to be Suns, lacked proof for his great idea. However, his act of imagination placed a foothold for future generations to grapple hold onto, propelling the sight of our knowledge much further than possible without.

So, too, does this model aim to expand our conceptions for reality, now casting our gaze inward, into the grand mental world which we all possess. So too does this idea lack testing and experimentation; but so too is this idea not afraid of being wrong, or to require change. For in the quest of understanding the existence that the human has found itself in, history's glory finds itself with the brave and the adaptive, the truth-seeking and the exploratory creators.

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\* So much of this work derives from this masterpiece of Carl Jung's. In a later edition, this will have to be attributed more carefully, but its influence and inspiration is replete throughout this full work.

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- [8] Drawing from 'The Cosmos Encoiled: Indian Art of the Peruvian Amazon'
- [9] *Dream Caused by the Flight of a Bee Around a Pomegranate a Second Before Awakening* by Salvador Dali.
- [10] *Human brain viewed from below* by Dr. Johannes Sobotta
- [11] *The Intervention of the Sabine Women* by Jacques-Louis David
- [12] *Messier 92 in the Hercules Constellation* by the Isaac Newton Group of Telescopes
- [13] Image from the *Millennium Simulation* by the Virgo Consortium.
- [14] *Mundus Intellectualis* by Robert Fludd
- [15] *The Observable Universe* by Pablo Carlos Budassi, (Back Cover)
- [16] Unnamed painting from *Red Book* by Carl Jung
- [17] *Red Sea* by George Ripley (alchemist), (After Epilogue Drawing)
- [18] Illustrations from *The Road to Reality*, by Roger Penrose
- [19] *The Tree of Life* by Carl Jung
- [20] Image from *Universe Sandbox 2* (physics-based space simulator)
- [21] *Yggdrasil* by Oluf Olufsen Bagge
- [22] *Rhombicuboctahedron*, by Leonardo da Vinci

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*Behold!*  
*human beings living in a underground den ...*

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